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Deltas Apart

Factor Endowments, Colonial Extraction and Pathways of Agricultural Development in Vietnam

Montserrat López Jerez

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Abstract

This study provides an explanation of the different pathways of agricultural change and economic development in north and south Vietnam. It shows that pre-colonial factor endowments conditioned the development of the rice economies of the two deltas in Tonkin and Cochinchina. The study relates to, and deviates from, the new literature on the colonial origins of contemporary development (Acemoglu, Johnson and Robinson; Engerman and Sokoloff), and proposes an alternative understanding of how historical processes of economic transformation are shaped. The analysis revives the factor endowment approach (Boserup, Myint), re-interprets an old and controversial debate (Moral Economy versus Rational Peasant), and presents a new understanding of extraction in colonial times (based on Milanovic, Lindert and Williamson). The study's theoretical interpretation of scant empirical data suggests that factor endowments conditioned the surplus capacity and shaped the institutional arrangements, which affected the equality of opportunity for the majority of rice farmers.

Key words: Factor Endowments, Equality of Opportunity, Extraction, Agricultural Transformation, Initial Conditions, Rice Economy, Colonialism, Vietnam, Tonkin, Cochinchina

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Factor Endowments, Colonial Extraction and Pathways of Agricultural Development in Vietnam

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School of Economics and Management,
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To Jonas, Nora and Otto
and
In memory of my parents

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In Vietnam for the first time as a 23-year-old working in the commercial section of the Spanish Embassy, I never imagined I would spend so many years doing research on the country. I lived in HCMC for one year, and even then I could feel that the present was not enough. There was a sort of collective eagerness for the promise of a more prosperous future. Or at least that was the impression induced by feeling the asphalt vibrating under the wheels of millions of motorbikes, and accompanied by the incessant honking of impatient drivers – a constant reminder that one should not get too cosy. But the past was not that far. As the only "foreigner" (see white) in my neighbourhood, I was received with a certain blend of curiosity and scepticism, and a small dose of violence. In Mrs Kim, a widow who had previously worked for the Americans and could finally use her English again, I found my little oasis. She offered me great kindness and a daily cup of *cafe sua da* before cycling to work. After a few more years working in my beloved Laos, we landed in Lund. Referring to Andersson and Gunnarsson, I could not foresee then how important the two men behind those surnames would become in my life. Christer Gunnarsson was my first teacher in Lund, and in his always generous and subtle manner somehow got me thinking of applying for a PhD position. That was just the beginning. His relentlessly curious, fair, and critical mind has set a standard of scholarship yet to be matched. His friendship has made it all even more worth it. It is true that great minds think alike, so I was not surprised by Martin Andersson's ability to see the bottom line of things; in an always friendly and kind way, he has persuaded me during all these years to go to the essence and specificity of

arguments. I can say with great pride that I am standing on the shoulders of two giants.

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Without resorting to clichés, it is difficult to have something to say about how writing a thesis has been. I confess I felt a certain degree of worry when I was told that writing a PhD thesis is like running a marathon. I have been a short-distance sportsperson all my life. I was once forced to compete in a 200

meters backstroke race, and I could have sworn that the wall was getting further away from me at every stroke. I think I can best describe my years in the programme as a number of very exciting sprints interspersed with bouts of less enjoyable rigorous training. I am indeed lucky to have such a superb place in which to do these things.

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in presence or memory, have been very important in my life in their different ways. My admired eldest brother, Jesús, has had a strong influence. He has always tried to broaden my horizons, and told me the truths I did not want to hear. He has been a determinant factor, however indirect, in deciding when to put an end to this long journey. Manolo never ceases to surprise me with his generosity and youthfulness. The closest to me has always been my sister Maite; I have always appreciated her rebel spirit. She has challenged me to think outside the box and to live life more. One never knows when it may take a dramatic turn.

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Lund, November 2014

1. Introduction

Colonialism is back on the research agenda. A large number of recent influential contributions trace the roots of current underdevelopment back to early colonial times (Acemoglu, Johnson and Robinson, 2001; Engerman and Sokoloff, 1997, 2002, 2005, 2012). The fundamental explanation is that extractive institutions set up under colonial domination have continued to play a detrimental role for the possibilities of countries to develop after independence.

That present-day development has historical origins is a well-placed point. No doubt, institutions are central to economic and social development, and history provides many examples showing that they have a tendency to be persistent. Nevertheless, several issues remain to be settled before conclusions can be drawn about how colonial institutions interact with long-term development dynamics. The concept of extraction gives rise to many questions. What does it mean and how can it be measured? How does it influence the development process over time? To what extent is it reasonable to infer a causal link to current economic performance from the set-up of institutions often established centuries ago? Finally, and most importantly, how do extractive institutions relate to factor endowments?

Our study attempts to dig deeper into these questions by contrasting the different development dynamics of North and South Vietnam. Despite the fact that the whole of Vietnam was exposed to the same colonial power, the rice economies in the North and South embarked upon distinct development trajectories as a result of their different factor endowments. The current transformation of Vietnam, considered as a 'Miracle Economy', combining a long period of GDP per capita growth along with an extraordinary reduction of poverty and inequalities, still presents a geographical differentiation. This later development cannot be easily explained by the current debate on institutional extraction. This study, while acknowledging the importance of institutions, claims that the factor endowment approach (see i.e. Boserup, 1965; Myint, 1958) can shed more light on the economic processes and paths these economies

have followed. Equally important, the role of local institutions, particularly the village economy, regains central place.

The main line of argument put forward is that differences in factor endowments were decisively conditioning the impact of institutions and the potentialities for, and dynamics of, economic change during colonial times. This approach complements, qualifies, and questions the current factor endowments-colonial impact literature (Acemoglu, Johnson, and Robinson, 2001; Engerman and Sokoloff, 1997, 2002, 2005, 2012), as it allows for two causal mechanisms (economic and institutional) to take place and interact. A first point of divergence from this literature is the establishment of extraction as a function of the capacity of the economy to generate a surplus, and not only as an institutional variable.

In a rural (colonial or not) context, the focus is first and foremost on the possibilities for surplus generation. The surplus capacity is however determined by the interaction of factor proportions, choice of technique, cultivation systems, and organizational effect (Hayami and Ruttan, 1985). Equally central to this argument is that the combination of factor endowments and institutions is a determinant of the distribution of productive resources, i.e. the pattern of inequality, and by extension the prospects for economic growth. Whereas Acemoglu, Johnson, and Robison (2001) claim that political inequalities are the driving force, we focus on economic inequalities. It is through the possibilities (or lack thereof) for access, distribution, and accumulation of productive factors by the different actors, that inequalities influence the development paths of the economies (Adelman, 1986). This is intrinsically linked to the possibilities of a broad cross-section of the agrarian population to increase the productivity of their assets and achieve an agricultural transformation (Timmer, 1988).

The current, and old, colonial literature claims that it was partly due to the extractiveness of colonial powers that the divergence between core and periphery took place. In broad terms, it has been argued that colonial powers extracted the surplus of the colonised economies, and set up institutions that created and self-perpetuated unequal structures. A potential implication of this assertion is that extraction becomes a black box explanation. Extraction appears to be concrete, but it is often intangible, not least if related to institutions and their long-term effect. One of the central themes of this study is to demonstrate that extraction and economic inequalities are not necessarily synonymous.

In order to distinguish between extraction and inequality, the concepts of the Inequality Possibility Frontier and the Extraction Ratio (Milanovic et al, 2007) will be applied and calculated. The novelty of this approach is that

extraction becomes a function of the surplus potential of the economy and of the distribution of income, which makes inequality a relative and contextual measurement that links both economic and institutional drivers.

At an empirical level, this study challenges the view that Cochinchina (South) was more extractive than Tonkin in the North, as argued by James Scott (1976) and the so-called moral economists in general. We claim that living conditions in the South were relatively better because extraction was lower despite the fact that inequalities in land distribution were greater in absolute terms. This was mainly due to the greater potential for commercialization and stratification as the land frontier expanded, whereas in Tonkin, the population was driven towards subsistence. In Cochinchina, and particularly the Mekong River Delta, a rice exporting economy was established by way of extension of the land frontier and migration (Myint's Vent-for-Surplus). The Red River Delta in the North experienced significant land fragmentation and high population pressure. The outcome was a very land intensive cultivation system at the expense of labour productivity, given traditional technology. This resembled a situation known as a High Level Equilibrium Trap (Elvin, 1973).

Our approach to the understanding of the two economies over time challenges the modern explanation of 'underdevelopment' based on path dependence derived from factor endowments and extractive colonial institutions (Acemoglu, Johnson, and Robinson, 2001); that is, once colonial powers established or reinforced extractive institutions, there was institutional persistence. We argue here that the historical processes, which explain the pre-conditions of the 1980s in the North and the current difficulties in fully transforming its agriculture, are path dependent, though not induced by colonial extractive institutions but by factor proportions. The South is more complex, since the outcomes of colonialism in terms of inequalities in land distribution cannot explain the more inclusive and dynamic transformation from the 1980s onwards. Paradoxically, opportunities for surplus generation by the farming population at large were greater than in the North. This requires further discussion on the importance of possible reversals.

1.1 Case: The Two Deltas

The study of Vietnam is one of both devotion and neglect. It has indeed attracted much scholarly attention to different landmarks of its history, especially the last century. Notwithstanding, there has not yet been an attempt to analyse its development by using a framework that attempts to link its colonial past to current economic performance (a more thorough discussion on the existing literature is presented at the end of this chapter).

Vietnam has been considered a "miracle" economy with GDP growth rates averaging 7 per cent since 1990, which has been achieved without major increases in income inequality. Quite the contrary, it is an exemplary case of poverty reduction. In 1993, 60 per cent of the population lived under the 1 dollar per day poverty line. By 2006, the rate had been reduced to 16 per cent (World Bank Vietnam Data). This has been achieved despite its colonial legacy, the country's division and two major wars (the two Indochina Wars[1]), and the relative isolation under a communist regime. Any of these events would normally be considered as fundamental factors precluding sustained development.

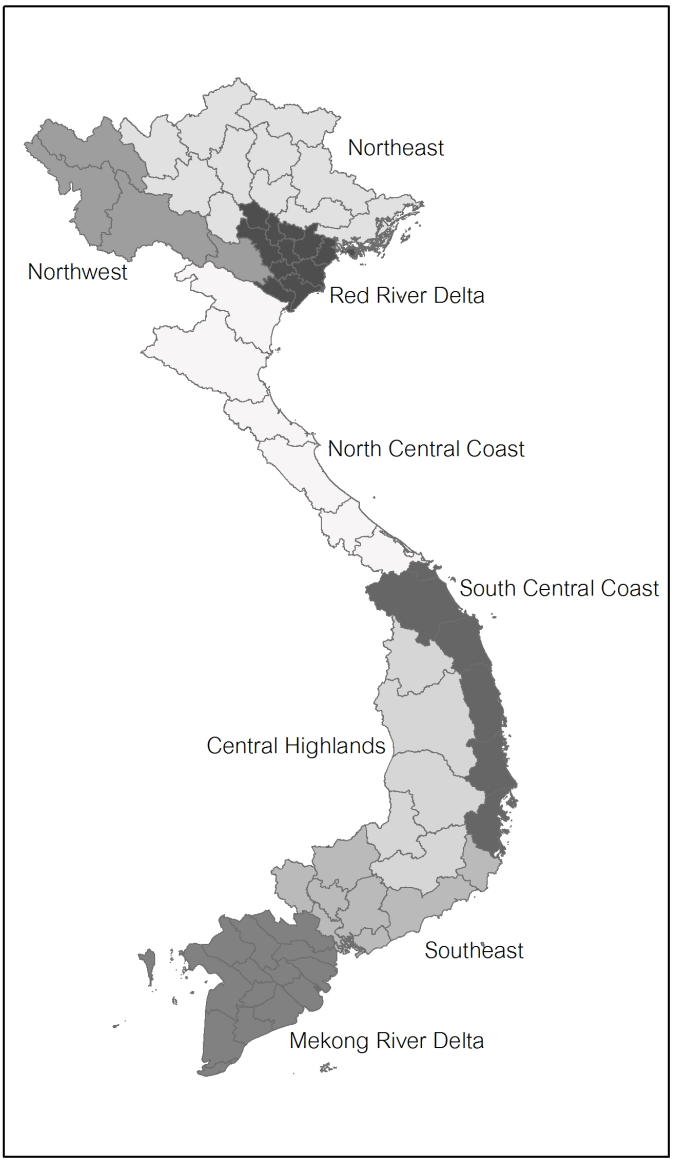
In order to explain this successful transformation, the current literature normally focuses on Doi Moi; a major institutional change that meant progressive liberation and commercialization of the economy starting in 1986. This major reform added to ongoing economic reforms of Vietnam's agriculture that had already started in 1980. In the aftermath of the Second Indochinese War, yields had stagnated, and rice and other basic produce had to be imported. Decollectivising agriculture by freeing input and output markets, and shifting decision making on crop management and resource allocation towards farming households are considered as factors conducive to the change (Pingali & Xuan, 1992; Young et al, 2002). The result was that paddy yields increased annually by 3.23 per cent from 1981 to 1987, and by 2.80 per cent from 1988 to 1995 (Young et al, 2002). Several reforms added to the ongoing transformation; for instance the successive land reforms of 1988 and 1992 aimed at providing land

[1] The First Indochina War took place between 1945 and 1954. It started with the Ausgust Revolution, when the Viet Minh forces defeated the Japanese. The war against the French ceased with the Geneva Agreements signed in 1954. The Second Indochina War is commonly known as the "Vietnam War", and ceased in 1975 with Reunification of the two countries.

titles to the farmers and regulating the rights associated with those titles (Ravallion and van de Walle, 2008). The reform (providing 11 million titles) is considered as one of the most ambitious ever, but it has been lengthy and with significant disputes. While there was no great difference between North and South in the execution of the process, there were important within-region differences. There were provinces in the South (e.g. An Giang, a frontier province), where absentee landlordism was the norm during colonial times. This made the process slower and more cumbersome, though it did not haul it in. In sum, these major initial reforms were aimed at 'getting agriculture moving' (Mellor and Adams, 1986; Timmer, 2009).

Rice again became a major driver of the economy, as it had been during colonial times. Vietnam rapidly turned out to be the second largest world rice exporter after Thailand. In 2000 rice occupied 7.6 million ha and 94 per cent of the total grain output, to which the South contributed 45 per cent of the area and 50 per cent of the output (Young et al, 2002). The South contributed to 80 per cent of the total rice exports (Nguyen and Tran, 2008).

Rice is the main staple and is cultivated throughout the country, but the main production is localized in the two rice bowls: the Mekong River Delta (MRD) in the South and the Red River Delta (RRD) in the North (see map 1.1). Young et al (2002) carried out a comparative study of the two rice deltas, and found that, in 1989/1990, the average yield was slightly higher in the Mekong River (4.5 to 4.1), whereas rice-cropping intensity was higher in the Red River (1.59 to 1.47). Despite these similarities, rice production per household (kg/year) was 4.4 times higher in the South, and the amount sold was 27 times larger than in the North. This was just the beginning of an increasing outperformance of the Mekong, in yields, land intensification, and labour productivity, compared to the Red River Delta. A household in the latter barely sold 162 kg of rice compared to 7,555 kg in the Mekong in 1992.



Map 1.1 Map of Vietnam (by regions)

McCaig et al (2009) find a significant difference in the rates of growth in cropping income. They conclude: "Over the entire period, income from the cropping sector grew almost twice as fast in the rural south as in the north. This gap may help to explain why economic growth did not have a more favourable impact on inequality levels in the north" (McCaig et al, 2009, p. 26).

It is commonly argued that the South was able to take better advantage of the domestic and international market liberalization for rice and other agricultural commodities (Benjamin and Brandt, 2004). While it is undeniable that the economic performance of the South was remarkable, both in its capacity to increase income levels and reduce poverty and rural inequality, there are two fundamental questions that remain unanswered: i) what was causing or impeding the transformation in rural North Vietnam? And ii) what made the Southern farmer more "able" to take advantage of the domestic and international markets? These same questions could be asked for the 1920s. Why was the Southern (Cochinchinese) rice farmer more able to take advantage of the commercialization opportunities brought by French colonialism than the Northern (Tonkinese) farmer?

For the modern phenomenon, a large number of authors, especially the reference work of Pingali and Xuan (1992), are tracing decollectivization of farming as one of the fundamental causes of Vietnam's re-emergence in world rice markets in 1989. As already indicated, this phenomenon was driven by the South; it was the Mekong River Delta, once again, that drove the export boom. But collectivization had barely affected 6 per cent of the farmers there (Pingali and Xuan, 1992). From a theoretical point of view, it might be problematic to attribute causality to a non-significant phenomenon, unless one is to argue for a counterfactual according to which it was the non-collectivization, along with the opening up of the economy and the liberalization of markets (releasing artificial distortions in prices; eventually lifting rice exports quotas, etc), that facilitated the change. This however meant that there were pre-existing conditions that would have been in place prior to the reforms or even to reunification in 1975. Nonetheless, this might initially be considered counterintuitive as the common and widespread perception of South Vietnam was as a land of large landholdings, absentee landlordism, rubber plantation economy, etc. (Wiegersma, 1988). This is not easily reconcilable with the claim that the Southern Vietnamese were "more able" to take advantage of the new market opportunities.

For the North, one may argue that the long and extensive collectivization might have been a barrier via different mechanisms. This brings up another line

of explanation that highlights the role of land reforms and land distribution. The overarching principle for redistribution was maximizing equity. With that ambition, different shares were assigned taking into consideration the number of children and workforce in the household (Hayami, 2001). Marsh and MacCaulay (2006, p. 6) argued that "the disadvantages of excessive fragmentation of land that resulted from 'equitable' allocation of land are recognized". To this, one may respond that the fundamental cause was not the allocation per se; that is, the fragmentation of land was not a result of the distribution. Land fragmentation, as this study will show, was a long-term phenomenon, which preceded colonial times; whereas one could argue that the modern land reforms were not sufficient to break that pattern, they could not have been the fundamental cause. This fragmentation of land had its origin in the population pressure that the North of Vietnam and some parts of central Vietnam are still subjected to. While this fragmentation may be seen as leading to significant inefficiencies and suboptimal conditions vis-à-vis a consolidation of land, it has an economic rational given the prevailing factor endowments.

For the South, there is one line of argumentation contending that it was the post-colonial land reforms (1958 and 1971) that levelled out land inequalities (Ngo, 1974). Another line claims that these reforms are insufficient as an explanation because they came too late and were unevenly carried out (Wiegersma, 1988). There is not enough evidence to be conclusive, but it is a relevant question, since the 1988 land reform recognized the land rights of those cultivating the land prior to 1975. These aspects will be more thoroughly dealt with in chapter 6.

Hence, as geographical variables continued to play a role in explaining the differences in economic performance after a nation-wide institutional reform, the explanations so far remain incomplete. Heltberg (2002, p. 14) highlights "…the historical division and separate economic systems of North and South Vietnam" as an explanation. However, he does not develop the argument further. Our study aims at using those aspects, and their colonial roots, as a potential explanation for the different dynamics between North and South today.

Summing up, this study puts forward the argument that an explanation for the distinct initial conditions of North and South at the onset of Doi Moi can be traced back to the different factor endowments of Tonkin and Cochinchina existing at the onset of French colonization. This claim is sustained by the interplay of institutional and economic factors derived from such endowments. Our proposed approach stems from the new colonial debate (Acemoglu,

Johnson, and Robinson, and Engerman and Sokoloff), reintroduces the factor endowment approach (Boserup, 1965; Elvin, 1973; Myint, 1958), and re-interprets an old and controversial debate (the Moral Economy versus Rational Peasant). An overall implication in relation to the literature in general is that the colonial extractive institutions and path dependence might not be sufficient to understand the long-term development, while the literature focusing on Doi Moi cannot explain the differences in performance between the two economies. This study proposes a new understanding of the role of factor endowments in conditioning the extraction during colonial times and the formation of inequalities. It also proposes how, through economic and institutional mechanisms, we may understand the historical processes that conditioned the equality, or lack, of opportunity for a broad cross-section of the population (i.e. rice farmers) á la Adelman. The implication is that we need an alternative analytical framework.

1.2 Revisiting the Colonial Debate

The current colonial debate has two main points of reference: the works of Engerman and Sokoloff (1997, 2002, 2005, 2012) (in following referred to as E&S) and the 'Reversal of Fortune' thesis of Acemoglu, Johnson and Robison (2001) (abbreviated as AJR). In the case of the latter, their influence can be identified in numerous out-spurts, for instance: i) in their own work, which is most visible in the book (*Why Nations Fail*, 2012, chapters nine and ten); ii) in testing their theory (Dell, 2010; Bruhn and Gallego, 2012).

AJR themselves are influenced by Engerman and Sokoloff (the work of the latter will be more thoroughly discussed in chapter 7). They share a common theoretical ground; i.e. the role of factor endowments as a fundamental determinant of equality/inequality. This, in turn, determines good/bad institutions and current development/underdevelopment. Engerman and Sokoloff argue that the main reason for the different development paths of North and South America lies in the greater breadth of access to opportunities for socio-economic advancement in the case of the former.

There is, however, one important difference. AJR claim that countries that were to be colonised had different population densities, which they take as a proxy for income per capita. This is of course a fundamental distinction. Engerman and Sokoloff consider that the abundant land to man ratios that the

colonisers 'found' in the Americas led to the establishing of institutions to restrict labour (*encomienda* system) and import labour (slavery). These, along with climate conditions that facilitated economies of scale, resulted in the formation of plantation economies. AJR show that these colonial institutions were established via the European settlement. In other words, these institutions were somehow brought by the Europeans themselves. They were established on the basis of an economically rational choice of extraction in areas of high population densities (aka relatively richer). From that point onwards, there has been institutional persistence. See figure below for a schematic representation of the two theories.

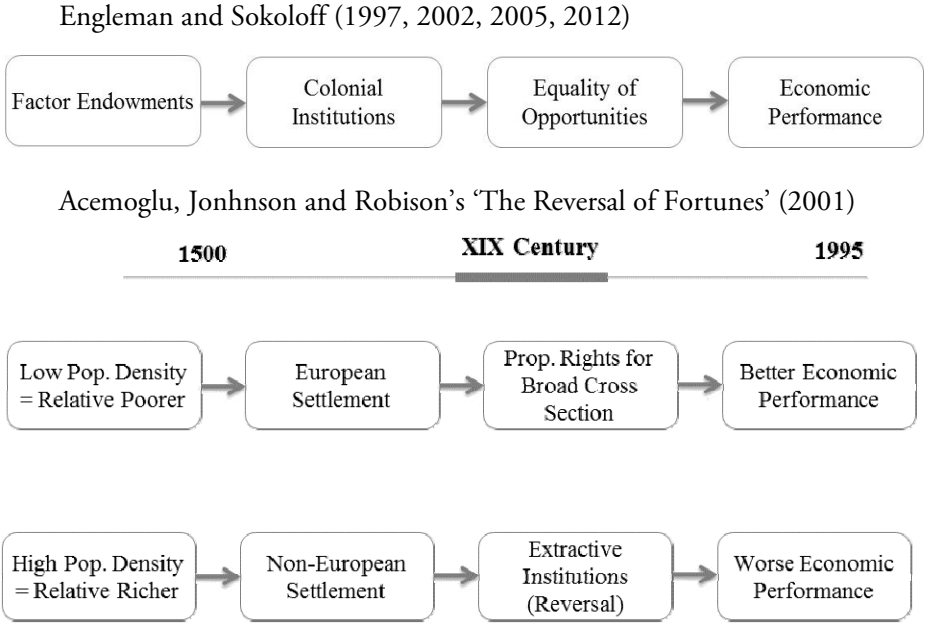


Figure 1.1 Schematic Representations of Theories

Source: Author

In this debate the understanding of the impact of colonialism on current performance is intrinsically linked to the formation and evolution of inequalities, and the institutional effects on the countries' development paths. E&S contend that this goes via the opportunities to access education, health

care, suffrage, and economic activities where disadvantaged groups are restricted. AJR, on the other hand, define extractive institutions by juxtaposing them with the good ones, which are secured and persistent property rights for a broad cross section of the population (á la Douglass North).

When discussing the implications of these theories for the colonisation of Africa and Asia, one should be aware that they are based, especially E&S, on the experience of the Americas. For instance, the case of Tonkin, which had been settled for millennia; at the time of colonialization there were conditions that probably constrained the opportunities and choices of the French administration. We should also consider that the colonialism of the nineteenth century was not the same in character, institutions, and objectives as the previous conquest of the Americas. For instance, the land frontier of Cochinchina could not be put under cultivation via slave labour. This does not mean, however, that there could not have been extractive processes during the subsequent period of colonialism, but they would have been more nuanced; this requires further and detailed study. Understanding the presence, extent and origins of extractive institutions requires more analysis than has been offered by either E&S or AJR. Nevertheless, considering the premises of the cases: Tonkin, with one of the highest population densities in the world, and Cochinchina, a recently settled area of the Annamite Empire (known as Nam Ky) with an open land frontier, make AJR's Reversal of Fortune thesis a good starting point for discussion.

1.3 The Historical Fortunes of Vietnam: a Reversal?

Before we proceed, it is important to note that, in AJR's theory, all countries (including Vietnam) are analysed based on their 1500 values, and not adjusted for date of colonisation. Not surprisingly, given the 1500 data point, Vietnam (as we know it today) did not exist and it refers mainly to Tonkin and the northern part of Annam. At this time in history there was a secession from the Trinh Dynasty, and fights over territory and sovereignty occurred within the Nguyen Dynasty from Hue. Tonkin is believed to have been already densely populated (which also partly explains the settlement in what would become Annam during colonial times). Cochinchina, on the other hand, was barely settled. The northern areas were part of the Chams, and there was some settlement by the Mekong River by the Khmers. The expansion of the

Vietnamese to the southern part did not take place until the eighteenth century (Fall, 1966; Li, 1998). There is no evidence to refute the fact that in 1500 these two regions would have been prototypical for AJR's theory. This said, the objective here is not to validate or reject the theory, but to find an understanding of the mechanisms at play.

In the AJR framework, Vietnam, as a country, ends up in the extractive institutions group. But if we were to treat Vietnam as two analytically independent cases, what would the theory predict? The expectations are that in Tonkin, a more densely populated area (aka a relatively richer region in the AJR framework), the French would have established or reinforced extractive institutions leading to a reversal of incomes and institutions. For Cochinchina, the theory may predict that the French should have settled and established growth-conducing institutions (secure property rights for the majority). Indeed, the evidence suggests a more dynamic South, but there were no substantial differences in European settlement; actually, there were more French in the North than in the South (Robequain, 1944). Thus, if settlement does not take place, how can we predict the types of institutions that are to be established? In AJR's framework, the lack of settlement may be explained by the relationship between settler mortality and tropical diseases. But that would have meant that the French should have established institutions to regulate labour, which is E&S's argument. This did not happen either. Colonialism created the conditions for commercialization and land expansion by utilizing abundant land resources (Brocheux and Hémery, 2011; Hayami, 1994).

If we were to interpret settlement in much broader terms, and allow for other non-European settlement to drive the extension of the frontier, what would the expectations be under those conditions? In order to answer that question, we ought to understand the mechanisms that AJR attribute to the role of settlement, especially in relation to the frontier, and the determinant role of population densities. AJR start with population densities as the driving factor. They claim that population densities might be used as a proxy for income per capita in pre-modern times, because that might be interpreted as the capacity of that economy (aka agriculture) to sustain a large population. Although this claim makes perfect sense as a descriptive category, it contains little analytical value.

From a dynamic point of view, factor endowments are a more comprehensive concept. They allow a broader understanding of the productive factors of the economy and their change. Population density is an outcome of processes conditioned by factor endowments. Indeed, one may argue that land

abundance, rather than population densities, provides greater analytical value (a similar argument is made by Austin (2008) for Sub-Saharan Africa).

The existence, or not, of arable land is a fundamental determinant of the strategy of cultivation given labour inputs and capital. The imminent consequence is that rice, or paddy, as the subsistence crop, dominated the arable land of these two economies. The processes of land intensification (in order to increase output) partly determined land availability for other crops and/or pasture. This intensification process also had implications for labour productivity, opportunity cost of labour, and employment; given that land intensification was achieved by increasing labour inputs and affecting the seasonality of employment.

Since the majority of the countries that were to be colonised were rural, and the consequent colonial economic activities were largely in relation to agriculture, several questions could be derived from AJR's thesis: how can we understand the role of factor endowments in shaping the colonial rural agrarian economy structurally and institutionally? And if colonial powers "reversed" their fortunes, does it mean that they facilitated, hindered or stopped an agrarian transformation? And to what extent would that have had a bearing on later development? And via which mechanisms might that effect have been channelled?

By using the power of hindsight, it can be stated that neither of the two rice economies of Indochina experienced an agricultural transformation (understood as structural change) during colonial times. The majority of the labour force remained employed in agriculture, at low productivity levels. This was not altered until recently as previously stated, especially in the South. Nonetheless, the processes during colonial times were very distinct: while Cochinchina became a leading export rice economy, Tonkin suffered from excess population, constant crop failures, and subsistence threats. This indicates that the mechanisms at work that hindered transformation differed. The plausible cause, this study claims, is found in their distinctly different factor endowments, and non-exclusively in colonial institutions.

Popkin summarized it neatly: "the same French policies did not always produce the same local changes in all regions of the country. This regional variation suggests that local incentives and organization limit the ability of a central government to induce or direct change" (Popkin, 1976, p. 433). He proposed: "Yet the only way to understand regional variations during the colonial period is to look at the differing nature of local economic incentives. Because these incentives in Cochin-China were different from those in Tonkin

and Annam, intra-elite conflicts were different; the incentives to block the use of outside institutions by any given member of the elite were different; the conditions under which the peasants had reason to side with the elite against outsiders were different; and the incentives to ally with members of the bureaucracy against other villagers were also different" (Popkin, 1976, p. 434). Similarly to Popkin, this study argues that the differences were in the local village economies (Popkin, 1976, p. 435).

Consequently, we propose a new analytical framework to understand economic growth and institutions under colonialism. The main research question is: How can factor endowments shape economic transformation and agricultural development in the long term?

1.4 A Revised Analytical Framework

A new analytical framework is presented where factor endowments are taken as the initial conditions. This study understands factor endowments as the proportions and availability of productive factors. As indicated above, the objective is to achieve a deeper understanding of how factor endowments helped shape the rural colonial economies, and their long-term effect. In order to exclude other potential initial conditions, the focus is on the rice economies. This means that for Tonkin we exclude the mountainous areas, which had low population densities and were populated by minority groups (with a distinct cultivation system). For Cochinchina, we do not discuss the so-called red and grey lands where rubber plantations were developed. This naturally does not mean that the plantations did not have an indirect effect on the rice economies. It is expected that, at macro level, the rubber sector competed for investments and, as Cochinchina was a labour scarce economy, there would be competition for labour at micro level.

There is one important methodological consideration to contemplate. The relations presented below (figure 1.2) should not be considered as a theoretical model; it is an analytical framework that guides the different theoretical discussions. These initial factor-endowment were arguably exogenous to the processes that were to take place during colonial times. In the long run, both the economic transformation and institutions affected them. Nevertheless our study, as E&S (2012) have done for the Americas, argues that there was a long lasting effect of those initial conditions.

This study however differs from E&S's in one fundamental aspect. While E&S have claimed that it was via policies and other institutions that "reproduced the factor endowments that gave rise to them" (E&S, 2012, p. 57), we focus on the economic linkage. E&S claim that the combination of factor endowments (abundance of land relative to labour), and the kind of crops due to climate and soil conditions, facilitated the creation of plantation economies. In their empirical evidence, plantations, as in institutional arrangements, disappeared, but fundamental inequalities persisted and reproduced themselves in different forms (in access to education, suffrage, etc). In our case, rice was cultivated in both regions, but the processes of land intensification were different and had distinctive implications like, for instance, in tenure conditions. Thus, E&S's link, the kind of crop and factor endowments, is insufficient for understanding our cases.

The rationale for this strategy is that this figure is an illustration of the logic of our work. It helps establish the structure of the analysis and it exemplifies how research can combine two understandings of the mechanisms by which factor endowments could have a long-term effect.

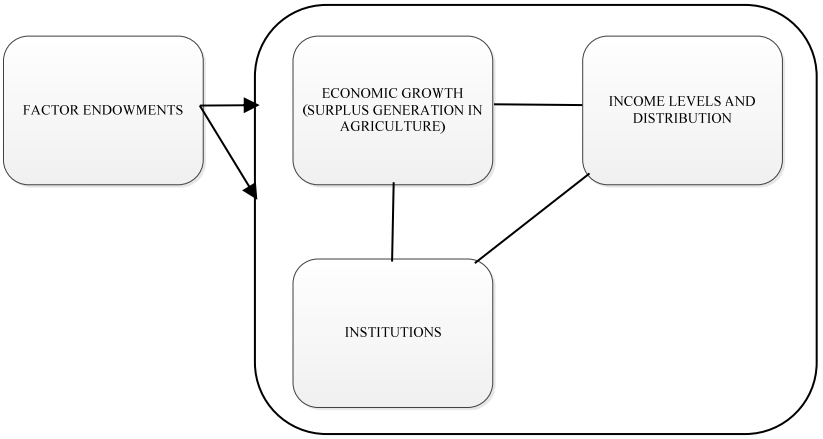


Figure 1.2. Proposed Analytical Framework

Source: Author

In sum, this framework differs from the current colonial debate in that it starts from the economic fundamentals derived from the factor endowments approach. The focus of much of the current literature is on the direct relationship between factor endowments and colonial institutions and

institutional paths of development. The framework here proposes three dimensions of analysis: i) the relation between factor endowments and the possibilities of surplus generation; ii) the influence of factor endowments on institutions that directly affect the opportunities and constraints of the actors in the rice economy, i.e. the institutional impact is not exclusively colonial or influenced by colonial powers, but on the local economy (aka village); iii) the importance of extraction, as a determinant of future growth and understood as a function of surplus and of inequalities.

This approach moves this line of research from a linear and deterministic understanding of colonial impact, or historical importance in general, to a system where factor endowments have a determinant role in both the interplay of economic and institutional fundamentals of the economy. These, in turn, shape the incentives and constraints of actors. The outcome is a study of potential dynamics of the economic transformation vis-à-vis the inclusiveness or extractiveness of the processes in a rural context.

There are three additional aspects to consider. First, the theoretical relationship between the variables; this will be dealt with in each chapter. Second, the interaction between macro processes and the individual; this study is interested in the economic opportunities and constraints that farmers faced, and also in their behaviour. Therefore, the macro level is first presented and the analysis is progressively taken to less aggregated levels (though we lack individual data). Third, a time component; these are historical processes and there is a time sequence to the study. The first chapters are more focused on the colonial period, while the focus in the sixth is post-colonial. While the chronology is naturally respected, it is not the organizing principle. It becomes subordinated to the aspects, concepts, and relationships proposed in the framework (Heckscher, 1933).

1.4.1 Operationalizing the Framework

To some extent, one may think of this study as a cumulative process. Since our focus is on economic mechanisms, the next chapter deals with a discussion about the theoretical effect of different factor endowments on explaining the lack of agricultural transformation. This implies the development of two models to elucidate, in theoretical terms, on how factor endowments might lead to increases in output but not to structural change. In other words, we present and develop two models of 'growth without development'. This is attained by

processes of growth that take the cultivation close to the Production Possibility Frontier, but no major technological shift in the function is achieved.

While chapter 2 is the most theoretical chapter, it should not be understood as *the* theoretical chapter of the study. It is the first step to setting a theoretical ground, based on well-known generalizations, with factor endowments as the driving factor. From these theoretical discussions, a number of parameters are derived and will be discussed for the cases in chapter 3. In sum, the relation factor endowments – economic growth (surplus generation) is dealt with theoretically in chapter 2 and empirically in chapter 3.

The relationship between factor endowments and institutions is taken up in chapter 4. However, as shown in the framework, the institutions we seek to identify are those that define the incentives and constraints of farmers, and other relevant actors, with regard to generating a surplus in the rice economies. This goes inevitably via the village institutions, and it follows the argument that the factor endowments in the North reinforced the closed village versus the formation of the open village in the South (as the possibilities of restricting labour were more limited in the South than in the North). The analysis in this chapter aims at identifying which of Adelman's institutions affected the access, accumulation, and distribution of productive factors, and whether the farmers faced restrictions to participate in the commercialization of the economy. In other words, this chapter attempts to discuss the formation of inequalities in the rice economies and the underlying processes. That is, all inequalities may not necessarily reflect an institutional effect, since some could be outcomes of market-mechanisms.

The results of the analysis in chapters 3 and 4 are taken into the calculation of extraction ratios in chapter 5. Nonetheless, in this chapter, the idea of extraction is looked at from another perspective. In the literature on factor endowments and colonial impact, extraction in colonial times is closely related to an inequality outcome. Inequalities, via their effect on the country's institutional paths, become an explanatory variable for the underdevelopment after independence (AJR, E&S). According to this understanding, since it is via inequalities where the depth and scope of extraction are observed, the study of the impact of colonialism should be intrinsically linked to the evolution of inequalities. This study has already argued that greater analytical depth is attained if the focus on the evolution of inequalities during colonial times. The relation between inequality and extraction is complex, however. While extraction over time probable leads to increases in inequalities, inequalities of opportunities could affect the type and extent of extraction. The fact that these

two variables interact is rather straightforward; the challenge lies in identifying the mechanisms at work. The main line of argumentation in the chapter is that the capacity to extract is conditional on the surplus that is generated. That is, the Inequality Possibility Frontier is partly linked to changes in the Production Possibility Frontier of the economy. The relation between the actual and potential inequalities determines the extraction. In order to complete these calculations, social tables are constructed, derived from the analysis done in the previous two chapters. Chapter 5 will thus explore the two rice economies in relation to the evolution of economic inequalities and socioeconomic groups.

The outcome of our analysis of extraction ratios is the basis for presenting an alternative understanding of the possibilities for subsequent development. Our assertion is that it is not inequalities per se that may create an institutional persistence and underdevelopment, as claimed by the literature, but how close the extraction ratio is to its potential, and the mechanisms behind it. This is discussed in chapter 6.

The sixth chapter attempts to reconcile the negative outcomes of the 1940s with a 'Miracle Economy' in the 1990s and uses Adelman's framework to identify a transformation from extractive to inclusive. For the North, the cultivation system remained subject to large population pressure and with a centralized system of surplus extraction; the South seemed to have reduced the inequalities in land distribution while new technologies allowed for new processes of land intensification and improvements in labour productivity. These developments should be understood in a war context.

Chapter 7 relates the main findings of the thesis back to the colonial extractive literature (AJR and E&S). Before we proceed, a clarification should be made. Indicating that factor endowments are a determinant should not be understood as a claim of direct causal link between the pre-colonial conditions and current performance. In order words, borrowing from Nugent and Robinson (2010), factor endowments are not fate[2]. It is indeed important not to fall into the trap of a deterministic historical path dependence argument given those factor endowments. This is one of the major criticisms put forward to the

[2] Their rejection of the factor endowments hypothesis (Nugent and Robinson, 2010, pp. 75-76) by presenting some data on population densities (and reinforcing it by the proportions of Amerindians and European descent) falls arguably short of economic analytical depth, especially when their own data does not seem to fully conform to their statement that "factor endowments" were very similar (p. 47).

current colonial literature and discussed in chapter 7. Our study deals with similar variables: current performance (more specifically dynamics) and factor endowments prior to colonisation, and the question is whether the historical processes derived from the different factor endowments can help us understand contemporary economic dynamics in the two rice deltas in Vietnam.

1.5 Methodology

An analytical narrative based on comparative-historical analysis will be employed to conduct this research. The overarching objective is not to quantify the strength of the relations between variables, i.e. the impact of 'cause-of-effect' (Goertz and Mahoney, 2012), that is, the effect of factor endowments on current economic performance. There are numerous publications on some of the interactions of the variables we mention here, which we will refer to as our narrative unfolds. The aim is to identify the plausible causal processes and patterns. In other words, this thesis is more interested in the 'how'; that is, in the processes via which these relationships came to be (Hedström and Swedberg, 1998, pp. 7-12).

The clear advantage of taking comparative-historical analysis as our methodology is that it allows us to combine within-case analysis with comparative methods in a historical context. These are the conditions that Lange (2013) claims to be a commonality of this methodology. It is imperative to use comparison to gain insight into causal determinants, but it has to contain the rigor of the specific details of the case to assess the impact of context and causal mechanisms (Lange, 2013, p. 14).

Considering the strategy and objective, it would be natural to compare our study to Bates et al's (1998) *Analytical Narratives*. Our objective is not far from the ambitions stated by them "… [a narrative approach] pays close attention to stories, accounts, and context", while "it extracts explicit and formal lines of reasoning, which facilitate both exposition and explanation" (Bates et al, 1998, p. 10). The negative aspect of such an approach is that it forces the author to have fewer cases. This imposes a limitation on the objective of generalizing.

In order to causally infer by using this methodology, processes should be the focus and guiding principle. Given the data limitations and research questions, a narrative is suitable. The approach can be equally criticized for the excessive focus on the specificities, which cannot be generalized, and for

becoming descriptive (see for instance Goertz and Mahoney (2012) for a discussion on the methods and their criticism).

The key difference between a causal narrative and a (descriptive) narrative is in the attempt to "…reconstruct causal scenarios in an effort to gain insight into the determinants of social phenomena" (Lange, 2013, p. 15). By analysing the evidence within a theoretical framework (more on this below), we may present the most probable explanation of the processes in place. The narrative is consequently analytical, as the objective is to explain a social phenomenon. Thanks to our comparison of the endowments, mechanisms and relations of the two rice economies, we can discuss causality. The cases also set the scope (or limitation) of our study to generalize and make any claims of "proof of causality". It is not a test of theory.

This said, this method attempts to explain the potential causes of the phenomenon, which is fundamental different from a historical narrative (more concerned with exposition). In order to achieve this, and as already indicated, each chapter has a combination of theoretical discussion and empirical evidence. In other words, causality is discussed in theoretical terms (based on the Bates et al "explicit and formal lines of reasoning"), while using a historical account to describe the socioeconomic phenomena at hand (see more on this in Lange, 2013).

This study is thus neither a test of theory nor a historiography with the objective of inferring. But we share the ambition of Bates et al (1998, p. 13) to "… construct logically persuasive and empirically valid accounts that explain how and why events occurred". Thanks to a "thick" description (if we borrow Geertz's (1973) term), our processes, identifying the actors, the period, key circumstances, and institutions, make the work falsifiable at all times.

Unlike a descriptive narrative, the objective of this study is to explain. The implication is that not all aspects of French colonialism, the collectivistic period or American intervention are included; only those that are limited to the research problem and the theoretical framework. The available material conditions the events to discuss, which implies that our study has modest ambitions when it comes to contributing to the economic history of Vietnam over the last century.

So, what converts this narrative from a "thick" descriptive to analytical is theory, which could be a point of divergence from Bates et al's (1998) Analytical Narratives. They are generally more interested in the micro, the individual's choice, and hence the preference of rational choice (more especially game theory) might be argued to be valid. However, our work aims at first giving an

account of the macro phenomenon and then taking the analysis down to the micro level. Thus, the interaction between individual and structure lies at the core of this research. This connotes that human action is understood as rationally bounded (Simon, 1955). Since what bounds the individual changes over time, partly by the actions of the same individual, an institutional analysis is necessary. In their response to a similar objection presented by Elster, Bates et al claimed that they were divided about defending "the assumption of full rationality as a 'necessary convenience'" (Bates et al, 2000, p. 699). So this divergence might fit their claim that a range of models could serve as the basis for analytical narratives (Bates et al, 2000).

A second point of divergence may lie at the core of their definition of institutions. For Bates et al, institutions "induce choices that are regularized because they are made in equilibrium" (Bates et al, 1998, p. 8). This is why, to an extent, their analysis can be solely based on individual choices. We suggest that, at a given point in time, it might be analytically useful to understand institutions in equilibrium. It might, however, be problematic to take such a static view when one is interested in processes of institutional change. Our stand conforms with Thelen's (1999, p. 371) when she proposes "[…] a way of thinking about institutional evolution and path dependency that provides an alternative to equilibrium and other approaches that separate the analysis of institutional stability from that of institutional change". All this results in the need for an evolutionary approach to institutions, and borrowing the concepts from Nelson and Winter (1982), one which takes theory more as "appreciative" than "formal". This means that our work is more problem-driven than theory-driven, in the sense that it is not a test of theory. Our objective and contribution are to provide a new theoretical-based interpretation of the two paths of agricultural development in Vietnam.

1.5.1 An important limitation: preferences and uncertainty

There is one fundamental implication when discarding full rationality, which means that one cannot assume the following link: observed behaviour ← action←choice←preference. This might mean that the observed behaviour is a revealed preference.

Levi, who is a clear defendant of analytical narratives based on rational choice, warns that the problems of imputing preferences as utility maximization "can … produce tautology: whatever people do becomes a 'revealed preference'

(Levi, 1997, p. 24). A true discussion on preferences requires complementary empirical work that we cannot carry out. Consequently, the analysis stops at the level of choices. Institutions alter the individual's choices, and hence they are bounded and contextual.

This approach is argued to be more suitable to the study of colonialism and its impact because it is more realistic to assume that when a country becomes colonised, the distribution of uncertainties of choice change. For the case at hand, considering that Vietnam had a semifeudal economic system, and Tonkin was a subsistence economy prior to the French colonialization (Le Than Khoi, 1981), assuming that each individual could deal with uncertainty in the same way is unrealistic. By removing the constraint of full rationality, we can find economic explanations for phenomena that are normally considered economically irrational (for instance, the great unevenness in the distribution of population between North and South Vietnam).

AJR take the impact of colonialism as far as to indicate that it becomes a shock leading to the reversal of institutions and from there to institutional persistence. Against that it can be argued, partly inferred from the empirical evidence on Vietnam, that not only did the conquest take time (almost half a century), but institutions, formal and informal, changed as a result of the interaction of different actors. Besides, there were changes in the number of actors and interests, etc. In addition, these changes may have been partly due to other mechanisms than colonial institutional shocks; or, at least, they should be discussed before disregarding them.

At a general methodological level, we propose a multicausal approach to colonialism and long-term development. This requires a methodology that the current literature, greatly influenced by the Reversal of Fortune Thesis, cannot provide. AJR's objective was to establish a link and quantify causal effects based on cross section analysis of two variables 500 years apart. That leads to what Austin has called "the compression of history". This study takes a methodological stand on taking history back in economic and institutional analysis over time.

In sum, this approach follows the tradition of Gerschenkron when he wrote "[H]istorical research consists essentially in application to empirical material of various sets of empirically derived hypothetical generalizations and in testing the closeness of the resulting fit, in the hope that in this way certain uniformities, certain typical situations, and certain typical relationships among individual factors in these situations can be ascertained. None of these lends itself to easy extrapolations" (Gerschenkron, 1962, pp. 5-6).

When historical research is based on colonial data, characterized by a paradoxical abundance of records but scarcity of evidence, the claim that historical events and processes might be useful to understand current problems has to be considered carefully. We seek to identify sequences of causally related events. This requires a combination of methods to help contextualize evidence that is more circumstantial than direct (Fogel, 1982).

1.6 Sources, Previous Research, and Contribution

The central contribution of this study is mainly derived from our understanding of historical research. The material we use, and to which we have "applied" Gerschenkron's various sets of empirically derived hypothetical generalizations, is not different to what numerous authors have used to understand Vietnam. When it comes to recent contributions, Gunn (2014) adds Japanese colonial records, and Papin (2002) contributes new dossiers from the communal archives in Hanoi, but their understanding of the rice village economies relies on a handful of authors. Our provision of new archival data might be seen as a small grain of sand in a rather empty, vast desert of exact knowledge for this period in history. In sum, when it comes to the sources of the time, we are all equally limited. The difference between other related works on Vietnam and ours is in the understanding and interpretation.

The main sources for all literature on the subject are the works of French geographer Pierre Gourou (1945, 1954)[3] and the agronomist Yves Henry's work prepared for the Colonial Expo in 1931, and published in 1932. Henry became Chief Agronomist in the 1920s and was the first one to attempt compiling statistics on the rural economy.

Gourou is a distinguished French geographer who conducted fieldwork in Vietnam during the period 1926 to 1935. His first work *Les paysans du delta tonkinois, etude de géographie humaine*, was his doctoral thesis published in 1936, while he was already a professor at the University of Indochina in Hanoi (Bowd and Clayton, 2003, 150). Vietnamese assistants accompanied him on his field

[3] These years refer to the publications in English; his original French books were published in 1936 and 1945

studies. They were to become important scholars (e.g. Nguyen Van Huyen) and even hold high-ranking positions in the post-colonial government (such as Tran Van Giap). Gourou designed and issued questionnaires seeking to obtain better data on population densities and distribution, and reviewed the census figures of 1921 and 1931 (Bowd and Clayton, 2003). His two main works on Indochina were and remain fundamental sources. His interest was greatly focused on the Red River Delta, though he had initially lived in Saigon. He had an interest in the "traditional" rural rice economy (Bowd and Clayton, 2003). In his second contribution, he expanded his inquiry to include the Mekong River Delta via requesting the French administration to distribute questionnaires in order to obtain a better understanding of the living conditions of the Southern peasantry. He was one of the first scholars to highlight that the peasantry of the South was not as miserable as that of the North. He was unique in his combination of sources and research techniques, which makes him an obliged reference.

Indeed, the works of these two authors are our primary sources, and however direct they might seem, we treat them as circumstantial. This is because, as argued by Fogel (1982), their empirical evidence was based on samples and "if a sample is used as a basis for statements about the individuals (or items) in the sample, then it can provide direct evidence. But if the sample is used to make inferences about the characteristics of the larger population from which the sample is drawn then, regardless of the form of the information in the sample, that information is circumstantial" (Fogel, 1982, p. 64). And this is why we will interpret Gourou, and challenge his conclusions that the causal difference between the two peasantries was in the form of mentality.

These two are not the only colonial publications. Bernard (1934), Dumont (1935, 1957), Dumarest (1935), Goudal (1938), Melin (1939), and Robequain (1944) are equally important sources for the period. Their published works may also be considered as primary sources. They all are a fundamental source for all publications of the time and contemporary research, and their numerous interpretations have shaped the understanding of Vietnam to this day[4].

There are two dimensions to our study (economic and institutional), and hence our discussion relates to two streams of literature. One may argue that the most influential contribution to our understanding of Vietnam comes from

[4] For a chronological review of related publications, see Nørlund (1986).

James Scott's *Moral Economy* (1976). This theory, seemingly opposed by Samuel Popkin's *Rational Peasant* (1979), has attempted to explain not only the local institutions but also the effect on farmers' responses to colonial extraction (see rebellion). On this last point, the works of Wiegersma (1988) and Thompson (1937) set out to "prove" how extractive colonialism was. As already argued, these works are interpretations of the same evidence, and they did not contemplate a counterargument. Whereas this study does not deny the overall condemnation of colonialism, it believes that there is little analytical understanding of how colonialism was extractive, and what its potential long-term effect was, at least from an institutional point of view.

The influence of the Moral Economy versus the Rational peasant is reflected in the following words by Gunn (2014, pp. 6-7):

> In the general literature on French colonialism in Indochina, we cannot ignore a range of discussions turning on two major considerations. These may be summarized as whether (a) the dissolution effects of French colonial capitalism on peasant structures in Vietnam overwhelmed social life and traditional safety nets or (b) colonialism actually reinforced capitalist and feudalist structures, arresting social change and deadening the rise of indigenous industry or even import-substitution. In the first case, we might hypothesize an activist peasant riding with the new market forces unleashed by colonialism as with the rise of a cash economy. In the second case, we might hypothesize a reactive risk-averse and defensive peasantry, victim of the new market forces and an intrusive colonial state making new and unreasonable claims on livelihoods.

This study will show that these are not opposite hypotheses. In other words, these two peasantries coexisted simultaneously in Indochina/Vietnam, but the one was predominant in the South and the other in the North. This somehow has been echoed, for instance, in Gourou attributing different cultural traits to the two peasantries (the North, industrious, but miserable, with a fear of the unknown, etc); while the Southern seemed more entrepreneurial but with a love of gambling and consequent indebtedness (Gourou, 1945). Whereas those are generalizations based on observed behaviour, we attempt to present an economic and institutional account that explains and reconciles the observed distinct behaviour.

This said, there are several works that acknowledge the difference between the two village formations and regions (e.g. Rambo, 1973; Hickey, 1958, 1967), but these are in the majority written by anthropologists and geographers. This study discusses them in detail, and interprets them from an economic-

theoretical understanding. In the field of economic history, Merette (2013a) is one of the latest to take this analytical stand (North versus South) in an ambitious review of the existing literature. This same author makes another contribution (2013b) in calculating Extraction Ratios in 1929 for the whole country. This is thoroughly discussed in chapter 5.

Of recent publications on Vietnam, Brocheux and Hémery (2011) provide an insightful and thorough historical account of Indochina. This adds to the work of Brocheux (1971, 1972, 1983, 1995). Bassino (2000) and the Hitotsubashi University project on the *Quantitative Economic History of Vietnam (1900-1990)* have been very helpful in providing macro statistics. Bassino's own estimates of GDP and his interpretation of the rice cultivation in the South are references for our study.

This methodological stand, of taking the two rice economies as independent units of analysis, is also relevant for the other camp of literature that aims at explaining the economic processes of the colonial venture in Indochina. It is widely accepted that colonialism in Indochina meant its inclusion in the world economy via foreign trade (Brocheux and Hémery, 2011; Gran, 1975; Hayami, 1994; Murray, 1980; Myint, 1958, etc.). Our study shows that this interpretation requires further qualification. Indeed, promoting exports, especially rice, was in the interest of the French administration. Taxing exports became the main source of revenues. However, the capacity of the two Rice Bowls of Indochina to take advantage of the opportunities brought by the deepening of the commercialization of the economy, and expansion of foreign demand, was conditioned by their initial factor endowments. In other words, their export capacity was determined by the possibilities of each economy to increase output per capita, and since both were fundamentally rice economies, it could only have been achieved via processes of land intensification.

The distinct factor proportions of the two rice economies led to two different dynamics of agricultural transformation, and, consequently, it is argued they should be treated as two independent units of analysis. If not, the explanation might be a dual economy conceptualization. In the case of Indochina, Brocheux and Hémery (2011, pp. 250-251) used the dual economy concept to underline the impact of colonialism, especially in Vietnam. Brocheux and Hémery (2011) refer to the subsistent rice peasant in juxtaposition with the plantations, mining, and some urban industrial activities. To a great extent, they equalize the rice economy with the subsistence backward sector, while the French developments are the industrial sector. They claim that "This [the subordination of the peasants' mode of production and consumption to the

capitalist colonial one] provoked a lasting situation in which villages were socially abandoned in favor of modern colonial cities leading to impoverished peasantries" (Brocheux and Hémery, 2011, p. 251).

It is difficult to argue against the fact that the French rubber plantations benefited greatly from the new scientific knowledge and experience of British Malaya. Nonetheless they remained labour-intensive and hence suffered from the labour shortages that characterized Cochinchina (Aso, 2012). Furthermore, rice was the main and sustained source of export revenues for the French administration, and its cultivation was seemingly carried out in both deltas using traditional technology. This might have hypothetically led to different outcomes in living standards. The outcome may indicate the existence of dualism between the delta economies, but there is no clear indication that the factor driving it was the mode of production.

In sum, the dual economy theory, in this context, seems to tell us more about an outcome than a mechanism by which the responses of these two regions, which were both dominated by the cultivation of wet rice, were so diverse. We consequently claim that in order to achieve a theoretical understanding of these economies, and more generally, the causal effect of factor endowments, we should study them as independent units of analysis.. Huff, in his 2011 review of the Brocheux and Hémery (2011) book, summarizes it neatly "Vietnamese development [from the nineteenth century] was very much a tale of two deltas" (Huff, 2011, p. 540).

1.6.1 Archival Sources

For the colonial period, archival material was gathered from visits to the *Archives d'Outre-mer* (AOM). Economic reports based on provincial inspections are incorporated for the first time (as far as is known), as is data from the cadastres. The timeframe of the analysis is conditioned by the availability of primary sources, which are largely limited to the 1920s and 1930s to the early 1940s. It coincides with substantial changes in the colony and administration (for instance Henry becoming Chief Agronomist). The first statistical workbook was published in 1923 (Leurence, 1925). During WWII, the administrative capacity of the colony started to suffer. For the 1940s, with the invasion of Japan and later on the guerrilla war against the communists, evidence became even scarcer. This does not mean that there is no information or sources for the previous or later decades of colonisation, but they are even scarcer and difficult to combine

with any other material. Hence, they are not part of the analysis. As already indicated, we are constrained by the materials available.

The material (direct evidence) gathered from the archives is greater than actually reported throughout the text. Notwithstanding the greater detail they provide, nothing found alters the view provided by the sources mentioned above.

When it comes to the post-colonial period, the evidence is taken partly from archival data found at the US National Archives (NARA), USAID field reports, and the reports of academic missions to Vietnam (for instance, the Michigan group, which was one of the first to conduct research after independence from the French), and the Stanford Research Institute (SRI) rural and income surveys. Many of these reports may be considered as primary sources. These scholars were sent (under the auspices of the US Mission to Vietnam) to carry out surveys and analyses. We also rely on the fieldwork done by Bassford (1987), Gran (1975), Hickey (1958, 1967), Rambo (1973), Sansom (1970), and White (1981). The majority of them used Vietnam as the empirical case for their doctoral theses.

There is also a time constraint for this period, though. There is a bias towards the 1960s, when the US Mission to Vietnam strengthened its work there. After the 1968 TET offensive, and the intensification of the war, the data availability worsens, and there is no systematic available source after the Paris Peace Agreements in 1973.

For the case of North Vietnam, the sources are all secondary, based on published work and some reports found in the archives in Washington. For the modern period, all sources are secondary.

The use of archival colonial sources is normally criticised for providing a biased representation of the realities (Gunn, 2014). With the aim of providing as broad a picture as possible, the search for materials in the archives was as wide as possible (academic reports, different organizations within the colonial administration, correspondences, newspapers, etc). There was a language limitation, so the sources considered are in French and English; some of the other sources used here are translations into either of the two languages.

Official statistics (French and American), reports, and other archival data are used and discussed. Published works that contain new sources (for instance, the latest publication by Gunn with data taken from the Japanese archives) are incorporated to the extent that they are relevant to this study. It is important to note that since this research is problem-driven, and given the proposed

framework, the empirical evidence is presented and discussed in detail in each chapter.

1.7 Disposition

The next chapter will start our historical research by relating to the analytical framework of this study. The first step is to derive hypothetical generalizations based on the potential effect of factor endowments on achieving economic growth without transformation. This requires the construction of two models of theoretical understanding. The outcome of this analysis will be taken to chapter 3, where we will discuss if it fits the materials available. As already pointed out, this is not a test of theory, but a discussion of its closeness to reality (an approach also advocated by Myrdal, 1973). Moreover, only a partial understanding of the identified processes in the rural economies is provided here. The institutional dimension is taken up in chapter 4.

The second question we set out to answer concerns the effect of factor endowments on the local institutions and the changes in inequalities. This is thoroughly discussed in chapter 4. The outcome of the analysis is brought down to a lower level of aggregation, and, via a reconstruction of the social classes in the rice economy and the analysis of their economic capacity to generate a surplus in the economy, we calculate the extraction ratios for the two economies in chapter 5.

These results of the colonial period are then contrasted to our understanding of today (the pre-conditions prior to Doi Moi and the distinct economic dynamics in a rural context) in chapter 6. A framework, based on Adelman (1986), to identify how the transformation happened and how it can be understood is applied here.

The final chapter relates these findings to the current colonial literature, and claims that historical research (á la Gerschenkron, 1962, p. 6), which attempts to broaden our frame of reference, might improve our understanding of current developmental problems.

2. Factor Endowments and Two Stylized Dynamics of Agricultural Change

This chapter is the first step in providing a theoretical alternative to 'extractive colonial institutions' as the *sole* explanation for the failure of the two colonial rice economies of Vietnam to modernize (until recently). This is not to reject the existence of the concept of extraction as such, but to argue that the extractive potential of the elites was a function of the surplus capacity of the economies This, in turn, was dependent on the economies' factor endowments and relative prices.

Taking factor proportions as the initial conditions, the counterfactual to be discussed is: had it not been for colonialism and its surplus extractive institutions, the rice economies would have probably experienced technological change induced by the scarcity of land (for Tonkin) and scarcity of labour (for Cochinchina). According to the Hayami and Ruttan (1985) 'induced development model', this technological change would have led to continued productivity growth as a result of a process of adjustment to the original resource endowments and resource allocation, thanks to "the capacity to generate an ecologically adapted and economically viable agricultural technology in each country or development region" (Hayami and Ruttan, 1985, p. 4).

While Hayami & Ruttan have a relatively long time perspective on the cases of Japan and the US, their empirical evidence is not from colonial times (except for Taiwan and South Korea). Their explanation for the failure of other Asian colonial economies is also partly institutional. They claim that the inter-sectoral income transfers were used for the benefit of the metropolis and not the colonial economy (Hayami and Ruttan, 1985, p. 439).

This chapter will show that there is a logic in the economic dynamics derived from factor proportions, which could partly have hindered Tonkin and

Cochinchina from modernizing their agriculture. Two theoretical models are presented to provide an explanation for two different trajectories of "growth without development". These models are built on two established theories: Elvin's High Level Equilibrium Trap (Elvin, 1973) and Myint's Vent-for-Surplus (Myint, 1958). These two theories are controversial but well established. They can be somehow placed as two extremes. While the latter's premise is surplus of both land and labour, the former is a theory of diminishing surplus labour (measured as man-hours) in a closed land frontier with increasing population. The end result of the discussion is to obtain Gershenkron's "empirically derived hypothetical generalizations" (Gerschenkron, 1962, p. 6), which partly concretizes in a set of analytical parameters to be discussed empirically for the two cases.

Taking it back to the case studies, if we are to agree that colonialism meant a greater potential for commercialization of the rice economy, thanks to the increased possibilities of exports, the key aspect is to establish how the factor proportions might have determined the capacity to produce a surplus. Considering the significant differences in land availability, given traditional technology, the processes to achieve increases in output per capita ought to be different in the two rice economies of Vietnam.

The initial conditions of Tonkin were high population densities in a closed arable land frontier, while Cochinchina had abundance of land relative to labour (as will be shown in the next chapter). Normally, we would discuss the possibilities of extensification in the case of the South and intensification for the North. This study, however, takes a Boserupian stand and argues that both processes should be considered as land intensification, independently of whether one cultivates in the intensive or extensive margins of production (in classical terms). Boserup's (1965) contribution to the understanding of agricultural transformation is twofold. First, land is considered a more elastic factor than previously held and, second, both processes of land intensification come, at least initially, at the expense of labour productivity. This stand consequently points at a more complex relation between processes of land and labour intensification than a simpler (neo)-classical standard model of a relative relation between the two factors.

2.1 The Two Processes of Land Intensification

Boserup, in her 1965 work, *The Conditions of Agricultural Growth*, laid out a theory based on the postulate that population pressure leads to technological changes in agricultural production. She claimed that as population grows and puts pressure on the existing land and production techniques, living standards worsen, threatening the survival of the population. The result is a process of 'intensification'.

Intensification is exclusively linked to land and its use. In order to increase the production output to feed the increasing population, the farmers can put more land under cultivation and/or shorten the period of fallow. This is most likely done at the expense of labour productivity (Boserup, 1965, p. 41), because more labour inputs are assigned to indirect tasks of the agrarian production, such as land preparation, manuring, weeding, etc. (these activities will vary depending on the cultivation system). Consequently, these processes of 'intensification' come at a greater social investment. Eventually, as the returns to land diminish due to natural degradation, new innovations will be required to maintain the quality of the land, now under more intense cultivation. If these innovations are not carried out, underemployment in agriculture is likely to increase, and people may see their choices limited to starvation or migration.

An important aspect is that any increases in output per labour input, independently of the strategy for land use intensification, would probably come at the expense of output per man-hour for all cultivators. This is because additional labour would have to be used, for instance, for the preparation of land. This is better understood if two possibly detrimental effects are considered. First, the new area under cultivation is likely to initially underperform (both low output per arable hectare, and low output per man-hour). Second, the release of labour strains the "old" cultivation system, which was probably accommodated to a different level of land and labour intensification. Boserup argues that farmers ought to change their behaviour as a response to the now more land-intensive cultivation system. Here lies one of the greatest challenges to her theory, though. Even if one believes that the subsistence threat (as strongly argued by Clark and Haswell, 1964) is a significant incentive for that change, it is not obvious that it will be sufficient to achieve a shift in the production possibility frontier. This brings up the challenge of reconciling Boserup's theory with the possibilities of being trapped via involutionary processes. This will be discussed more in detail below.

Boserup's theory should be understood as an endogenous process of transformation. She is attempting to explain the effects of population changes in pre-industrial agriculture (Boserup, 1965, p. 14), which leads her to the logic that population pressure is a necessary condition for agricultural transformation. However, when analysing countries that have been colonised, colonialism is an exogenous factor that might potentially alter the functioning of the economy, and create new dynamics. And it is here that the importance of the initial factor endowments of the two economies of the present study becomes most relevant. Colonial powers would have responded to these conditions, leading to different strategies to engage in surplus production.

In the case of colonial Vietnam, for the North, where land was scarce in relation to labour, the expectation would have been to intensify land use. For the South, the intensification strategy would have been to put new land under cultivation. These conditions were bound to have a significantly distinct impact on the possibilities and paths of change once these economies were colonised. This would have taken form in the choices of capital formation in agriculture and allocation of labour for different actors of the economy, for instance by reallocating the seemingly excess labour from the North to the frontier in the South. Hence, it is claimed that the effects of colonialism can only be assessed insomuch as the limitations and possibilities of each cultivation system to obtain higher output per capita are understood. These limitations and possibilities define the constraints and economic opportunities of the actors.

Two reductionist models are presented here, meaning that institutions are taken as in equilibrium. The implications, in the form of parameters for understanding the cases, from the choice of techniques to the utilization of labour, and the limitations will be discussed at the end of the section and summed up at the end of the chapter.

2.2 High Population Densities in a Closed Arable Frontier: The High Level Equilibrium Trap

One commonly observed economic phenomenon in the past, and today, is that in areas with high population densities and at subsistence, a seemingly excess labour force did/does not leave agriculture. Examples can be taken from areas in colonial India or Indonesia, as well as outside the colonial world (Higgins, 2012; Lal, 2010).

Elvin (1973, p. 314), in his study of medieval China, argued that the situation could be described as a 'high-level equilibrium trap' (HLET). Starting with a premise of constant land (a closed arable frontier), the potential agricultural surplus shrinks, first relatively and then absolutely, as population grows given the existing technology and practice. He includes in his understanding of practice both investment and organization, especially commercialization and land tenure (Elvin, 1973, p. 313). As population grows, and returns to labour and technology diminish, an equilibrium is reached where population is at subsistence level (he names it a quasi-ceiling in traditional farm technology). A way to obtain a surplus at this intermediate equilibrium is by changes in practice at a given technology. This will eventually lead to diminishing returns to practice and a closing of the output potential surplus as labour inputs grow, and hence a trap. This is a high-level equilibrium trap as land productivity is at its highest given the existing technology and input-output relationship. He maintains that it is only via modern technology (industrial-scientific inputs) that the trap can be avoided.

While HLET is inferred from Chinese evidence and has remained central to, for instance, the Great Divergence debate (see Little, 2010, chapter 8), the concept has been used elsewhere. Lal (2010, p. 10) has claimed that a similar situation could be found in medieval India and even in the Roman Empire. For Vietnam, Giacometti (2000, p. 119) mentions that his findings on rice cultivation in Central Vietnam prior to 1954 could be in line with Elvin's "high efficiency equilibrium" theory. For Tonkin, he brings up this possibility in the conclusion based on a quote from Gourou (Giacometti, 2000, p. 61). Nonetheless, he does not develop it in any way.

Elvin's HLET is considered as a theoretical starting point for this study. Elvin suggests that China required contact with the West to introduce new industrial inputs. For colonial Vietnam, one would need to understand the dynamics of HLET to explain why contact with the West (see the French) was not sufficient to introduce those technologies to the cultivation.

To a great extent, Elvin represents Boserup's argument for pre-modern China, and locates it at the final stage of intensity of land use given traditional technology[5]. The exception is that once the economic system reaches the trap,

5 Boserup's (1965) theory deals with a transformative process of increasing intensification in five stages: forest fallow, bush fallow, short-fallow cultivation, annual cropping, and finally multi-cropping. As previously mentioned, intensification in her theory is in relation to land use, and

the opportunities for innovation within the system are sharply reduced, even to the extent where they cannot be generated endogenously. He contends, following a Boserupian intensification argument, that, as Chinese rural population grew, more land was put under cultivation and fallows were shortened. This led to population growth (expansion of the market) but without substantial increases in purchasing power; that is, rural households' real disposable incomes did not increase. Quite the opposite, incomes were probably suppressed to subsistence level. As effective demand was not significant enough, despite the large population in China, innovative change was becoming harder to adopt. Factor proportions and prices were changing to the detriment of capital investments. Even though new agrarian technology was being developed in Britain (based on crop-raising and animal husbandry) or in the US (mechanization), China's population had expanded to a level where the necessary access to land was not an option for incorporating such technologies.

Graphically, HLET looks like as illustrated in Figure 2.1.

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these stages should be understood as types of land use (P. Brocheux, 1995, p. 23). These should be differentiated from what she calls "cultivation systems", which are related to the duration of the fallow (short and long fallow). These allow for an array of combinations.

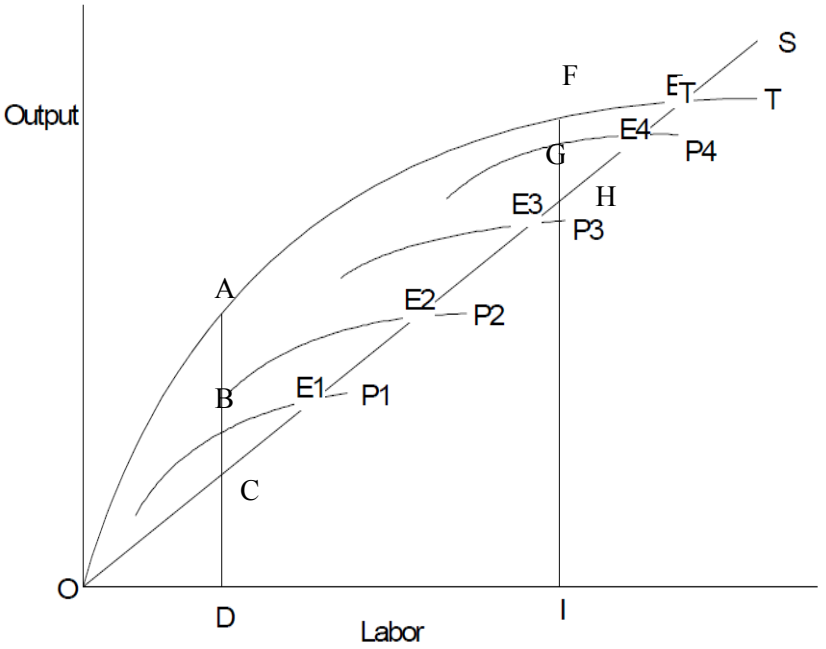

Figure 2.1. The High Level Equilibrium Trap

Source: Elvin (1973, p. 313)

In Elvin's words: "This illustrates the effects of a discontinuity or quasi-ceiling in late traditional Chinese farm technology. OT shows potential output for a given input of labour with best pre-modern methods. OS shows the proportion of output needed for the subsistence of a given labour-force. With land constant, potential surplus (e.g., AC and FH) shrinks, first relatively, then absolutely, as the labour-force grows. Actual surplus (e.g. BC and GH) depends on the level of 'practice', defined here as investment and organization (especially commercialization and land tenure). P_1, P_2, P_3, etc. show how at a given level falling returns per man as labour inputs grow create intermediate equilibria E_1, E_2, E_3, etc. At Et further improvements in 'practice' are nil, and the ceiling on high-level pre-modern technology leads to a trap that can be broken out of only by using modern methods" (Elvin, 1973, p. 313).

Elvin's work seems to point at how high population densities might become detrimental for an endogenously-driven growth. The population is

driven towards subsistence[6] and falls into a trap, which, in turn, hinders structural change. This trap is Malthusian.

2.2.1 Growth versus Involutionary Processes

Elvin's figure aims at representing a historical process in China. Nonetheless, it is thought-provoking as it allows a discussion of potentially different patterns of agrarian change. Rural economies may find themselves at point C or H. If the economy moves to B or G, there is a pattern of growth: output increases at a higher rate than population. But once population starts growing and putting pressure on the new innovation, processes of intensification will take place. This will potentially lead to increases in land productivity but at the likely cost of labour productivity (a Boserupian argument). At this stage, diminishing returns to the new innovation will both absolutely and marginally start to come into play, which in turn will lead the population back to subsistence levels. Ultimately, the marginal returns to labour will become almost zero.

This process is known as involution, which is a controversial concept. Geertz defines it as "the overdriving of an established form in such a way that it becomes rigid through an inward overelaboration of detail" (Geertz, 1963, p. 82). The vagueness in Geertz' definition has been criticized for failing to become a clear and operational concept (White, 1983). Geertz does not really discuss the cultivation system per se, but asserts that the Javanese irrigated rice cultivation

6 Elvin is not alone in claiming such stagnation in Chinese technological upgrading. Lin (1992) argues that the necessary transformation from experience to experiment-cum-science invention did not take place after the fourteenth century, unlike in Europe. This, in turn, represents a turning point in Chinese agricultural transformation and development. What we can witness during those years are minor modifications, but the likelihood of major breakthroughs became smaller (Lin, 1992, p. 18). Lin provides a supply-side explanation for the divergence of China from the West. Lin argues that factor endowments are not a clear explanation for technological stagnation. But this does not mean that these arguments oppose each other. Lin is trying to provide a long-term explanation for the lack of technological innovations of the industrial/modern sort, while Elvin makes a case for the lack of effective demand by the eighteenth century. That is an outcome of involutionary processes. Elvin however only claims that in the case of the textile industry "…the underlying pattern of resource-availability […] changed in such a fashion as to make the induction of invention less rather than more likely" (Elvin, 1972, p. 155). His argument is not a lack of demand per se, but the growth of the market in an involutionary fashion that was diminishing the incomes of a rather extensive population.

seemed able to absorb increasing amounts of labour per hectare. He suggests that it was the extraction of surplus of colonial powers, along with the above-mentioned ecological characteristics of the cultivation system, which led to a situation of 'shared poverty'. This is a result based on complicated changes in land tenure and farmers' behaviour within the village economy.

As pointed out by White (1983), Geertz' involution could be considered a taxonomic concept of change. It is hard to operationalize or even to theorize. After all, not all colonial policies led to the same outcome in the peasant-based rice economies. Hayami & Ruttan do not assist much in this respect. They claim that "most developing economies face the choice between the historical examples provided by Java and Japan –between involution and development" (Hayami and Ruttan, 1985, p. 298). They contend that there were several reasons for the failure of colonial countries to transform agriculture. First, the distortions of markets and factor prices carried out by colonial and post-colonial governments were a core problem. Second, the lack of investments in education and human capital formation within agriculture hindered technological innovation and diffusion. Third, the transfers from agriculture to "nonviable industrial sector or a non-productive military and administrative bureaucracy" obstructed linkage effects (Hayami and Ruttan, 1985, p. 440). While Hayami & Ruttan accurately describe a common phenomenon or well-identified problems, it is not completely clear why the development paths (between development and involution) become a matter of choice.

One of the most comprehensive efforts to apply the concept of involution has been carried out by Huang (1990) in his work on China. In general terms he defines involution as a process of growth without development. That is, output increases but at the cost of diminished marginal returns per workday (Huang, 1990, p. 11). Huang then refers to the possibilities of Chinese agriculture to increase output, but without significant improvements in labour productivity and income per capita. This phenomenon, he posits, characterizes China from the fourteenth century to 1978. He divides it into two main phases: one of involutionary commercialization, followed by collectivist involution. Considering the similarities between China and North Vietnam, his work could be illuminating.

Huang's contribution is two-fold: first, it comes out partly in support of Elvin's HLET, though he argues that contact with the West is insufficient to break out of involutionary processes; second, it provides a clearer definition of involution than Geertz'. His view of involution is as a process which makes the concept less taxonomical, and that it is one of three patterns of development; the

other two being intensification and development (Huang, 1990, p. 11). Intensification is when "output or output value expands at the same rate as labor input". He considers that intensification is Boserupian, driven by population pressure while "in contrast to intensification and involution, development generally occurs with not just increased population pressure, but an efficient division of labor, increased capital inputs per unit labor, or technological advance" (Huang, 1990, p. 12). Whilst this statement does not initially affect his definition of involution, it brings some confusion to his interpretation of Boserup.

As already indicated, Boserup claims that population pressure leads to processes of land use intensification (otherwise, as the population grows, people would either starve or migrate). However, she points out that "output per man-hour is more likely to decline than to increase […] when a given population in a given territory shortens the fallow period and changes its agricultural methods and tools correspondingly" (Boserup, 1965, p. 41). Whereas this statement could be considered as inconclusive, she states: "a period of sustained population growth would first have the effect of lowering output per man-hour in agriculture, but in the long run the effect might be to raise labour productivity in other activities and eventually to raise output per man-hour also in agriculture" (Boserup, 1965, p. 118).

This ambiguity might lead to confusion. For instance Austin (2008), in his interpretation of the findings by Tiffen et al for Machakos in Kenya, seems to indicate that a Boserupian story is when labour productivity does not fall through processes of land intensification (Austin, 2008, p. 616). In Boserup's theory, though, that is not a necessary condition. One may also question whether diminishing returns to labour are a sufficient condition for involution, as indicated by Huang. Datoo (1978, p. 141) suggests that the shift to a more land-intense system should ideally happen when average productivity is at its maximum. Nonetheless, the system could be sustained when the marginal returns approach zero. Once this happens, it is a question of "Geertz' alternative of 'involution' to Boserup's continuous 'evolution' of agricultural systems" (Datoo, 1978, p. 141).

This study considers that diminishing returns to labour (closing on zero) are necessary but not sufficient for involution to take place. It could come down to a matter of semantics, but as Little (2010) states, there may be three major changes: revolution, stagnation, and involution. There is an implicit idea that involution is a process which takes you further away from your potential, and that there is an implicit trap mechanism. Huang (1990) himself presents a

potential mechanism via the *familization of rural production*. Women and children become more active and indispensible in the economic activities of the household. This, unlike the positive interpretation associated with the proto-industrialization of Britain between the late seventeenth and early nineteenth centuries (Mendels, 1973), is a response to keep subsistence. Household production includes, for instance, a movement towards cash crops (e.g. silk in China), and leads to a common trait of subsistence households: diversification of economic activities within a household, but with minimal commercialization (Eicher, 1970).

In sum, HLET does not exclude opportunities of economic growth. Nonetheless, being in the trap means that technological innovations are not sufficient to outrun population pressure, leading to involution and keeping the population at subsistence. The fundamental question is what makes it a trap.

2.2.2 HLET and Technological Change: A Caveat

In Boserup's theory, the probable effect of such a subsistence threat is technological change. By this she does not necessarily mean a discovery, a technological breakthrough; it could be the adoption of already existing techniques for a more intense cultivation system (Boserup, 1965, see chapter 6, pp. 56-64). In the case of HLET, Elvin is of the opinion that the difference between the potential output and the actual one is based on practice. In other words, the technology at a specific time determines the production potential. Ultimately, it is the efficiency of practice, seen as the combination of inputs (labour, fixed capital, fertilizer, etc.) and organizational efficiency, which will determine the actual production.

In his illustration, practice is improving but less than optimally (see Elvin 1972). He adds, though, that HLET was established between the fourteenth and seventeenth centuries, which was a time when the land frontier was closed and no further technological change took place (Elvin, 1972, p. 170). Thus, if we were to revise his representation of the potential output given a stagnant traditional agriculture, we might question why it is represented as a curve with a concave shape. Of course, production is a function of labour inputs and, since there are diminishing returns to labour, the OT curve would be an accurate representation of a normal production function. But if we want to represent a historical process, and show that there was no technological change, should OT

not be represented as a horizontal line? If one allows for technological change, the production curve should be pushed upwards, which it is not in this case.

We consider that having such an understanding of an almost meta-production function based on a non-changing traditional technology makes it harder to operationalize. Allowing for quasi-equilibria and possibilities for technological change, though small (see figure 2.2), would make it more useful for understanding the dynamics of transformation in traditional cultivation systems and, consequently, the difficulties of "modernizing" agriculture. In order to develop this argument further, the next section discusses the difference between a low and high-level equilibrium trap.

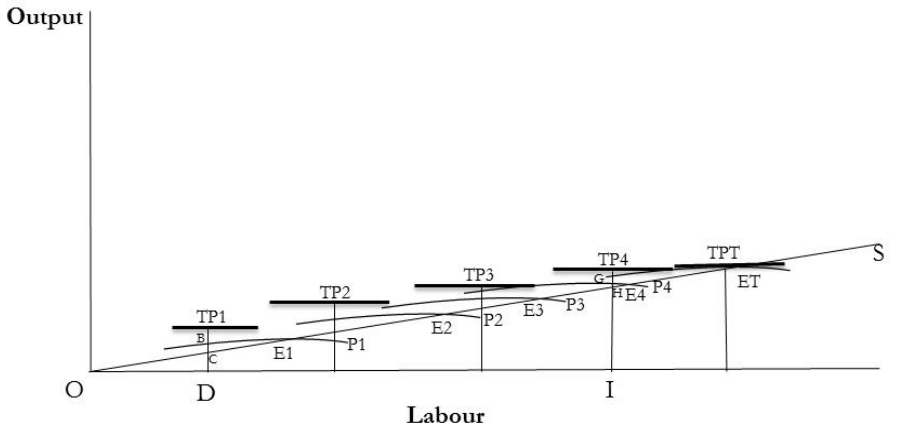

Figure 2.2: Alternative Representation (TP: total production given a level of technology i=1 to T)

Source: Author

2.2.3 A low versus high-level equilibrium trap?

The concept of a trap is a rather static one (even though it may comprise a long period of time). Elvin's model allows for different equilibria, which begs the question about the mechanisms by which the equilibrium is distorted and what leads to the next equilibrium. In his graph, that would mean asking for how one goes from E_1 to P_2, which is not totally clear in his theory.

As far as is known, only one other study has discussed the difference between a low and a high-level equilibrium trap. Arrighi, Hui, Hung and Selden write (2003, p 320, footnote 1): "This exhaustion is what Mark Elvin (1973, p. 314) calls a (Smithian) high-level equilibrium trap. We would like to emphasize, as Sugihara (this volume) also suggests, that this "trap" should not be confused with traps of Malthusian, low-level equilibrium type. A Smithian, high-level equilibrium trap refers to a situation in which the potential for efficient growth of an economy with a particular endowment of resources has been fully exploited. Although in such a situation production, trade and income cannot grow further, they are at historically high levels. A Malthusian, low-level equilibrium trap, in contrast, refers to a situation in which an increase in incomes calls forth an increase in population that depresses returns to labor and brings income back to historically low levels".

This is an interesting interpretation of the difference between low and high equilibrium traps. One should, however, be careful when interpreting maximum output relative to inputs as higher income per capita. After all, Elvin believes that this had led Chinese farmers to subsistence with limited disposable income. Equally important, if production, trade and income could not grow further, the cultivation system was vulnerable. If population expanded rapidly or there was a failure in production, the expected outcome would be insufficient production that could lead to a food crisis (a Malthusian type).

Elvin's theory may be more operational if Boserup is re-introduced. If we take the representation of technology as a straight line and not as a curve (see figure 2.2), the threat of subsistence, derived from the combination of high population and technology ratio, may induce farmers to innovate. This, however, can only be achieved at greater labour intensification. In Elvin's formulation, labour is indistinctly treated as units (people) and working hours, but these two measures of labour productivity should not be used indistinctively. Let's assume that a new innovation takes place and is 'available', and hence the production function is lifted to P_2. We cannot take for granted that farmers will immediately be at that level. Boserup argues that this would be done at higher costs per labour unit because, in this understanding, P_2 is a more land-intensive production function.

Consequently, a fair question to ask would be: could these quasi-equilibria lead to, or be interpreted as, low-level equilibrium traps? According to Nelson

(1956)[7], this type of equilibrium is reached when "… existing inputs are not producing the maximum amount of output that man's knowledge will allow". Nelson suggests that if economies are stimulated, there could be an increase in output/incomes without further increases of inputs. Thus, if one was to interpret Elvin in terms of labour units and not man hours, it could be argued that since the way to break free from the quasi-equilibria is via changes in practice (given the inputs and output potential at a given technological frontier), these could be theoretically considered low level equilibrium traps.

This understanding is, however, a static and partial view of the phenomenon under study. Static because at a given point in time there could always be room for a reduction of inefficiencies of practice; but it does not help us understand why there are inefficiencies and how they have been evolving over time. And partial because, as Elvin himself states, the trap closes as the marginal for a reduction of those inefficiencies declines, in absolute and marginal terms, over time. His theory is much easier to understand and operationalize in terms of Boserupian mechanisms. Hence the quasi-equilibria should not be understood as low-level equilibrium traps because the change to a higher production function would come at greater labour inputs, measured as man-hours, which is contrary to the definition provided by Nelson (1956).

Consequently, the key difference between the two is that land productivity is the highest in HLET, given the existing technology and input-output relationship. In this way, the economic system can maintain a higher population density, even some urban population, and this is why Acemoglu et al (AJR, 2001) think of these societies as more prosperous. What constitutes a trap, similarly to the Low Level Equilibrium Trap, is that it is Malthusian. If population was to grow above the equilibrium, considering that labour inputs (both in hours and absolute) are almost fully employed in a highly land-intensive use, it would possibly suffer from positive checks and return to equilibrium. In other words, the possibility for labour reallocation becomes limited.

7 Nelson (1960) takes the case of Japan as an example of escaping a Low Level Equilibrium Trap, whereas Sugihara (2003, p. 92) argues that Japan had fallen more deeply into Elvin's High Level Equilibrium Trap than contemporaneous China.

2.2.4 HLET and Two Extra Caveats

There are two more caveats to address. First, HLET is inferred from Chinese evidence. That China was suffering from a (Malthusian) HLET is contested. There are two main angles in the counterarguments to Elvin's and Huang's position. First, there is the Great Divergence debate, with authors such as Rawski (1989) and Brandt (1989) positively revising the degree of agricultural output and living standards, which links closely with the position of Pomeranz (2009). The latter claims that China's countryside was comparable to the English one in the nineteenth century. Second, there are works that challenge the Malthusian interpretation of China by maintaining that population actively controlled fertility, and hence population growth cannot be regarded as the limitation for Chinese transformation (Bengtsson et al, 2004; Lee and Campbell, 1997)[8].

In relation to the first aspect of the debate, the greatest limitation is that the conclusions are inferred mainly from the lower Yangzi region. The significance of this region (as it is the Red River Delta for rice production in Tonkin) is noteworthy. The challenge is that both camps are empirically refuting their findings for the earlier period, while Little (2010, p. 191) concludes that farm productivity and output were outpaced by population by the early twentieth century. The implication of such a phenomenon is greater than the effect on the living standards of the farmers in the region, and significant for the potential of structural transformation in China. This takes us to the second aspect of the debate and the different objectives of the research. Elvin (1973), and Huang (1990), attempt to provide an explanation as to why China did not industrialize (until recently); in this framework, population growth, which did happen, becomes detrimental to a cultivation system that was not benefiting from technological change. The other works (championed by Lee and associates) have population and changes as their research focus. Whereas arguing that the Chinese population had a mechanism with which to respond to negative conditions, i.e. delaying marriage, is a valid point, it is insufficient to explain the vulnerability of the cultivation system given that China experienced significant population growth during these centuries. The complexity is greater as the interplay of economic, social, and environmental factors is significant.

8 For a more detailed analysis of this debate, see Faran (2011) and Little (2010).

The evidence points at a certain fragility of the system when the country experienced significant population growth, which in turn put pressure on land and its use. This made the cultivation system more vulnerable to harvest failures and flooding, and consequently a subsistence threat.

At HLET, changes in practice to increase production per capita may lead to a subsistence threat. The economic system cannot generate enough demand for labour out of agriculture at the same time as land intensification via shortening fallows leads to a reduction of labour availability. The end result is a marked seasonality in the employment of rural labour. In addition, the supply of labour is extensive, which pushes prices of labour (wages) down, resulting in low opportunity costs of labour. This leads to a self-reinforcing mechanism, where land productivity is high at the expense of labour productivity, but it must remain high to feed the population. Thus, as discussed earlier, labour intensification hinders its productivity and release, which is a necessary condition for a successful agrarian transformation.

The second caveat comes from the works of some authors, influenced by Lewis (1954), who contend that the observed outcome (extensive rural population at subsistence) conforms more to the idea of disguised unemployment and underemployment. The marginal productivity of labour is zero, and it is employed in low productivity activities, implying that it could be released without a substantial loss of output production (Fei and Ranis, 1961; Jorgenson, 1961).

This study is not the first to counterargue this assertion (see for instance Warriner, 1955; Schultz, 1956). The cultivation system has been adapted to the availability (or lack) of either factor. As population pressure constrains the availability of arable and cultivated land, increases in land productivity lead to labour scarcity. Hence, in order to transform, one may argue that labour saving technology should be as necessary as land-saving technology; otherwise, as labour is "released", the production capacity is compromised and so is the subsistence of the population. The key would be to increase labour productivity in a two-stage plan: first, through labour-absorbing innovations, which could soften the peaks of cultivation and increase income per capita (and potential for savings-investments, and linkages in the economy). Second, thanks to labour-saving technologies, labour could be released from agriculture (see for instance Ishikawa (1967) for the cases of Japan and Taiwan, which were similarly endowed as Tonkin).

In sum, an important indication of the existence of a trap is when "innovations" take place, but labour productivity does not increase; that is, the

economy experiences involution. In order words, the innovations do not suffice to break free from involutionary processes.

2.2.5 HLET and Colonialism: Implications

Tonkin was likely at a quasi-equilibrium when the French arrived. We suggest similarly to Huang, that commercialization was insufficient to transform Tonkin's agriculture. There is, however, one main implication of being at HLET that Elvin did not develop in his model. This makes the solution to the trap more complex than the need for modern (industrial) inputs.

HLET is concerned with macro processes, but there is a micro-level implication. If land, as a closed factor at a given technological level, is exposed to population growth for a prolonged period of time, an expected outcome is intense land fragmentation. This tends to become more acute if, due to inheritance practices, land is distributed amongst heirs. The consequence is excessive parcelling (within-household land fragmentation), which, in turn, may make investments in modern inputs unprofitable, independently of the existence of technology. This, consequently, shifts the focus of the problem towards the profitability of such investments. There are two aspects to consider. These famers are at subsistence with limited disposable incomes to purchase modern inputs, but, equally important, there may be economies of scale in utilizing modern inputs that the farmers, due to the land fragmentation, cannot achieve.

Elvin would suggest that if excessive parcelling is the obstacle to overcome, there should be room for changes in practice and consolidation of land within each household. Here, we contend that excessive parcelling may create suboptimal conditions that are likely to be path dependent. These conditions are intrinsically linked to high population pressure. The problem of excessive parcelling tends to be overlooked by much of the literature on agricultural transformation (Hayami and Ruttan, 1985; Ishikawa, 1967; Schultz 1956, etc.), which is due to the fact that these authors normally consider land per household or farm, which, as we will show for the case of Tonkin, is an aggregate measure that could well overshadow the hindrance that excessive parcelling constitutes. This is how factor endowments might have a long-term effect.

In order to ascertain that a region was reaching HLET, and not one of the previous semi-equilibria, the following indicators should be identified in analytical terms. At the **macro** level: i) a land-intensive, with a high land productivity system, given traditional technology; ii) a labour-intensive agrarian

system, but affected by decreasing returns to labour; iii) as population grows, a reduction in the surplus available above subsistence per household. These hinder investments and the creation of effective markets for goods and services. The outcome is that there is no surplus of marketable products, and in any case the homogeneity of the production pushes prices down. Indicators at **micro** level would be: i) the familization of rural production, even with below subsistence returns to labour (Chayanov, 1986; Huang, 1990); ii) excessive fragmentation of household land; iii) diversified production to meet subsistence requirements.

In sum, it is hypothesized that the outcome under these conditions is that the majority of the population will be at subsistence. High population densities, in these conditions, should not be considered as connoting a higher income per capita, as is assumed by the 'Reversal of Fortune' thesis (AJR). Colonial powers, in search of increasing output (surplus potential), would likely have facilitated the increase of land use via multi-cropping (considering that land was scarcer than labour). The institutional dimension of this condition will be explored in chapter 4.

2.3 Abundance of Land to Man Ratios in an Open Land Frontier: A Vent for Surplus

One major implication from comparing both high and low level traps is that subsistence, as an observed outcome, may be generated via different mechanisms. This has implications for the understanding of these economies and, more importantly, for the finding of solutions. Hence, if Tonkin was not in a low-level equilibrium trap, could that also have been the case for Cochinchina?

The existing knowledge of pre-colonial Cochinchina refutes such claims, since trade and opening new land for cultivation were underway prior to the French colonialization (Li, 1998). Much to the contrary, it is easy to draw parallels between Cochinchina and the Irrawaddy delta in Burma when it comes to the intensification of land. So, it is normally considered that Indochina constitutes part of the empirical evidence for Myint's (1958) Vent-for-Surplus theory. In his seminal work, "The 'Classical Theory' of International Trade and the Underdeveloped Countries", Hla Myint provides a revised version of Smith's classical theory of international trade. His main argument is summarized in the following: "international trade overcomes the narrowness of

the home market and provides an outlet for the surplus product above domestic requirements" (Myint, 1958, p. 318).

One of the implications of his argument is a differentiation from the traditional comparative-costs doctrine, in that international trade becomes "[…] a dynamic force which, by widening the extent of the market and the scope of the division of labour, raises the skill and dexterity of the workmen, encourages technical innovations, overcomes technical indivisibilities and generally enables the trading country to enjoy increasing returns and economic development" (Myint, 1958, pp. 318-319). Thus, the process of specialization that takes place as a country enters international trade does not result merely in a movement within the production possibility frontier, but in an actual extension of the frontier. A second fundamental point of divergence from comparative cost theory is his understanding of a much greater "inelastic domestic demand and/or a considerable degree of internal immobility and specificness of resources" (Myint, 1958, p. 322). The implication of such an understanding is that countries that specialize in export, or produce a surplus for the international demand, become more vulnerable because that surplus cannot be used for domestic production since factors cannot easily readjust.

Myint states, however, that an exception to this ideal Smithian innovative role of international trade can be found in the peasant export sectors (such as rice) in South East Asia (Myint, 1958, p. 321). Here, the increases in land under cultivation for export took place under the same methods of cultivation as those used in the subsistence economy. This was nevertheless a development, a rapid one, which could only be achieved by a combination of excess land and labour. Thanks to the improvements of transports and communications, a growing demand of tropical products could be met by "the unlocking of the tropics" (Knowles, 1924, p. 119). Many of these economies, whether under the British or French, expanded their cultivation based on the pre-existing subsistence peasant economy. Myint's claim is that land was at a surplus, but there were no incentives for labour intensification until the development in communication infrastructures and the access to international demand. He takes the argument one step forward and warns the reader that the key to the understanding of such a significant expansion goes beyond the label "peasant subsistence economy", which is why countries with similar climate and geography (such as India) did not become major rice exporters at the time. According to Myint (1958), this was due to the determinant role of population densities or, more generally, of factor endowments. It is also why Tonkin and Cochinchina, which are archetypically different, are exemplary. Consequently, in this understanding,

colonialism changed the opportunity cost of labour, and incentivized farmers to trade-off leisure (or extra activities of the slack season), but given the abundance of resources-to-man ratios.

A typical representation of a production possibility frontier is represented in Figure 2.3, left, where the axes X and Y represent rice and other produce. This, however, is not an accurate representation of the situation that Myint referred to. The figure on the right is a more accurate representation of those economies where a minimum production of rice was first guaranteed for subsistence and any excess production was then sold. That could mean, that at one point, farmers with surplus land capacity may have opted for choosing between rice and other produce (see surplus land as the remainder after subsistence production).

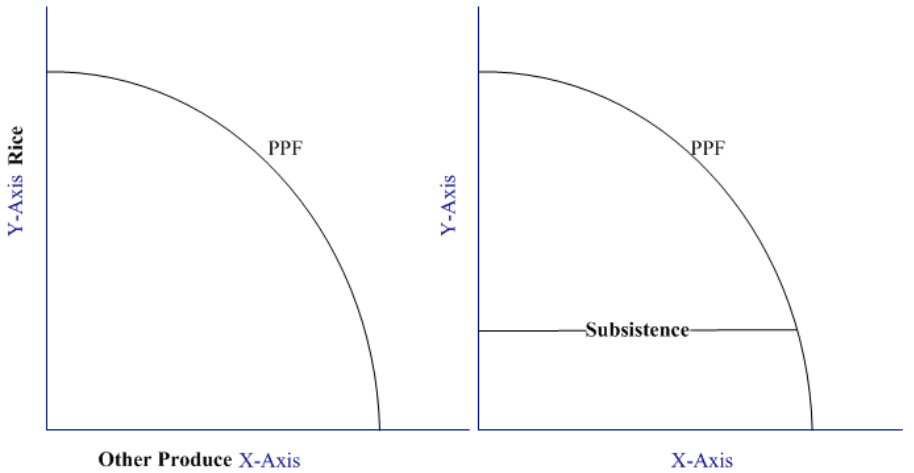

Figure 2.3 Production Possibilities Frontier: typical (left) and Adjusted (right)

Source: Author

Myint considers that economies, in general, are more vulnerable than the comparative cost theory predicts. As previously mentioned, the domestic market could not easily absorb the excess production. Contrary to what comparative cost theory predicts, neither the factors nor the productive capacity of countries are mobile and flexible enough to readjust. Myint, however, makes a distinction between the less developed economies (e.g. Indochina and the export economies of Southeast Asia), and the more developed economies of Western Europe and

the Americas that were also part of the expansion of international trade in the 19th century (see for instance the literature on staple theory by Innis and Watkins in Easterbrook and Watkins, 1967). He differentiates these two groups of economies in terms of their vulnerability. While the more developed economies have reshaped their economy as a result of a process of "specialization"; the less developed economies "possess a sizeable surplus productive capacity which (even without any improvements and extensions) it cannot use for domestic production" (Myint, 1958, p. 322). These underdeveloped economies have not become more technologically advanced as a result of specialization induced by international commercialization; they have added production to their subsistence.

In case of an economic crisis, the more developed economies, since they have become more technologically advanced under the assumption of investments and human capital accumulation, could hypothetically reutilize such factors. The less developed group might fall back into subsistence with the likely implication of putting a considerable number of the population at survival risk. Therefore, for estimating the income per capita of farming households, one has to take into account the vulnerability to markets that these farmers were exposed to. This means that the economy of Cochinchina and its actors were negatively affected by market fluctuations.

Hayami (1994) comes out in support of the theory in his explanation for Indochina: "[…] rice which is characterized by absence of scale economies in terms of both farm-level production and coordination with processing and marketing has been produced exclusively under the peasant system irrespective of initial conditions and development process (Barker and Herdt, 1985). Lower deltas of major rivers in continental Southeast Asia, such as Irrawaddy in Burma, Chao Praya in Thailand and Mekon (sic) in Vietnam, had very few indigenous settlements until they were opened for the production of rice from the late nineteenth century to the early twentieth century, for export first to Europe as a cheap food for the industrial labour population and, later, to the insular and peninsular parts of Southeast Asia for their plantation workers" (Hayami, 1994, p. 129).

The colonial powers not only expanded the demand in Cochinchina, but also carried out significant investments in communication, infrastructure, and marketing. These led to significantly different dynamics to those discussed in Boserup's theory, which relies on internal factors (population pressure) to transform. Still, the predictions of the theory of vent-for-surplus can only be achieved **given** a surplus of both land and labour. Land intensification goes hand

in hand with labour intensification; hence, in areas where increases in output per capita are achieved via intensification of land use, the surplus of labour (seen as units and man hours) will be reduced. This implies that in areas of high population densities, where the frontier of arable land is closed (given the existing technology), there is barely any surplus labour. Hence, the economic opportunities brought about by the commercialization of the economy will be more limited.

2.3.1 Vent-for-Surplus Theory and its Critics

This study claims that Myint's theory is helpful for understanding the significant expansion of the land frontier and economic growth of Cochinchina, at least until WWII. Consequently, a stand must be taken in relation to the criticisms that this theory has generated.

It does seem that Myint's theory is accepted as a possible explanation for the transformation of some of the regions in Asia (see Findlay and Lundahl, 1984, 1994, 1999; Hayami, 2001; Huff and Caggiano, 2007). It has been discussed more specifically for the cases of Thailand (Ingram, 1964, 1971; Fuglie, 1991), and Malaysia (Gunnarsson, 1985). Eicher (1970) comments that it is useful in understanding changes in the behaviour of subsistence farmers in land-abundant countries in general.

The criticism has gained in intensity as a response to the validity of the theory in the African context, which has been discussed in, for instance, the works of Szereszewski (1965), Hopkins (1973), Gunnarsson (1978), and Ingham (1978). Tosh (1980) argues that the difficulty in this context is that while the vent-for-surplus theory "seems demonstrably true for the early colonial period" at continental level, it is more difficult to apply to specific regions (Tosh, 1980, p. 82). In this vein, Austin (2012) presents a critical assessment for the case of cocoa in Ghana, based on previous works questioning the theory (i.e. Hogendorn & Goldberg, 1982).

The main counterargument to the vent-for-surplus theory is whether significant inflows of capital and labour transformed the economies; in other words, whether the expansion of the frontier could be explained by permanent settlement of external labourers and/or technological progress. In response to this, Austin's answer to the cocoa case in Ghana is a resounding no (Austin, 2012, p. 14). Consequently, it does seem that the main concern put forward by Austin about the theory is the trade-off with leisure, and the implicit acceptance

of European stereotyping of the 'lazy African' (Austin, 2012, p. 18). Indeed, that is most unfortunate, but Myint (1971) had no intentions of stating that farmers were previously unoccupied. His theory considers it "semi-idle labour of the subsistence economy" (Myint, 1958, p. 320). It was Szereszweski (1965, p. 11) who found that, in the traditional economy, a bulk of human effort was held in reserve for leisure. This said, Szereszweski disagreed with Myint in "…his emphasis on the traditionality of the export crops which generate the process of growth. This need not be the case; in our instance both technological innovations and capital formation on a large scale took place" (Szereszweski, 1965, p. 77, footnote 5). That is, in Szereszweski's opinion, Myint's Vent-for-Surplus did not apply to Ghana. The implication is that even if these two authors (see Myint and Szereszweski) shared a similar Smithian view of foreign trade, their understanding of the processes generating the surplus differed. One might argue that there are two different theories.

Austin himself states that the men's work calendar was somewhat more intermittent prior to the extension, and that they used to "engage in extra-subsistence, cash-earning activities" (Austin, 2012, p. 17). The expansion of the frontier meant a change of men's behaviour towards land clearance, planting, and weeding cocoa plants. He adds that, from the 1910s onwards, migrant labour to the 'cocoa belt' became more significant, along with *seasonal* migration, facilitated by the construction of railways, from northern Ghana and the neighbouring French colonies (Austin, 2012, p. 14). His findings consequently do not reject Myint's theory that there was surplus labour.

A potential argument to validate Myint's theory might be found in the engagement of farmers in joint products. Surplus capacity was somehow latent. If farmers had produced in excess and over supplied the market with derivates of rice (i.e. alcohol), or even produce from their gardens or animals, without an effective demand (small domestic demand), these products would have become a 'free' good, that is, at zero price (see Kurz, 1992, on his interpretation of Smith's vent-for-surplus). Foreign trade could consequently become a vent-for-surplus.

Myint's theory does not exclude the possibilities of some farmers specializing. Nonetheless, without major inflows of capital and labour, there should have been an abundance of labour inputs (man-hours) to engage in, for instance cocoa production without putting their subsistence at risk. If one wants to argue that farmers specialized, one should identify greater diversification of the rural economy (Timmer, 1997) and/or increasing imports of basic goods to substitute subsistence production; this would imply a transformation of household production from subsistence to specialization. In other words, the

new activities competed against subsistence farming activities, instead of complementing them. This, however, does not seem to have happened for the cocoa case in Ghana (Austin, 2012, p. 26).

In the case of the rice economies, the lack of specialization is harder to ascertain, since rice was the subsistence crop. Myint maintained that the farmers added production to subsistence, which is implicitly supported by the lack of technological progress. Chapter 5 will take up the discussion of specialization and diversification, at macro and micro level, and show that the lack of diversification of Cochinchina's agrarian economy may also be interpreted in this realm.

The next chapter will empirically take up the counterargument that the growth of exports, derived from the extension of the land frontier in Cochinchina, was due to the reallocation of labour and/or technological progress. There could be two possibilities for the former claim: i) labour was reallocated from other highly populated regions of Indochina or imported; ii) the expansion could be explained by population growth.

2.3.2 Vent-for-Surplus and Inequalities

There is one important aspect to discuss further, i.e. whether the lack of technological progress in these economies added to the role of formation of inequalities. In the process of expansion, a functioning market should reward all actors of the trade. But as Myint (1985) discusses in his later work, there were important imbalances of the rewards, which led to growing inequalities between the native peasant farmers and the foreigners (in our case French and Chinese) who controlled the marketing channels. This led to substantial distortions of market mechanisms as a consequence of the imperfection of financial markets and marking infrastructures. One may ask: how were these distortions created? Were they market-led or institutionally led? And if institutionally led, was this due to colonial intervention or the existence of elites (new or old) who controlled the main factors of production?

In order to answer these questions, we first need to empirically examine the differences in prices at different points of the trade. This could help establish whether prices were a reflection of rewards to economic activity (adjusted to cost), or whether the differentials are an indication of a monopolistic and/or extractive system. If producers' prices were kept low (in relation to export prices), would it be reasonable to expect specialization at farm level? A trait,

which Myint attributes to the frontier economies of South East Asia, is that they did not specialize, but added production to subsistence. If the rewards of such excess production were insufficient for the farmer to move into specialization, probably due to the deficient increases in income per household, is it not to be expected that a large number of the peasant population would keep subsistence production, although not being at subsistence, and that this would become a commonality to a majority of farming households?

Myint assumes homogeneity amongst the domestic indigenous peasant farmers, but that is assuming that all farmers had the same opportunities and maintained a low degree of specialization. But was it not likely that the frontier farmers had greater difficulties? Hopkins (1973) and Gunnarsson (1978) argued that there could be a logic within the regime of economic growth that led to socioeconomic stratification. It is likely that economic differentiation happened in the village economy as a result of differences in soil fertilities, household size, location, indebtedness, and also luck.

There is also the important aspect of land distribution. Hayami (1994, p. 129) suggests that "[L]andlords invested in building infrastructure, such as canals and dikes, needed for both human settlement and rice production. Despite this large capital outlay, the plantation system did not emerge in these rice bowls. Instead, landlords preferred to rent out lands in small parcels for cultivation by peasants who were invited from old-settled areas (Feeny, 1982; Wickizer and Bennet, 1941)". This interpretation of the institutional transformation of Cochinchina has to be contrasted against the empirical evidence of high indebtedness of peasant farmers and large estate formations (see for instance Bassford, 1987; de Feyssal, 1931; Henry, 1932). The role of the Great Depression and its effects on the rice economy and its actors are fundamental. These questions, which are core questions for reaching an understanding of processes of differentiation (inclusiveness or exclusiveness) in this economy, will be explored in chapter 4.

This study claims that, as a result, processes of stratification and, later on, polarization (especially after the Great Depression) hindered the transformation as the most vulnerable farmers were pushed towards subsistence. The potential for growth (surplus of land and labour) became exhausted probably by the late 1930s or 1940s, when the land frontier closed. These processes are especially relevant, as Myint himself agrees, because these inequalities affect later processes and possibilities for an agricultural transformation after independence. Those aspects will be explored in chapter 6.

2.4 Summing up and Implications

So far, in this chapter, the analysis has been concerned with providing potential theoretical explanations for two dynamics in agriculture having differences in factor endowments as the initial conditions. This study proposes first that economies with such differences in factor endowments are best understood if treated as independent units of analysis. The second aspect is consequently that the processes of land intensification, though different, would have been achieved at the expense of labour productivity, and within the limits of a traditional Production Possibility Frontier. As investments focused on land intensification and not only on labour-saving technologies, labour remained abundant in relation to land. This does not preclude phases of economic growth, but without transformation. The potential for surplus generation is however much more limited in an economy high population densities and a closed arable frontier, than in an economy where farmers could intensify land use by putting new land under cultivation. In the case of the former, increasing population pressure without a substantial technological change would lead to HLET. For the latter, the potential for increasing output per capita is greater but the effect on improvements in income per capita would require further investigation.

In sum, this chapter has attempted to discuss empirically derived hypothetical generalizations (Gerschenkron, 1962, p. 6) based on factor endowments as our initial conditions. In the next chapter, we will discuss how well these generalizations fit with the empirical material. The first step will be to explore the possibilities of generating surplus in two systems of land intensification. The implications for capital formation will be discussed by comparing these two dynamics. The relation between land intensification and labour intensification (how much surplus labour was in these two economies) will be analysed. The expectations are, however, a more limited surplus capacity in Tonkin, mainly the Red River Delta, as a result of the constraints inherit in HLET. For Cochinchina, the transformation becomes more of an empirical inquiry as certain events, such as the Great Depression and the closing of the frontier, are critical junctures in its path. The result of this analysis will be taken onto the discussion on the possibilities for extraction, which were intrinsically linked to the formation and evolution of inequalities during the period.

3. Two Types of Colonial Rice Economy

This chapter discusses how the initial factor endowments of the two rice economies of Indochina conditioned the potential for increasing their surplus capacity during colonial times. As argued in chapter 2, it was via processes of land intensification in a Boserupian sense (i.e. intensifying land use) that this increase in capacity was achieved. These processes, in turn, set in motion dynamics that altered the factor proportions, relative prices, and the possibilities of capital formation. This chapter will show that both economies increased their output, and surplus capacity, but for neither of them did this lead to structural transformation. This can be partly explained by the fact that these increases were attained within the limits of a traditional Production Possibility Frontier, that is, without a major technological breakthrough. The processes were distinct, however, due to the availability (constraints) of both labour and land in the two economies. It is consequently argued that the two theories discussed in chapter 2, Myint's Vent-for-Surplus and Elvin's High Level Equilibrium Trap (HLET), may shed light on the dynamics of these two rice economies during this period.

This chapter consequently provides a first, though partial, view of the economic processes that took place during this period. It is an analysis of exclusively supply-side factors. There is an implicit assumption that demand-side factors (i.e. foreign demand) did not favour one rice delta over the other, and similarly to chapter 2, institutions are considered in equilibrium. In other words, as will be shown below, a remarkable increase in land under cultivation and export volumes took place in Cochinchina, facilitated by colonial investments (Brocheux & Hémery, 2011; Hayami, 1994; Murray, 1980). That is, there is an uncontested appraisal that the French administration and the main actors of the rice trade, including farmers, had an interest in and responded to such incentives. The limited export capacity of the Northern delta cannot then be attributed to a lack of interest or incentives of the main actors (or any exogenous institutional barriers). The objective here is consequently to discuss

the economic opportunities and constraints given by the distinct factor endowments of the two rice economies. This said, a clarification should be made. This chapter is not a test of the two theories, but derived from the theoretical discussion in the previous chapter, implications are drawn to provide an understanding of these two rice economies. We discuss how close the theoretical generalizations developed in chapter 2 fit with the empirical material available.

This study argues that Tonkin, in the North, was probably at a quasi-equilibrium at the time of the arrival of the French. The expectations are that the high man-to-land ratios, and closed arable land frontier, induced investments in increasing multi-cropping. As labour was abundant, and hence cheap vis-à-vis land, investments tended to be labour-absorbing, which, in turn, kept labour dependent on the seasonality of rice cultivation; a cultivation that had been intensified. Population growth, in this cultivation system, would have led to increasing pressure on limited land, which in turn would have led to involutionary processes, i.e. at HLET.

In Cochinchina, land abundance, along with favourable market conditions, gave rise to investments in making land available for cultivation, which changed the incentives of farmers to intensify land use by developing the frontier. This led to abundance of land relative to labour. Land could therefore be put under cultivation without investments in new technology, which would add surplus production to subsistence. In this scenario, the expectations should be increasing output per farming household, but subject to market fluctuations and without major investments in land productivity, which means that the growth is achieved within the Production Possibility Frontier.

This study puts forward the argument that these two rice economies should be treated as independent units of analysis. Consequently each economy will be explored separately. Nonetheless, it is in the comparison of the two rice economies exposed to the same initial exogenous shock (see French colonialism) where we can gain a deeper understanding of the economic mechanisms at play. Hence, from a comparative point of view, given the theoretical stand of this chapter, the expectations by factor (first land and second labour) are as follows. The possibilities for land intensification in Tonkin were conditioned by an already intensified cultivation system given traditional technology. Hence, there may have been greater limitations to increasing output per capita in Tonkin than in Cochinchina. Due to the land constraints in the Northern delta, investments ought to have been made to increase crop intensification, which would have produced higher yields per cultivated acreage (i.e. that is output

relative to arable land) than in Cochinchina. For Cochinchina, the constraint would be given by the opportunities (or lack thereof) for investing in making new land available for cultivation (and soil fertility). There, the incentives to put new land under cultivation must have been higher than intensifying existing land use and with the expected initial lower returns of new lands (Boserup, 1965), this would not have led to high land productivity.

In relation to labour, one could initially expect that the high population densities in Tonkin may have created excess labour that might be used to develop the frontier of the South. This could have been beneficial for both economies, leading to a potential increase in output per capita in the North and increased output in the South. The reality was that migration did not take place, at least not in significant numbers (Gourou, 1945; Robequain, 1944), which is a paradox that has been culturally explained (Goudal, 1938). This chapter suggests that the reason may be found in Tonkin being at HLET. That is, the processes of land-intensification during colonial times were done at the expense of labour productivity (measured as man-hours), which, along with increasing population pressure, induced involutionary processes. A self-reinforcement mechanism of labour intensification with quickly diminishing marginal returns brought HLET closer. Consequently, labour productivity should have been relatively higher in Cochinchina due to its less intensive cultivation system.

These processes had significant implications at micro level, for income levels, which will be discussed further in chapter 5. Here, the objective is to explore and provide an understanding of the dynamics of the two economies, which, as will be discussed in the last chapter, may be significant for future development. These dynamics are shaped by different mechanisms that link land intensification processes with the consequent changes in the cultivation systems (i.e. multi-cropping intensity, investments). This has further implications in the form of the seasonality of labour and labour demands, which in turn has consequences for land and labour productivity, and the overall capacity of surplus generation.

Figure (3.1) shows the two processes of land intensification. This is based on Giacometti's (2000) estimates taken from official records. Whereas the increase in land under cultivation in Cochinchina is not contested (though likely subject to estimation errors from the colonial administrators), the question is how it was achieved. For Tonkin, the official view is an economy at the height of its potential from the early 1920s onwards. This will be challenged below.

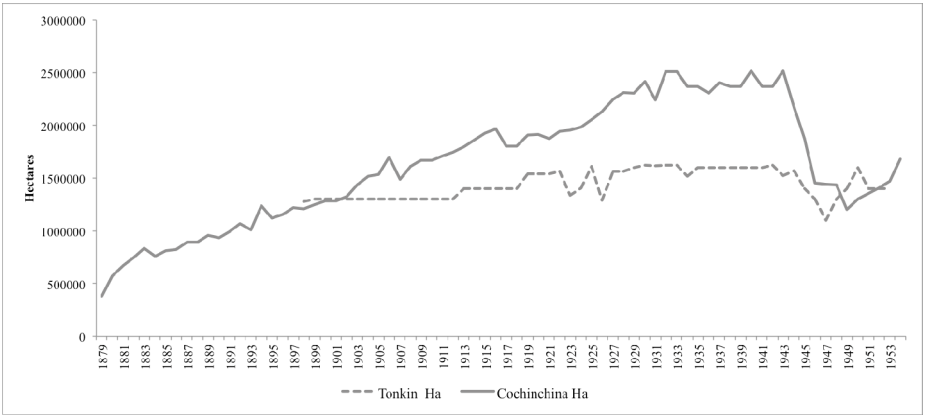

Figure 3.1 Land under Rice Cultivation (ha) according to official records in Tonkin and Cochinchina

Source: Giacometti (2000, p. 68)

The next step, however, is to present the factor endowments of these two economies as they are the starting point of this study.

3.1 The Demographic Imbalance

The objective of this section is twofold: first, to show the significant contrast of these two rice economies in terms of man to land ratios, and second to provide an estimate of population growth. This analysis is principally based on secondary sources, mainly Ng (1974) and Banens (2000), which, in turn, are based on official statistics and the work of Smolski (1938), a French statistician in Indochina. Further details may be found in those two works.

Before we move on to the details, it is important to bear in mind that population growth was significant in during the colonial period. Indochina, as a whole, went from less than an estimated 16 million in 1906 to 26.7 million in 1943; that is, an average annual growth rate of 1.6 per cent (Smolski, 1938 and the UN Demographic Yearbook 1951 in Ng, 1974). Still, there is one main caveat to take into serious consideration, and that is the lack of reliable estimates of population. This is a consequence of the underreporting that characterized this period (Ng, 1974), mainly due to the fact that the first Indochinese census

was not done until 1921. Despite the fact that this was designed to be a population count for the whole of Indochina, the procedures for each region were different, creating a regional bias. For Cochinchina and Cambodia, the counts seem to have been carried out in a more systematic way based on household information whereas, for the other three regions (Tonkin, Annam, and Laos), it was based on village returns adjusted to an estimate of salt consumption (Ng, 1974, pp. 17-18). Similar counts were carried out in 1926, 1931, and 1936. Ng, in her study of Indochinese population, writes "Although one should not give too much weight to these results, they, nonetheless, form the most "accurate" basis for the analysis of the demographic pattern for this period" (Ng, 1997, p. 18). Banens' (2000) study on Vietnam is a more recent attempt to provide a time series analysis of population trends during this period. Regardless, his estimates for regional population reconstructions (Banens, 2000, p. 38) cannot be used because he assumes an even distribution amongst the three regions that constituted Vietnam (see Tonkin, Cochinchina and Annam), which defeats the purpose of this study, i.e. to question migration between regions.

Part of the explanation for population growth during this period was the improvement of sanitation and basic health care (e.g. extensive vaccination campaigns, control over malaria, etc.), which led to a decrease in death rates (Ng, 1974). Population densities increased over time in both regions, but it was in the Red River Delta where it was most felt. The delta contained 32.6 per cent of the total population of Indochina in 1936, which was estimated at 23 million, but covered **only 0.2 per cent** of the total land area (Ng, 1974, p. 19). This, in turn, gave an average population density of 430 people per km^2, and made it amongst the highest in Southeast Asia (Gourou, 1945). But, as is shown in Figure 3.2., the average is misleading. In some parts of the most populous provinces of the delta, Nam Dinh and Thai Binh, population density had already exceeded 1,000 habitants per km^2 (based on the census of 1921), and was to increase over the colonial period. This makes it more comparable to Bangladesh, and some parts of China and Japan.

If we are to take into consideration the fact that the scholars of the time estimated that there was under-enumeration of population, the problem may be even more acute. Smolski (1938) estimated that under-registration was between 20 to 25 per cent for Tonkin, while Gourou (1936) concluded that it probably oscillated between 5 and 15 per cent.

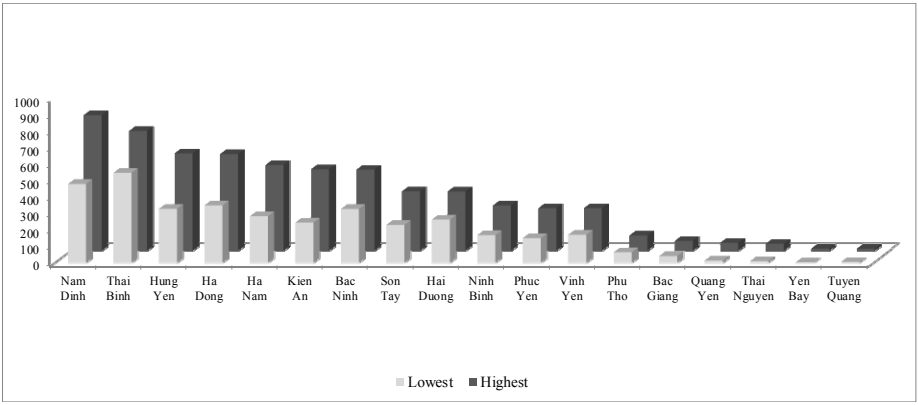

Figure 3.2 Population Densities in Tonkin: Maximum and Minimum Registered by Province (habitants/km2) from 1903 to 1943

Source: For population figures see Appendix. Surface is taken from Henry (1932). The maximum corresponds to 1943, with the exception of Ninh Binh, where the highest population density was reported in 1941, and Son Tay, which had the highest population densities in 1903-1904.

Note: The Delta provinces are the first twelve from the left plus Bac Giang.

As the graph shows, the non-delta provinces (uplands) had a minimal to insignificant growth of population pressure during colonial times. This reinforces the argument that the focus should be on the delta.

Based on calculations done by Ng (1974, p. 33), for the period 1906 to 1936, the population of Tonkin grew at average annual rate of 0.9 per cent. Our gathered estimates, for the period 1903 to 1943, show a growth of the Delta provinces from 5.45 million to 8.59 million, which means an annual growth rate of 1.4 per cent (detailed figures can be found in Appendix). The fact that the rate for the delta is higher than the average for Tonkin provided by Ng (1974) shows that population grew faster in the delta than in the uplands during this period.

Smolski claims that the error margin in Cochinchina's population estimates should be around 10 per cent, which is a high margin considering that Cochinchina was the only proper colony and counted on a large French administrative staff (Ng, 1974). The reason for such difficulties in establishing the actual population in both regions is that it was left to the village officials to report, based on village tax rolls. One might expect that out of fear of increased

taxation, the population went underreported. This inaccuracy of the estimates may have further connotations, including the possibility that the colonial control was not as extensive and omnipresent at the village level as some of the literature has portrayed to varying extents (e.g. Thompson, 1937; Wiegersma, 1988). This discussion will be taken up in the next chapter.

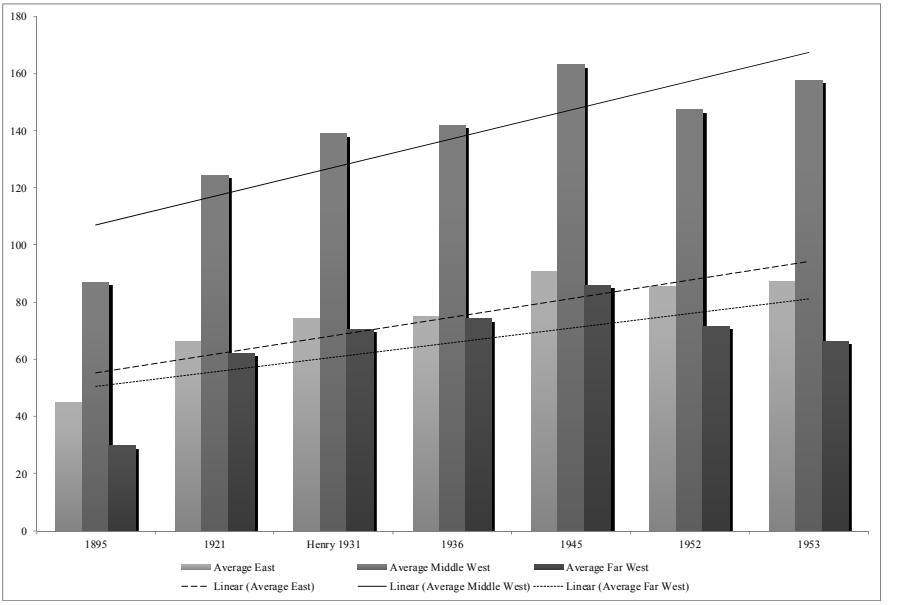

Figure 3.3. Population Densities during the Colonial Period in Cochinchina; provincial data grouped into three geographical categories

Source: Banens (2000)

Note: the provinces are grouped as follows: East: Thu Dau Mot, Tay Ninh, Bien Hoa, Ba ria, Gia Dinh, Cho Lon. Middle West: Tan An, My Tho. Co Gong, Ban Tre, Sa Dec, Vinh Long, and Tra Vinh. Far West: Chau Doc, Long Xuyen, Can Tho, Soc Trang, Rach Gia, Bac Lieu, and Ha Tien.

The population grew in all regions of Cochinchina up to 1945. The distribution of population during colonial times made a distinction between the 'old' provinces and the expanding frontier. In the former, the concentration of population reached an average of 160 habitants per km^2, though in some of those provinces the concentration was higher, especially considering the effects of the two biggest cities (Saigon and Cho Lon). There the population densities

were between 300 and 500 people per km^2. This contrasts significantly with the Far West provinces, which experienced the fastest growth at the time, but still with some provinces having 14 people per km^2 on average. The Middle West provinces had the greatest concentration of rural population, but well below the population densities of Tonkin or the plains of Annam (Ng, 1974, p. 21). After 1945, due to insecurity and many areas falling under the control of the Viet Cong, the statistics started to be reported on secured versus non-secured areas, and the continuity of the data was compromised.

In sum, the French encountered two economies with distinct population densities: Tonkin, which was considered to have a problem of overpopulation, that is, high man to land ratio, and Cochinchina, with an open land frontier and shortage of labour (Gourou, 1945; Goudal, 1938; Henry, 1932). One could expect that reallocating labour from Tonkin to Cochinchina would have been a way to solve the demographic imbalance. The fact that it did not happen was to become one of the most fundamental paradoxes for colonial administrators and scholars. Charles Robequain (1944, p. 47) summarized it neatly: "the demographic imbalance in Indochina remains, in sum, as striking as it was on our arrival in the country". The traditional explanation has been the attachment of the Tonkinese to their ancestors' land (see for instance Goudal, 1938, p. 189 and p. 222). This does not mean that scholars at the time did not examine the problem of cultivation. But the verdict was not unanimous.

The financier Paul Bernard (1934) asserted that there were two-and-a-half times more workers in Tonkin than the cultivation of all arable land required. On the other hand, Gourou (1945) established, based on his fieldwork, that the cultivation intensity of the rice economy employed the existing population. Both scholars are considered authorities on the subject (see Goudal, 1938, in p. 219)[9], which makes the understanding of this complex issue more cumbersome. This study attempts to elucidate this matter by exploring the dynamics of the two economies comparatively, and arguing that the processes of land intensification in the Northern delta led to greater labour intensification, which

9 Paul Bernard (1934) studied at the École Polytechnique in Paris and had a military career before having a position as aide to the Governor General in 1923. He became the managing director of the French and Colonial Finance Company (SFFC), an important finance house for the extension of the plantations in Indochina (more in Hardy's (1998) biography). He wrote three influential books on Indochina; one more focused on the relation between rice and the Great Depression, and two on more general economic problems.

makes Gourou's findings more probable. But it also explains the seasonality and underemployment of resources that Bernard (1934) reported. A better understanding of the wet rice cultivation, which is characterised as being very labour-intense, could be instructive for clarifying the disagreement.

3.2 Rice Land and Intensification

The traditional model to understand rice land intensification is not very different from what Boserup (1965) described generally (and was discussed in the previous chapter). An evolutionary system of production techniques for paddy cultivation would be as follows: from wild rice gathering in areas of low population densities to shifting cultivation in a forest-fallow system. The forest may be replaced by grass, where livestock is herded, and whose droppings can be used for fertilizing the fields. Eventually, the fallows are shortened, fields ploughed, and seed-broadcasting technique is used in permanent irrigated fields. Van der Eng (2004) indicates that, in the most elaborated form, rice seedlings are transplanted from nurseries onto intensively prepared irrigated fields. The most advanced form, which characterizes the Green Revolution in Asia, is the combination of modern inputs, mainly chemical fertilizers, with high-yield varieties (which respond to these fertilizers). These new rice varieties mature quicker than traditional varieties, which facilitate land-use intensity (Barker et al, 1985, p. 27). These processes interact with increases in population pressure.

This is of course a rather general pattern. There are important differences when it comes to, for instance, cropping systems due to the diversity of topography and climate within and amongst regions. That is, it matters whether multi-cropping is done with the same crop or by alternating two crops of rice with vegetables, or one rice crop and one of vegetables, or fallow, etc. The important aspect is that the level of development of rice farming is intrinsically linked to the intensity of land use throughout the year (Barker et al, 1985, p. 27). The differentiating factor in determining the *transformation* of cultivation is the change from labour-intensive to capital-intensive within processes of land intensification. This implies a change in factor proportions and prices, where both labour and land become relatively more costly (scarce) than capital, which, in turn, leads to labour-saving technologies and high yields per hectare and crop. As was discussed in the previous chapter, this also links to changing opportunity costs of land and labour.

The expectations of an economy with labour shortage, such as Cochinchina, would have been a faster transformation into labour-saving technology as the price of labour (wages) should have been higher in relation to land. In Tonkin, it was land productivity that ought to have been increased, likely via labour-absorbing technology, and eventually a transformation to labour saving technology as a means to modernize.

Ishikawa's works (1967, 1978) are a point of reference in understanding the transformation from labour-intense to labour-saving technologies in Asia[10]. He infers, from the development of Japan, Taiwan, and, to a lower extent, South Korea, that the final development in rice economies goes from subsistence production towards higher per crop yields and multi-cropping; first via labour-absorbing techniques and later towards labour-saving technologies. In his view, it is not enough to state that land was irrigated, as irrigation could range from a basic control of rainfall to major capital-intensive investment in water control.

These Eastern Asian economies are a significant reference for Tonkin, more than Cochinchina, where there were possibilities for putting new land under cultivation, and where there were few, or no, incentives to intensify land use. Hence, inferring from similar land productivities in two rice economies at different stages of intensification of land use could risk missing some fundamental and distinct mechanisms of transformation (see Bassino, 2006; van der Eng, 2004). Taiwan, which was also a small-scale household rice economy with per hectare rice yields of 1.3 tonnes could be a more interesting point of reference (seen as having similar initial conditions but different outcome) for Tonkin than for Cochinchina. This means that, at an aggregate level, Tonkin, with an average yield of 1.4 (Henry, 1932), could have been at the level of Taiwan during the period. However, Taiwan increased its yields to 2.6 tonnes just before WWII, which according to Ishikawa (1981, p. 23) was the same level as Meiji Japan. Taiwan reached 4.0 tonnes per hectare by 1974. Thus, the question is why Tonkin did not follow the Taiwanese path. The hypothesis is that Tonkin was closing on HLET by experiencing involutionary processes.

[10] For other relevant works on the rice economy more generally, see: Hanks (1992), Oshima (1987, 1993), Wickizer and Bennet (1941).

3.3 Tonkin and the closing of the High Level Equilibrium Trap

Derived from the hypothesis that Tonkin was at HLET, the expectations would have been high land productivity based on a land intensive cultivation system with full utilization of labour and other inputs. Under these conditions, all investments to improve land productivity ought to have been related to increasing multi-cropping given traditional technology (that is before the introduction of the modern fertilizers and high yield varieties that characterized the Green Revolution). If we relate it back to Ishikawa (1967), the likely strategy given the abundance of labour would have been to engage in projects of land intensification via labour-absorbing technology. These were likely to have been done in relation to irrigation and water control, and seeds selection.

In order to explore this, it is first necessary to present the rice cultivation system in Tonkin. Dumont (1935, 1957) and Gourou (1945, 1954) are the references to get a deeper understanding of the cultivation system in the region. Prior to and during colonial times, Tonkin's paddy cultivation had two main seasons: i) the tenth-month rice (dry season/winter rice), which was initially planted in May/June, transplanted in July, and harvested from October to December, and ii) the fifth-month (rainy season/summer) rice, which was planted in November/December, transplanted in January and harvested in May/June. There were areas that could take double cropping, and there was even the possibility of a third paddy crop, the "three moon rice" (*riz de 3 lunes* in French), which was harvested in August, but it was not very widespread. It had the advantage of being a quick crop, though costly; it was very labour-intensive for low yield productivity (less than 1 tonne/ha based on archival data). It is probable that farmers resorted to its cultivation in case of absolute necessity. Gourou (1945) claimed that a third rice crop was not very widespread in Tonkin, and only two provincial reports mentioned its cultivation (AOM)[11].

11 For Phuc Yen, it was reported that, in 1939-40, 1,342.3 tonnes were obtained from 1,488 ha (0.9 tonnes/ha), and, in 1940-41, 1,614.8 tonnes were obtained from 1,501 ha (1.08 tonnes/ha) (AOM, 1941 report). In Bac Giang, harvest of the three moon rice in 1941 was 13,361 ha and 12,522.6 tonnes (0.94 tonnes/ha).

The 10th month rice was the most predominant in the whole region, while the 5th month rice was harvested during the rainy season, which meant being at the mercy of the Red River and typhoons. As Gourou wrote (1945, p. 263) "[…] if the Red River could spread through the Delta at its pleasure, it would destroy the fifth-month rice harvest every other year; the month of June in fact sees a high water about 7 meters one year out of two". Thus, restricting the flooding from the Red River mainly facilitated the cultivation of the 5th month rice, especially in the lower basins of the Delta, but at the risk of vulnerability. In the Western part of the delta, the 5th month rice was the only rice harvest possible at the time (Gunn, 2014). But for the other delta regions, especially the lower Delta provinces, its cultivation meant processes of land intensification. These were realized by labour intensive methods for water control, especially dikes. The timing of the planting-out of the fifth-month rice was vital, since rice plants would die if they were submerged for more than four consecutive days (Gourou, 1945, p. 263). If rice could not be harvested, other crops (such as taros, batatas, etc) were raised on non-inundated land (Gourou, 1945, p. 406[12]) to guarantee survival. Gourou stressed the importance of embankment of the rivers as the enabler of land intensification and population growth (Gourou, 1945, p. 264).

The general official understanding was that the 10th month rice could normally yield one million tonnes per year and the 5th month rice approximately 600 to 800,000 tonnes (AOM, *Rapport de L'Inspecteur J. Domenec Ha Dong* province, 6 November 1944, p. 6-7, *Inspection des Affaires Administratives*). Thus, exports were probably linked to the harvest of the 10th month rice, which took place at the end of the year.

12 Rice was the main crop but it did not preclude the cultivation of other crops. Land was intensively cultivated, and areas where it was impossible to plant the fifth-month rice, such as closer to major river beds or higher altitude, the soils were prepared and used for planting non-inundated crops, such as taros, castor–oil plants, batatas, and other beans, tobacco and corn/maize (Gourou, 1945, p. 407)

3.3.1 Land Elasticity in the Red River Delta

The accepted understanding of rice land in Tonkin during the colonial period is one of stagnation. Giacometti (2000), based on official reports, indicates that despite an initial increase, probably due to security reasons, land under cultivation remained relatively stable at 1.6 million ha (see figure 3.1). This study challenges such a static view by stressing that, while the land frontier was probably closed by that time, land was a more elastic factor than normally assumed (Boserup, 1965). That is, it is important to distinguish between arable and cultivated land because, while the first was closed, the second was not.

It is probable that during the first years of colonisation the causes for an increase in land under cultivation (as seen in figure 3.1) were more in line with conflict and security reasons. As a result of violent conflict with the French, peasants fled their lands, especially in the northern fringes of the delta, to re-settle later on. Land was initially granted to the French for cultivation (198,000 ha) but much of it was reclaimed, and by 1937 only 30,000 ha was under the French (Giacometti, 2000). Security also improved thanks to the French military presence, and some areas that had been subject to pirates were settled by farmers and cultivated.

Given the fragility of the cultivation of the Delta, often hit by flooding, the French administration reacted as expected. The first efforts based on general programmes to reinforce the system of dikes took place in 1909, but during the period 1918-24 they proved insufficient. It was after the 1926 flooding, when the water level in Hanoi went from 2 to almost 12 meters, that the French became more systematic and methodical in the construction of different hydraulics projects (Gourou, 1945, p. 267). This was reflected in more programmes of dam reinforcement between 1926 and 1931 (Brocheux & Hémery, 2011), which, in turn led to increases in land under cultivation. The overall efforts, which were measured in an excavation of 40 million cubic meters from 1915 to 1930, amounted to 12 million piasters up to 1 January 1931 (Goudal, 1938, p. 201). This amount was equivalent to 10 per cent of the total value of exports (in million piasters) for the whole of Indochina in 1931 (Bassino, 2000a, p. 337). This said, independently of whether it was the French, local, provincial or imperial authorities that took charge of such investments, labour was abundant and cheap, and hence, these investments were characterised by being labour-absorbing (as discussed by Ishikawa, 1978, for the other rice economies). The low labour cost somehow is implicit in Goudal's reporting of the expenses; the 12 million piasters reported above did not include

"the labour provided in the form of labour dues before 1924" (Goudal, 1938, p. 201).

The investments were not only in water control and diking. For instance, in the provinces of Yen Bay and Song Cau, the irrigation projects carried out by the French, resulted in an increase of 17,000 ha and 34,000 ha, respectively (Dumont, 1935, p. 106). The land prepared for cultivation was 60,000 ha in Thanh Hoan, 7,000 in Kep (from 1906 to 1914), and 17,000 in Vinh Yen from 1914 to 1922 (Brocheux & Hémery, 2011, p. 263). Provincial records in the earlier 1940s indicate plans to carry out irrigation projects aiming at increasing land under cultivation (AOM, Inspector Reports of Vinh Yenh and Phuc Yen). Thus, it is estimated that 300,000 ha were put under cultivation as a consequence of these investments. Most of the investments were for increasing the possibilities of a second crop, especially to elevate the land to protect it during the summer floods, and consequently increase the land for the 5th month crop.

One may wonder what it would have been like without those investments made from 1926 to 1931. It is probable that the frequency of flooding would have remained, with implications for the production capacity and survival potential of the population. From 1905 to 1926, there had been 35 serious breaks in the river dikes (Brocheux & Hémery, 2011, p. 262). The extent of territories affected and damage caused varied, but there are records of significant and extensive flooding in 1893, 1904, 1909, 1911, 1913, 1915, 1924, and 1926 (Brocheux & Hémery, 2011, p. 262). Dang Quang Tinh (1999, in Gunn, 2014) counted eighteen years with failed dikes between 1900 and 1945, which is one dike failure every two to three years on average. During the early 1930s some flooding may have happened locally, but it was not until 1937 that Tonkin suffered a similar devastation (Gunn, 2014). Thus, the Delta enjoyed a decade of fewer incidences and greater potential for increasing land under cultivation and/or harvested area, which led to an increase in the intensity in land use.

Goudal (1938, p. 202) reported that the irrigation projects carried out up to then only covered 10 per cent of the areas suitable for cultivation, but they contributed to an annual increase of production by 300,000 tonnes. However, when a decision had to be taken on further irrigation projects, the benefits would not have exceeded the costs. It was estimated that the new irrigation schemes must have cost as much as 100 piasters per hectare, which would have meant from 8 to 12 piaster per hectare per year given the financial possibilities of the time. Considering that the value of the paddy harvest did not exceed 14

piasters at the 1934 rate, the investments were not made, at least not on a large scale (Goudal, 1938, p. 202). For instance, there are reports of local investments in the provinces of Bac Giang and Bac Ninh to drain land and to construct new canals (AOM, *Rapport sur la Situation Administrative Économique et Financière du Tonkin Durant la période 1933-1934,* GGI, 1934, p. 113).

In the early 1940s, the combination of bad climate conditions, poor harvests, and insufficient irrigated rice lands led to a series of poor harvest years, local famines in 1943, and eventually the Great Famine of 1945[13]. For instance in Ninh-Binh province, Le Tuan Phu reported "two terrible typhoons", which meant a reduced 5th month rice harvest and an impoverished 10th month rice harvest (AOM, *Situation économique de la province*, communication on 14 April 1945, RST). A report from Nam Dinh province indicated the loss of land under cultivation and harvest as a result of the typhoons and in the four first months of 1944, 3,195 people had lost their lives as a result; the number increased to 72,542 for the same period in 1945 (AOM, Tu Bo Thuc, *Le Tong Doc* from Nah Dinh province, letter on 16 May 1945, RST). He estimated that 147,193 people emigrated out of a total population of 1.31 million people. For 1945, the reports from the inspectors of the major provinces in the Delta (AOM, 1945 RST/01413) started by stating the number of people in need of first aid (i.e. 270,000 in Nam Dinh, 400,000 in Thai Binh). It has been estimated that from 1 to 2 million people died during this period (Bui Minh Dung, 1995, p. 575; Gunn, 2014). It was in the most populated rice-producing provinces that starvation was most felt: the consequence was an internal displacement of people (Dung, 1995; Gunn, 2014; AOM, RST,1945).

The fragility of the system could be understood as part of HLET, where investments in land intensification did not seem to improve output per capita, eventually resulting in famine. But being at HLET means that land productivity was high, which is discussed below.

13 Bui Minh Dung (1995) claims that the bad harvests, though significant, are insufficient to explain the extent of the famine, and that the role of the war against the Japanese, and their demand for rice during the occupation should be also considered. The author adds that there is not much evidence of imports of rice from French Indochina reaching the lowest value in 1944 (p. 609), or that there was pressure to send rice to support Japan's efforts in the Philippines. Indeed, there could have been other factors aggravating the situation leading to the Great Famine, but there are sufficient indications of two full years of reduced production and loss of harvests to strengthen the claim of supply failure.

3.3.1.1 Arable, cultivated or harvested land in Tonkin? A contested and open question

This brings up one of the largest and most contested issues in the agrarian economic history of Vietnam: how much of all agriculture land was arable, how much was cultivated, and of that, how much was harvested? In this thesis, these variables are understood using the FAO definitions. This facilitates comparability to current data and normalisation of different estimates, but most importantly it establishes whether the arable land frontier was closed or not. Briefly, arable land does not include permanent crops or multi-cropping, which are considered as cultivated land.

One of the greatest challenges is to reconcile the statistics available for land under cultivation. The main and most comprehensive source is Henry's work in 1931 for the Colonial Exhibition in Paris, published in 1932. His study was much criticised by Gourou (1945) for being inaccurate, too low, and subject to significant biases, as data was collected through the local native authorities. Henry, himself, lowered the estimates he had published in his earlier work with De Visme (1928), claiming that the harvested area was normally lower than the cultivated, due to natural hazards. Although nobody refutes the constant struggle of the Tonkinese farmer, Henry's 1931 study represents an average for the years 1925-29, which would have already incorporated such difficulties, especially considering the 1926 flooding. It is also not completely clear whether he was referring to arable or cultivated areas, which we will discuss further below.

This study is not the first attempt to *make sense* of the different estimates. Giacometti and Ta Thi Thuy, both with papers on the *Quantitative Economic History of Vietnam* (2000), have compiled most of the official statistics and they are a good reference (ASI and SSG). But as they note, there is a significant information gap for the 1930s and early 1940s; Giacometti, for instance, assumes that the area under rice cultivation remained at 1.6 million ha from 1935 to 1942. Our study can partly assist in filling this gap by providing a new source based on Cadastre records dated 1941 (AOM, RST, 02965, *Service du Cadastre*, 1941). There is however one caveat; the records only indicate cultivated, not rice, areas, but since rice was the predominant crop in the delta,

it should not generate much bias[14]. A novelty is the inclusion of reports written in different years by provincial inspectors. Combining these reports, we may re-estimate the Cadastre information (since we have data on how much of the total of those sources was represented by rice). In some of these reports the estimates by the Indochina Rice Office are included, which provides one more source than the local authorities. These are only for the majority of the delta provinces, which we can only use to enrich our understanding, but not as a substitute for the other sources. Regardless, it may help us to be more certain of which of the estimates is more likely to be the most reliable.

The analysis points at more land under cultivation than was normally believed and reported, but since the harvested area tended to be smaller (due to typhoons, flooding, and droughts, a combination that for instance took place during the 1940-41 cultivation year), but not always reported, the yields obtained by considering production on cultivated land were downward biased. It should be made clear though that the uncertainty of whether it was harvested or cultivated remains open. The biases came from different sources; for instance from the time of drawing the maps in relation to the rice cultivation calendar. From studying the provincial reports, especially when two or three reports were written in the same year, it is noticeable that there were different estimates of cultivated land, which might plausibly represent harvested land. After all, it was based on this data that the provisions were determined, and hence they were probably underreported.

Since not all sources provide data decomposed by provinces, let's start with data for the whole of Tonkin, and then move into provincial data.

14 It is important to note that this report also indicated the amount paid in taxes; that is, derived from taxed land, which would mean rice or other cash crops. But since other taxed crops were those that were commercially cultivated (coffee, tea, tobacco), the amount was of low significance for the delta.

Table 3.1. Summary – Land under cultivation, arable and by crop in Tonkin

Source	5th Month	10th Month	Double cropping	Total Cultivated	Total Arable
Brenier 1913	475000	675000		1150000	1150000
ASI 1919-1922				1600000	
Henry and De Visme 1928	309590	665950	708150	1691690	975540
Henry 1931	799900		380100	1180000	799900
Gourou 1935				1600000	
BEI 1923-1928				1200000	
ASI 1925-1929				1250000	
SSG (includes North Annam)				2763500	

Source: Author's . ASI, BEI and SSG (taken from Giacometti, 2000).

There is unfortunately no data on land intensification prior to the arrival of the French, which makes it impossible to determine how much intensification may be attributed to colonial times. The first estimate on the distribution by crop comes from Henry and De Visme (1928), who stated that 45.4 per cent of the land under cultivation could take double cropping. This estimate was lowered by Henry to 34 per cent in 1932. In a later report carried out by the Guernut Commission in the 1930s (AOM), the estimates do not vary much: out of 1.1 million ha under rice cultivation, 45 per cent could take two crops (½ million ha), 32 per cent only the second crop (10th month rice), and the remaining 23 per cent only the first crop (5th month). Gourou (1961) raised it to 50 per cent of the Delta area producing two crops, of which three fourths of the double cropped area was rice, and the rest was other crops. This means that the cropping intensity lay between 145 and 150. This level of rice multi-cropping was not unlike the cropping intensity of colonial Taiwan, at least until the 1940s, after which the intensity increased rapidly (Andersson, 2003, p. 110). That is, Tonkin was already a highly intensely cultivated area during colonial times, which reinforces the claim that Tonkin was probably reaching the frontier of traditional technology.

Table 3.2 Land (in ha) under cultivation by crop and province in the Red River Delta

	Cultivated in 1928				Cultivated in 1932			All cultivated 1941	Difference 1941-1932 (1 crop)
	Paddy				Paddy				
Province	**5th M**	**10th M**	**Double**	**Total**	**1 crop**	**Double**	**Total**	**Total**	
Bac Giang	4550	124890	27960	157680	92600	14000	106600	73266	-19334
Bac Ninh	22080	66030	11790	99900	76700	5000	81700	83373	6673
Ha Dong	63540	23700	36180	123540	64800	18700	83500	70402	5602
Ha Nam	49140		23610	72750	52500	3500	56000	66452	13952
Hai Duong	3000	41340	127830	172170	52300	82900	135200	132729	80429
Hung Yen	7590	41310	29280	78080	44200	26000	70200	68419	24219
Kien An	180	16920	45630	62730	16200	42700	58900	50150	33950
Nam Dinh	44640	15150	79200	138990	58300	66600	124900	109901	51601
Ninh Binh	26790	2880	43160	72830	49300	13900	63200	68410	19110
Phuc Yen	6090	41490	2520	50100	39700	3300	43000	36761	-2939
Son Tay	23400		35010	58410	37800	5000	42800	60771	22971
Thai Binh	10170	19710	116150	145830	37900	80200	118100	106821	68921
Vinh Yen	7410	31230	31500	70140	29700	12400	42100	53061	23361
Delta	**268580**	**424650**	**609820**	**1303150**	**652000**	**374200**	**1026200**	**9850516**	**328516**

Data: 1928 taken from Henry and De Visme (1928, pp. 28-32); 1932 from Henry (1932); 1941, RST Cadaster services (AOM).

As already stated, estimates done by Henry and De Visme in 1928 were lowered by Henry himself in his reference study of 1932. He argues that the work he did with De Visme should be considered as a starting point, but it contained some errors (especially for the provinces of Thai Binh, Hai Duong, Vinh Yen, Phuc Yen, Bac Giang, Tuyen Quang and Phu Tho). This is because it was based on maps provided by geographical services, which did not distinguish between routes and residential areas, leading to higher than actual results. The next reference point we have is 1941 based on cadastral records.

A noteworthy aspect is that the total of cultivated land reported by the cadastre is larger than given by Henry (1932) for the provinces with more population and greater production; but cadastre reports most probably refer to

arable land, since the availability of double cropping was seasonally specific and very likely not to be reported. Thus, we could take that value as a lower bound of cultivated land. After all, we should expect the farmers to have reported the minimum amount of land that could be taxed. This said, the French authorities classified rice fields into different categories (A to I), and the tax rate differed according to the characteristics of the land (i.e. double cropping)[15]. This could naturally create a burden for the farmer if the actual harvest was not as expected, but the area reported for tax purposes was probably the arable land. Hence, the most likely outcome was that double-crop land was underreported to avoid a higher tax rate.

It is difficult to draw conclusions from this though. On the one hand, it could be that the data taken from 1941 was based not only on rice but on other crops as well. At this stage of the study, it is a bias that cannot be disregarded. This said, it has been already argued that the bias is questionable, since rice was the main crop of the Delta (and secondary crops were part of the multi-cropping strategies when rice could not be cultivated – Gourou, 1945). On the other hand, there was an increase in land under cultivation; that is, there had been processes of rice-land intensification in the Red River Delta during colonial times. Since there are records that land under cultivation increased by 300,000 ha as a result of different investments in irrigation and water control, it is more probable that land became more intensely cultivated, especially in the 1930s.

3.3.2 Yields

The official (widely accepted) view of Tonkin having an average of 1.4 tonnes/ha is misleading (Giacometti, 2000). It assumes that land under cultivation did not increase, but, as discussed above, it did. The objective here is not to challenge the understanding of Tonkin as cultivating within the boundaries of traditional technology, but to argue that it was closer to the frontier than normally portrayed. By looking closer at the rice producing provinces (the delta provinces), the picture is much more nuanced; there are important difference between the yields of 10th month rice harvest and the 5th

15 Unfortunately only records by fiscal category for the harvest 1943-1944 were found at the archives. There were reports for 9 provinces on yields and area. There were not enough observations to assess how close the fiscal records were to other estimates.

month harvest (usually lower due to the risks of cultivation). Still, the problems here are much like the problems associated with the estimations of cultivated land: underreporting of production figures and ambiguity in the variables used.

Let's start with Henry (1932). He reported yields for areas of single cropping and double cropping. They are likely to be lower bound estimates for the reasons mentioned before, but also because he reports on one crop, either 5th or 10th month, and, considering the different yields per crop, the average is not fully representative of Tonkin's cultivation capacity.

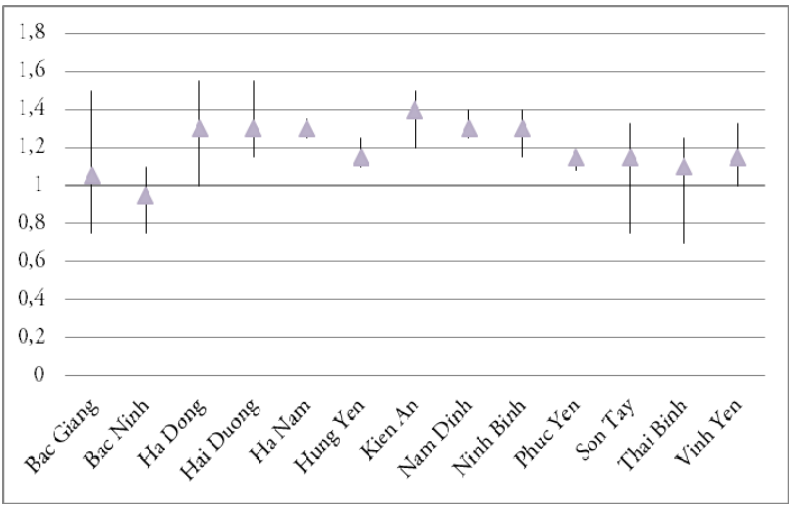

Figure 3.4 Land Productivity for Single Cropping (tonnes/ha); max, min, and average in Tonkin

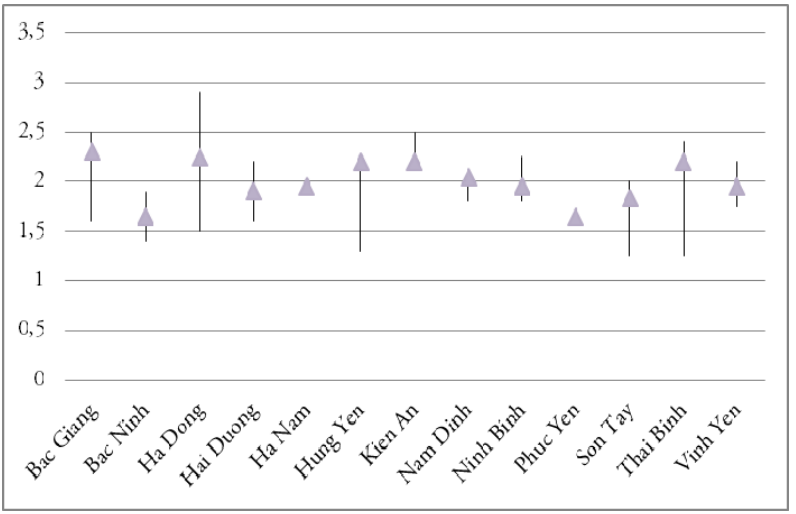

Figure 3.5. Land Productivity for Double-Cropping in Tonkin

Source: Henry (1932, pp. 246-250) for Figures 3.4 and 3.5

Henry reports that these were the land productivities based on a *normal* harvest, but taken as an average of observations from 1925 to 1929 (Giacometti, 2000, p. 46). But it is indeed important to note the variability of yields, especially in the most land intensive rice producing provinces. This is likely to be due to the fact that these provinces have extended their arable land to include the 5th month rice, which is normally a more vulnerable crop with lower yields.

The variations are significant, especially for the areas of double cropping. The deviation from the mean for those is 0.33 in contrast to 0.20 for one crop. If we take into account the fact that the three main producing provinces have more land under cultivation with two crops, and that yields are higher, the dependency on the harvesting of both crops is strengthened every year as population grows. This was especially significant for the most populated delta provinces. For instance, Thai Binh, which had one of the larger yields, but also variation, was reported to have a population over one million in 1934, with a net growth of 10,000 inhabitants per year (AOM, RST, Inspector Report, 1934, p. 17).

The reports written by the Inspectors of the Province (AOM) present the data provided by the local authorities and the estimates by the Indochina Rice Office (OIR), which tried to verify those estimates by local visits. This gives us

the opportunity to discern one potential instance of misreporting (one should bear in mind that these were years of bad harvests).

Table 3.3 Selected Yields Reported by Local Officials and by the Indochina Rice Office in Tonkin

	10th month 1943		10th Month 1944		5th Month 1944	
	Local	**OIR**	**Local**	**OIR**	**Local**	**OIR**
Bac Ninh			1.07	1.43	0.87	1.39
Ha Dong			1.49	1.70/2.00	1.54	1.51
Hai Duong	1.25	1.22			1.55	1.34
Ha Nam	1.10	1.06		1.33	1.11	1.23
Hung Yen	0.84	1.14			0.94	1.25
Kien An	1.32	1.30				

Source: AOM (based on provincial reports)

The results are that they are either similar or there is significant underreporting in some provinces. The yields seem to be in line with the average estimates, except in Ha Dong. One may argue that these could be exceptionally high yields, but the Rice Office reported that in zone 1 of the province (North and Centre) the yields were 2.2 per ha (* 43,000 ha = 94,600 tonnes of production), while in the south zone (2), the yields were estimated to be 1.7 per ha (* 26,000 ha = 442,000). The report for 1944 presented an early estimate of 138,800 tonnes for the two harvests, but this was reduced to 113,800 in October; that is, due to the heavy rains, the yields were reduced to 1.8 and 1.4.

There are other accounts of higher yields; Bassino (2006) reports yields for glutinous rice varieties varying from 2.05 to 2.10 tons per ha (based on calculations by M.L. Dubourg in the province of Hung Yen in 1912). These are not exceptional, since there are reports on Vinh Yen, where yields in areas that were irrigated were 1.4 tonnes/ha for 5th month rice and 1.7 tonnes/ha for 10th month rice. For less favourable zones the average yield was 0.9 tonnes/ha; there are reports that, in 1951, Ha Dong had yields between 1.1 and 1.4 tonnes per hectare for the 5th month crop, while Hai Duong had from 1.1 to 2.5 and Nam Dinh from 1.4 to 1.9, and for the whole harvest of 10th month rice the average yield was 1.33 (AOM, *L'évolution économique du Vietnam en 1951*).

If all these aspects are combined, the image of the Red River Delta as a static rice economy is challenged, and not only in terms of its multi-cropping capacity and yields, but also the degree of cultivation techniques and know-how. The fact that Tonkin was reported to be the only region in Southeast Asia where the use of fertilizers (human night soil and green manure (azolla)) was common, especially in areas with two crops a year (Elson, 1997, p. 87), indicates that a process of land intensification was in place, and that it was quite advanced. Furthermore, Henry (1932) reports that there were 100 varieties of rice seeds for the 5th month crop and 200 for the 10th month crop. A report by the Rice Office in Tonkin ([No date] available as a translation by USAID in 1968) indicates that in the most important eight rice provinces of the delta, there were 398 populations of rice, of those 621 rice types. Nurseries were used to minimize the risk of loss of harvest in many cultivation areas, which characterizes one of the most land intensive forms of rice cultivation (Van der Eng, 2004). The degree of specialization and knowledge of cultivation techniques, and the adaptability to changing climate conditions that was practiced in Tonkin conform more to what Elvin (1973) argued for China than a backward rice economy in a low-level equilibrium trap.

If we take Henry's estimates, which are the most comprehensive (despite a low bound) as he provides population estimates by province, and plot his findings in relation to production (based on land under cultivation and yields) and population, the Red River Delta would have looked like as illustrated in Figure 3.6.

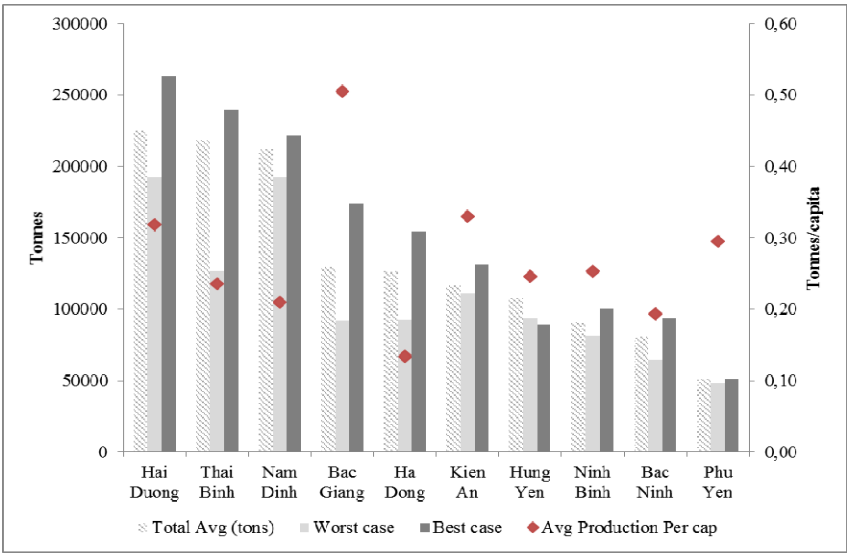

Figure 3.6. Total Average Production Per Year and Per Capita (1920s) in Tonkin

Source: Data taken from Henry (1932, p. 246), who reports the figures as "yields corresponding to a normal average year". The calculations for this graph have been done by taking the average yield of single/double cropping for the cultivated area by crop and adding the result to obtain the average production by province. The best and worst cases have been calculated by taking the best and worst possible yield by crop (see figures 3.4 and 3.5 for yield variations). We should take into consideration that there is a likely underreporting of the population as well as the production, and whether the differences equal each other is hard to say. The underreporting of population has been estimated to be from 5 to 25 per cent (see earlier discussion), but Henry lowered his yield estimates by 20 per cent, so the situation presented in the figure is a lower (worse) bound.

If the average consumption of rice had been 500 grams daily (Gourou, 1936, p. 569)[16], the total would have been 0.18 tons per year per capita, implying that many of the provinces would not have produced enough for the minimum consumption of their inhabitants. Still, we can also see that some of the provinces had surplus capacity (this is also brought up by Gunn, 2014). This

16 The 500 grams was considered the official amount with which to calculate consumption by the population (for instance, AOM, Inspector Report of Thai Binh, 1934).

may explain why a rice economy suffering from frequent shortage of rice (local famines) could export rice, albeit a limited quantity.

3.3.2.1 A Note on Rice Trade in Tonkin

As expected, the information on rice exports for Tonkin is scarce. The main reference for the study of Tonkin's exports has been Henry (1932), who reported that, on average, Tonkin exported 150,000 tonnes of paddy and by-products during the 1920s until the Great Depression. Gourou (1940, p. 255) stated that, in a normal year, the exports from the port of Haiphong reached 200,000 tonnes of paddy. Brocheux & Hémery (2011) reported two figures for exports: 50,000 tonnes in 1940 (p. 122) and 200,000 (p. 259). Gunn (2014, p. 17), based on a 1936 Rice Office report, writes: "Paddy exports were weak, reaching only 25,000 tonnes a year (1918-1930), falling to 4,500 tonnes in 1934, following the Great Depression crisis".

Based on archival work, our findings corroborate a more pessimistic view of the export capacity of Tonkin, at least from the official records. They are higher than Gunn's estimates though. This could be because his sources reported only paddy, and we include by-products. But it could also be that the reports of the Indochina Rice Office, which was created in the early 1930s, were based on estimates other than the records this study refers to. It is nonetheless illustrative of the difficulties of using colonial data.

Gourou reported the highest amount, but the difficulty in relating to Gourou's estimates is that he did not provide any sources or statistics on this matter. He just wrote that, in a normal year, rice would be exported in those quantities; it is hard to know what he meant by a 'normal' year, especially when his works show the deficiencies and poor living standards of a *normal* Tonkinese farmer. Gourou relied on Henry's work for much of the macroeconomic figures; hence it could be argued that Gourou just assumed the similar levels of exports that characterized Tonkin during the 1920s. This is expected to remain unresolved, since the amount that was exported from Tonkin was not normally reported, and, considering the region was deficient in rice and required imports from Cochinchina, it is hard to estimate the amount as surplus production (after consumption). When this was attempted, the estimate was that, on average, 250,000 tonnes were missing from the figures for Tonkin.

Based on the *direction des services économiques dossier 292* (AOM), the highest contribution of Tonkin to total exports from Indochina was 16 per cent in 1929. In the 1930s, the recovery that Cochinchina experienced was not shared by Tonkin. The average for the period (1926 to 1940) was less than

123,000 tonnes, while the median was slightly higher at 129,000 tonnes. Taken by decade, the 1920s (see 1926-1930) had an average of about 150,000 tonnes, while the average was 55,000 tonnes from 1931 to 1941, though it was picking up by 1940.

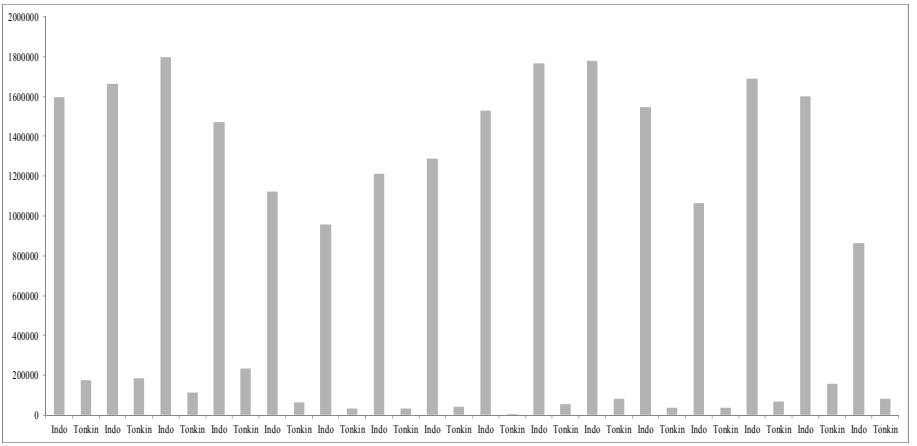

Figure 3.7: Exports of rice and by-products from Indochina and Tonkin from 1926 to 1940 and 8 months of 1941 (tonnes)

Source: *AOM (Direction des Services èconomiques, n 1970, Releve des exportations de riz et ses dérivés au cours des années 1936 à 1940 et pendant les 8 premiers mois de 1941 (tonnes métriques))*

Note: In 1934, the exports were slightly above 7000 tonnes.

One may think that the reason behind the difficulties in finding reliable and continuous statistics is that rice trade was (prior and during colonial times) a matter of political intervention. In an area where rice deficiencies were so acute that it suffered from frequent famines, banning rice trade (between provinces and abroad) was not unexpected. For instance, during the Nguyen period, exports were banned in 1865 and also from 1876 to 1880 (Cooke and Li, 2004; Martínez, 2007). In the French time, the situation seemed to improve but rice trade was restricted in some periods, especially in correlation to the losses of harvests due to different cultivations hazards that the area suffered (for instance in 1925; see Martínez, 2007, p. 93). This does not mean that trade did not take place; Cooke et al (2011) report that Chinese junks were often found in the delta despite the bans.

Trade in Tonkin seemed to increase during colonial times though. Martínez reports that in 1868 25,630 tonnes were exported (Martínez, 2007, p. 86); in 1889, 65,000 tonnes were exported (p. 89). The important aspect is that rice exports appeared to be continuous from Tonkin, and not decreasing. On the contrary, rice exports increased during the 1920s and could have reached a historical high. The Great Depression put a stop to it.

One explanation could be the lack of incentives to export due to the collapse of prices after the Great Depression. But as the graph shows, Indochinese (see Cochinchina) rice exports recuperated. The probable explanation is that if land under cultivation increased only by 300,000 ha (with an estimated 300,000 tonnes per year), over approximately a period of 20 years, the growth of population outpaced production, especially in the 1930s[17]. This reinforces the claim that the Red River Delta was experiencing involutionary processes.

There are two important implications derived from the analysis of rice exports in Tonkin, given the new evidence. First, even if exports were probably lower than the 200,000 tonnes reported by Gourou, they took place in an area where malnutrition and risk of famine were significant. Ng (1974, p. 20) writes: "the degree of population pressure on agricultural lands produced a chronic food shortage. Although rice imports from Cochinchina eased the situation, chronic malnutrition in the Tonkin Delta region continued to be a major problem throughout the period of colonial rule". Nguyen Van Huyen (1939) reported, on the basis of his fieldwork in the Delta: "In the poor villages, 80% of the population has only one meal a day. It is only during times of intense agricultural work, that is, during a third of the year, in particular during the harvest, that they have enough to eat". This indicates that there were some extractive mechanisms at play, which will need to be explored further in the next chapter.

A counterargument to this state of rice shortage and malnutrition could be that the rice trade and dependency on rice from Cochinchina were not that important. This is challenged in Figure 3.8.

17 It is important to bear in mind, as it will be shown later on, that many contract workers returned in large numbers to Tonkin, and the demand for labourers in the plantation economies decreased in the first years of the 1930s.

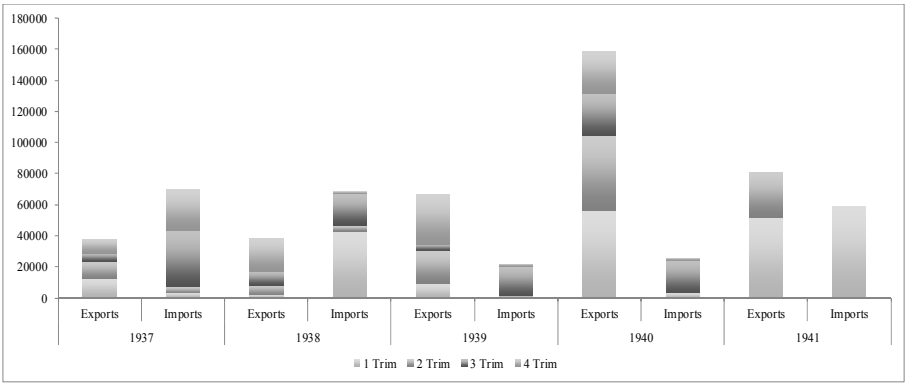

Figure 3.8. Rice and By-products (tonnes) Exports from Haiphong and Imports from Cochinchina (1937 to 1940, and part of 1941)

AOM (*Direction des Services èconomiques, n 1970,* Releve des exportations de riz et ses dérivés au cours des années 1936 à 1940 et pendant les 8 premiers mois de 1941 (tonnes métriques))

There are only a few observations, but it does seem that Cochinchina rice entered Tonkin, regardless of whether there were greater export possibilities. For instance, in the year 1940, exports were amongst the highest recorded, but imports were still necessary. The imports of rice were greater during the first trimester of the year; this may probably be due to a shortage after the harvest of the 10th month rice, which, as indicated, was the more important in terms of total production and could have caused local rice shortages, especially after the bad harvests during the autumn/winters of 1937 and 1940, leading to greater imports during the first months of the following year. Despite the few observations, there seemed to be a reverse relationship, with imports higher when exports were lower. But the fact that rice was imported, despite the exports, could indicate that there were processes of surplus extraction, while a part of the population did not have enough rice to eat.

In sum, the analysis carried out so far on Tonkin reinforces the argument that land intensification was probably at the maximum given the traditional technology. What Tonkin required to get to HLET was full employment of labour, which could explain the lack of significant migration. Thus the next aspect to examine is labour productivity.

3.3.3 Labour Productivity and Seasonality

Gourou claimed that "A conservative estimate shows that the cultivation of one *mau* [0.36 ha] of two-crop rice land requires each year nearly one hundred and thirty days under ordinary conditions; a piece of land which bears a rice crop and a dry crop will require one hundred and sixty work days, dry crops usually require more effort than rice. For one hectare for one year, therefore, we find a requirement of from 370 to 450 work days according to the circumstances" (Gourou, 1945, p. 412). Dumont (1957) estimates that "an acre of paddy [0.4 ha, which we could assume to be an approximation for one *mau*] in northern Vietnam necessitates about ninety days of work per crop, rather less in the rainy season and rather more in the winter, when water has to be raised". Dumont (1957) took a stand against lower estimates. He contests Yves Coyaud's figures of forty and 150 days per acre per crop. Dumont argued that "A typical crop of 11 cwt. [0.051 tonnes] to the acre [1.4 tonnes/ha], which represents a very mediocre yield, means that eight days of work are needed to produce 1 cwt. Productivity is thus lower than in Africa in spite of the more advanced techniques. Taking into account the fact that at least a third of the grain is lost in processing, and the amount of time taken in husking, winnowing, sorting and polishing, Gourou estimates that it takes over an hour and a quarter to produce a pound of white husked rice" (Dumont, 1957, p. 138). These, including the low bounds, indicate a highly labour intensive cultivation system by international standards (Ishikawa, 1978).

The next chapter will take up in detail the distribution of land, but for now, it is important to bear in mind that more than half of the cultivators in the Delta had 1 *mau* or less (Gourou, 1945; Henry, 1932). But they usually resorted to the cultivation of communal rice fields, which were more numerous in the most populated Delta provinces. The result of this was an increase in the number of working days. But, as indicated by Gourou, cultivating one hectare could bring some difficulties during planting out and harvesting time, when more labour would have been needed due to the time constraints of the cultivation system.

The cultivation of rice was mainly carried out by family labour or hired labour within the village, or from seasonal workers within the Delta. But as Gourou indicated, labour was supplied by the small "landowners". If this group had access to more than the 1 mau from the communal lands, labour availability was reduced. The outcome was useful for achieving subsistence, but restricted options to seek employment elsewhere.

To these labour requirements we should add 10 days of *corvée* labour done for the community (usually in the form of irrigation and other public works for the village), and one week of holidays during the New Year celebrations. The labour input was in the lower bound: 160 + 10 + 10 = 180 days, but that was only given one *mau* and one rice crop and one dry crop. However the expectation was at least one more crop of rice, which could add another 90 days of work, totalling 250 days and leaving slightly over 110 days for off-farm work. This was normally achieved through seasonal labour.

3.3.3.1 The Delta as the Rice Economic System

The view of the village in Tonkin is that of a closed one, confined by the bamboo hedge (see Mus, 1949, and the discussion in the next chapter). Quite the contrary, there are indications that cultivation of rice was a Delta phenomenon. By this is meant that it is not sufficient to think of the household and village as the only labour market. Numerous authors have emphasised that the differences in cultivation allowed for seasonal movements of labourers along the delta (Gourou, 1945; Goudal, 1938; Henry, 1932).

Henry (1932, p. 282) provides (hired) labour requirements for **1** ***mau*** (0.36 ha) in 5 provinces for the period 1928 to 1930.

Table 3.4 Labour days in Selected Provinces by Crop in Tonkin

	Total
Son Tay 10th M	65½ days and 15½ days with buffalo
Bac giang 5th M	82 days + 10 with buffalo
Bac Giang 10th M	71½ days + 20 with buffalo
Hai Duong 5th M	66 days + 12 with buffalo
Hai Duong 10th M	60½ days + 12½ with buffalo
Nam Dinh 5th M	57½ days + 8 with buffalo
Nam Dinh 10th M	34½ days + 6 with buffalo

Source: Henry (1932, p. 282)

There are two aspects that can be highlighted in this table. First, the cultivation of the 5th month crop was more labour-intensive than the 10th month crop, which reinforces our argument that the increases in multi-cropping were at the expense of labour (marginal and absolute). Second, there were important

variations of labour requirements and intensification within each province, which allowed for labour movements.

The consequence is an increase in (formal or informal) proletarianisation of the labour force. The economist Khérian estimated that in 1937 there were two to three million agricultural day labourers (in Brocheux & Hémery, 2011, p. 265). Goudal (1938) reported how mining companies up to 1932 had failed to hire enough labour to develop its capacity, as it could only depend on seasonal workers. Brocheux & Hémery (2011, p. 207) cite a letter from the Coal Society of Dong Trieu to the RST (employing 3,200 labourers) "Around May 15, a third of our personnel generally leave us for the harvest of the fifth month". It was thus the rice economy, through intensification of land use, which determined the mobility of labour, and as land intensification was becoming more acute as a result of population pressure, the probable outcome was a lesser availability of labour.

Khérian also estimated that there would be more than a million unemployed in the Red River Delta (in Brocheux & Hémery, 2011, p. 265). But we argue that if unemployment was reaching such high levels, workers' salaries should not have peaked during harvesting periods; but they did. Unfortunately, we do not have many sources that provide enough details of salaries for those years (the figures are mostly averages). For instance, a report on the changes in salaries for a coolie, for the cultivation year 1929-30, shows how the salary went from 12 cents per day + food in June (just prior to harvest peak), to 55 during the harvest of the 5th month rice (only for a month) but went down again to 10-15 cents. It then increased to 20 for the 10th month harvest. The recruitment of coolies is equally telling; approximately 100 coolies were employed in early June, but more than 500 coolies were employed for a few days only at the peak of the 5th month harvests. Another indication is from the province of Vinh Yen is presented in table 3.5.

Table 3.5 Daily wage for agricultural workers in Vinh Yen (Tonkin)

Vinh Yen	Normal			Harvest		
	Male	Female	Children	Male	Female	Children
1937	0.15	0.10	0.07	0.20	0.15	0.10
1938	0.20	0.15	0.10	0.30	0.20	0.12

Source: AOM

Depending on the characteristics of each farming household (especially in relation to total land, number of parcels, and yields), there were different possibilities of labour reallocation (familization of labour has been argued to be part of the involutionary processes at work and will be discussed in chapter 5). In a hypothetical case where labourers (children) were sent to work on a longer time basis than the cultivation requirements would allow, the household would experience a labour shortage in the two peaks of labour-intensive cultivation. Gourou (1945) reported that even these small-scale farming households resorted to mutual assistance in order to cope with the most labour-intensive part of the cultivation. This, in turn, probably led to a situation known as "shared poverty" (Geertz, 1963; Wolf, 1957). These were self-reinforcing mechanisms; if labour from a household was released to benefit from off-farm opportunities, the household would not be able to count on the extra labour inputs for the next harvest. The only opportunity would come from a situation where the salaries from off-farm work were higher than the costs of hiring labour for such activities. But that would lead to an increase in the supply of labour for off-farm activities (pressuring down wages), while creating a greater shortage for the peaks of cultivation, which would lead to an increase in wages for daily rural labourers / coolies (and hence operating costs for the household). The result would be a similar equilibrium. If labour-saving technologies were not introduced, the possibilities of releasing labour and improving the conditions at farm level would be limited. There is no indication that such a technological improvement was made.

The seasonality of rice cultivation and the consequent dependency of labour could hypothetically have influenced the migration of Tonkinese to work in the rubber plantations in Cochinchina. For instance, during the 1920s, especially from the mid-1920s until 1930, the time pattern of departures from Tonkin indicates two main peaks of departures (as shown in figure 3.9).

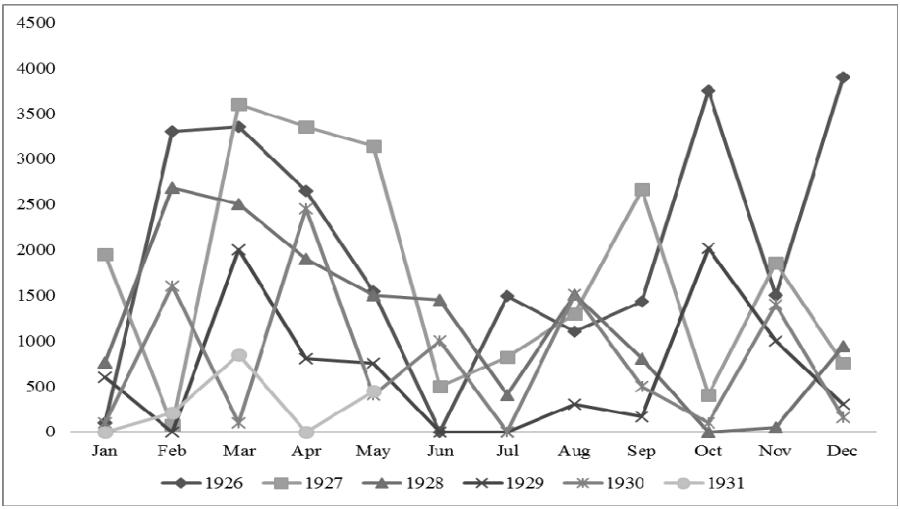

Figure 3.9. Number of Contract Labourers from Tonkin to Cochinchina (rubber plantations) - only departures

Source: AOM

Given that rubber cultivation does not have seasonality, it is likely that the seasonality, which seems to have taken place in the contracts, may have been determined by the supply side. Unless it was a matter of transportation, but, to the author's knowledge, there has not been any indication of such a hindrance.

The first was when most people migrated after the TET (new year celebrations). Those were 7 days of festivities that took place sometime between the end of January and early February, and hence the lower number of departures.

There is a clear outlier, which is the year 1926, when both magnitude of the emigrations, during the second period of the year, and a second peak could be explained by the fact that it was the year of the last record (until the major famine crisis of 1944) of a significant extensive flooding. Consequently, it is very likely that farmers were forced to resort to the 3rd moon crop to increase paddy production, which might have kept the supply of labour constrained until the end of August. One has to remember that the labourers were given 10 dongs to take care of whatever expenses they had before leaving, and 10 piasters on returning, according to one personal account (Tran Tu Binh, 1985, p. 16). This could have been given to the relatives to support them in their struggle.

Working on the rubber plantations must have been one of the last, if not the last, resort for many Tonkinese farmers; the possibilities of dying of malaria were still high in the 1920s, and living conditions were difficult, with reported cases of brutality by the "masters" of the plantation (Tran Tu Binh, 1985). The pushing factors must have been significant.

An important missing aspect of the graph, however, is that barely any worker stayed. Returns to Tonkin were high. From 1919 to 1934, 104,000 Annamites (from Tonkin and Northern Annam) became contract labourers at the rubber plantations of the South, while 52,000 were repatriated during the same period. This meant that there was a surplus of 3,250 Annamites per year, though the departures were greater than the incoming labour in the early 1930s until 1934 when rubber prices started to increase (Robequain, 1944, p. 56).

In the late 1920s the contract period was 3 years. It is unlikely that the French (authorities and/or rubber plantation owners) would not have wanted to have a more reliable and long lasting labour supply as industry was developing and the shortage of labour was significant. In the next chapter, a hypothesis to explain why the contracts were limited to three years will be presented and linked to the difficulties of releasing labour permanently.

3.3.4 Tonkin: The Red River Delta and HLET

It has been argued that the rice economy in Tonkin expanded in land use intensity via labour intensification, which created a specific pattern of labour employment conditioned by the seasonality of rice cultivation. This may help explain the paradoxical claims of labour shortage and unemployment. As population pressure grew, and land intensification reached its peak given the traditional level, it could be argued that the rice economy of Tonkin was probably at HLET. Thus, in the debate presented above, where Bernard (1934) and Gourou seemed to disagree, the verdict is that it seems that Gourou was right. Indeed, a large part of the population was underemployed during part of the year (Bernard, 1934), but, if they had permanently left agriculture, and labour saving technologies had not been introduced, the cultivation would have been more than compromised.

Gourou, in the mid-1930s, concluded that "it would be logical that a strong emigration movement would occur from the thickly populated lands of Tonkin to the empty lands of Western Cochinchina; but to the present, logic has not prevailed and it is the Cochinchinese from the provinces of the center

and the east, inhabiting regions that do not suffer greatly from demographic congestion, that have colonised the provinces beyond the Bassac" (Gourou, 1955, p. 263).

In sum, if the population of the North did not migrate and settle in the frontier, how can the land intensification process in Cochinchina be explained?

3.4 Cochinchina: the growth-enhancing investments

The investments in Cochinchina were conducive to the expansion of the frontier and economic growth during most of the colonial times (Myint, 1958; Hayami, 1994; Brocheux & Hémery, 2011). The most significant investments were directed towards the development of water transport. The drainage works started right after Cochinchina was secured under the French authorities. The new navigable canals were extended to thousands of kilometres (600 kms of deep canals and 2.000 kms of secondary canals (Brocheux & Hémery, 2011, p. 122), and led to a long lasting impact on settlement and village formation in Southern Vietnam. Transport costs were reduced by creating new villages near the basins of the Mekong River. New canals were also built by private initiative or out of local budgets to expand the frontier (Hayami, 1994).

It is clear why the French prioritized and consequently developed the water transport. It is claimed that when the French authorities considered the best transport investment, the estimates presented were $2.72 per ton for waterways versus $3.31 for railways (Pham, 1985). The outcome was that the west of Cochinchina never got a railway (not even up to today). But what may have been a policy to first secure, and then access (economically), the western regions of Cochinchina gave rise to greater and significant spillover effects. Farmers joined the network and expanded the frontier more easily than would have been possible if the main transport means had been the railways. It also facilitated the movement of day labourers, as different harvesting seasons took place in different regions of the colony, further minimizing transport costs for labourers. The flexibility of water transport and the opening of water access for irrigation of new areas had multiplier effects for the development of the region.

In Myint's theory, the incentives for such an intensification process and, more concretely, the response of farming households to altering their behaviour (from semi-idle to full work) are exogenously determined. It was the increase in international demand that drove such transformation. If we were to accept that

these economies were not as isolated as assumed, as discussed previously, and that there was already a surplus production capacity in place, we could argue that the process of land intensification might have not been as quick without the French presence. But the reason may be found in the lack of capital accumulation necessary for such infrastructure investments. The cost of clearing 1,425,000 ha of land, from 1886 to 1930, was approximately 52 million piasters (Brocheux, 1995, p. 21), that is 36,500 piasters per ha. Fall (1985, p. 334) wrote that the total hydraulic costs were 53.1 million piasters from 1900 to 1929, of which 23.5 million or 44 per cent were attributed to Cochinchina –it could be that the first one encompassed the second. One could argue that what should be treated as explanatory in Myint's theory is not exclusively the demand, but the French investments in communications and transports that were a necessary condition for the development that took place in these economies. Thus, it is not clear that the opening or, actually, the extension of the internal market would have been sufficient to achieve such expansion of production on its own. But as already claimed, it meant a change in the dynamics of transformation as it reduced the initial fixed costs incurred for putting new land under cultivation.

3.4.1 The Commercialization Phase and Surplus Capacity

The amount of exports, as already discussed, should be a function of the capacity of each rice economy to generate a surplus. A priori, Cochinchina is much of a straightforward story. As we can see in Figure 3.10, exports (though with important yearly fluctuations) had a positive trend, with almost a decade of sustained growth in the 1920s and a recovery after the Great Depression. This correlates with fluctuations in international prices.

The amount exported went from 56,950 tonnes in 1860 to 1,443,660 in 1940. The highest amount reported was 1.7 million tonnes in 1935, and similar quantities were exported in the late 1920s and 1930s (AOM). This was a remarkable development indeed.

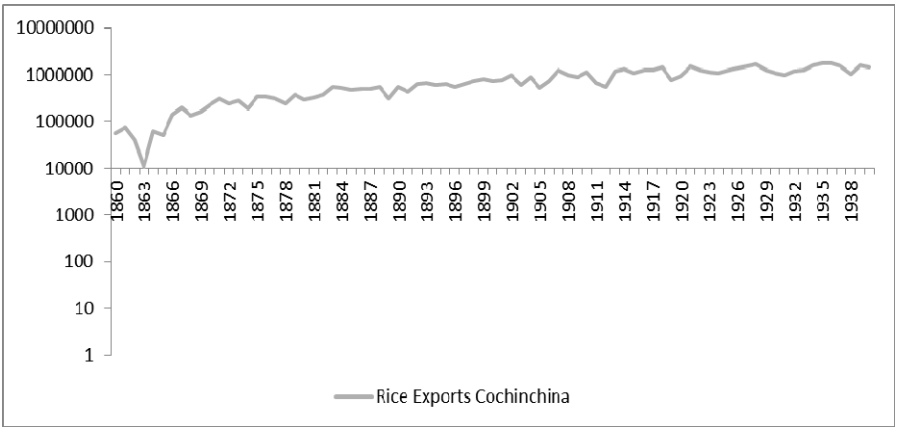

Figure 3.10. Total exports of rice and by-products from Cochinchina[18] 1860 to 1940 (in log scale)

Source: *AOM, direction des services economiques*

In order to understand the capacity of farmers to respond to new economic incentives, it is fundamental to know how much labour was at surplus (Myint, 1958).

3.4.2 The March Towards the West, not South: The Labour Question

Ng (1974) states that although the development of the Mekong delta brought some migration (initially due to the significant labour shortage, the first irrigation and canals projects were carried out with imported labour from Java),

18 We should note that some export data is based on exports from Saigon and does not distinguish between Cochinchina and Cambodia as origins. There was a market of paddy, which does not completely correlate with that for exports and milled rice. Takada (2000, p. 129) reports that there was a trading of rice between Cambodia and Cochinchina. In 1921, 213,000 tonnes of paddy, rice and by-products were exported from Cambodia to Cochinchina. The year after the amount was 107,300, though 2,600 tonnes were returned. It is claimed that Cambodia contributed 60,000 to 200,000 tonnes of rice and by-products per year to the exports of Indochina (Brocheux & Hémery, 2011, p. 122). This said, it was Cochinchina that drove the export boom and reached its peak of approximately 1.7 million tonnes of rice in 1936.

which was never a contributing factor (Ngo, 1974, p. 30). Immigration accounted only for 1.2 per cent of the total growth of population in Cochinchina (Smolski in Ng, 1974). For instance, the majority of the migration from Tonkin was as contract labour that went to the rubber plantations and normally returned to Tonkin after three years, or stayed in Saigon for a short period (Robequain, 1944, p. 56-57).

It is more probable that it was the Southerners who migrated west and expanded the frontier, both as temporal and permanent labour. There are indications that a decrease in population in the "old" provinces in favour of the new Western provinces took place at the beginning of the twentieth century; Rach Gia increased by 36,177 inhabitants in less than a decade, while a decrease in the populations of Can Tho, Long Xuyen and Soc Trang provinces took place from 1901 to 1910 (P. Brocheux, 1995, p. 22). The provinces Rach Gia, Bac Lieu, and Ca Mau witnessed an increase in population, added to the "remarkable local birth rate" reported in 1914 by a local administrator. The fundamental mechanism in Myint's theory is naturally not internal migration, but what happened to the production in the regions left behind. If the production were maintained, or even increased, despite the loss of labour, and given no major technological change, we could think of a process of labour intensification.

In Myint's theory, the unit of production in Southeast Asia was mainly the (peasant) household. Under this assumption, increases in production can only be achieved by either a reallocation of labour within the household (the inclusion of children and/or women in the production) and/or as a trade-off with leisure (Boserup, 1965). The result is a process of labour intensification within the household. Brocheux (1995) suggests that many farmers had opportunities for greater leisure or for staying and fixing their homes or fishing during the off-season (which is a common off-season activity), while others migrated for work. With no exact records on internal migration, it is difficult to estimate the numbers.

For instance, from July 1928 to June 1929, 5,123 Vietnamese are reported to have entered Bac Lieu province, while 2,149 left (Brocheux, 1995, p. 24). At that time, the population density of that province was estimated at 25 per square kilometre. It was one of the frontier economies, where seasonal labour hypothetically played an important role. One could argue that this year was exceptional. It may have been, since we know that from the season 1927/28 to 1928/29, 40,000 more ha were cultivated (from 280,000 to 320,000), though production was lower, reducing the productivity per hectare of the province

(Thuy, 2000). This is not surprising. Boserup (1965) claimed that opening new areas of cultivation comes with a decrease in labour and land productivity. Considering that we know that the total area of rice cultivation, on average, was 292,900 ha from 1935/36 and 1939/40, we cannot be certain of which processes were in place. Could it have been that the land areas that were opened in 1928/29 were of lower quality, and that they were really the frontier land and hence unstable unless major technological innovations were carried out? It could have been.

We cannot be certain of the origin of these migrant workers, whether there were coolies or peasant workers, either. It cannot be assumed that there were permanent workers in other provinces, since they could also have been migrant workers searching for virgin land in other frontier areas (such as in Ha Tien or Rach Gia). But, the wage seasonal labour movement should have been significant enough in this period since it resulted in a large number of policy changes.

The key administrative drawback was that people were forced to register at the village of origin and pay their taxes there. But as they might have been absent at the time of tax collection, which coincided with harvest, and the local chiefs were responsible, it started to create conflicts between different levels of administration, and between administrators and land cultivators who needed this seasonal labour to cultivate. Eventually, in 1927, the Colonial council allowed itinerary workers to pay the poll tax at the chief town of the province where they were. Hence there was no need to return to their village of origin with the hazard it implied to the labourer and owner (Brocheux, 1995, p. 59).

In sum, the increase in land cultivation, production, and exports for Cochinchina, at least until the Great Depression and half of the 1930s, is undeniable. Land under cultivation went from 522,000 ha in 1880 to 2.2 million in 1937, which meant an increase of 5.6 per cent annually, which was greater than population growth. This does not seem to be explained by immigration, which was limited, but may be explained by technological change. The yields, based on official records, went from 1.2 tonnes per ha to 1.3 tonnes per ha, which were low in relation to the average of Tonkin and other rice economies of the region (Giacometti, 2000). Based on records by the Indochina Rice Office (AOM), the average yield from 1935 to 1941 was 1.2 tonnes/ha (and with a slightly lower median of 1.15; this was due to an extreme harvest with a yield of 1.6 tonnes per hectare in 1939). There is no indication that the cultivation was achieved thanks to new rice cultivation techniques or modern technology; that is, the intensification of land use via mainly putting new land

under cultivation was achieved within a traditional production possibility frontier. During colonial times, rice multi-cropping was only a Northern phenomenon (Dalrymple, 1971; Gourou, 1945; Henry, 1932).

The most probable explanation was that labour in the East/old provinces of Cochinchina was relatively "unproductive", since immigration was not large enough, and there are indications that land productivity in the *old* provinces did not fall as labour migrated to the West. But this said, as discussed previously, the land availability and the possibilities of intensifying under that strategy kept labour productivity higher in Cochinchina than in Tonkin. After all, there is no indication that major processes of labour intensification (that is, linked to land intensification) took place until the 1960s. Hendry (1964) reported that a labourer in the South worked only 150 days a year in 1958/59.

This is expected, because the processes of land intensification (see as putting new land under cultivation) were not a result of population pressure, but due to the French investments to increase land under cultivation. And it does not seem that population pressure became significant during the colonial period. Hence, should have been a surplus of labour (as man-hours), which should not be understood á la Lewis (1954). Cochinchina suffered from labour shortage, as exemplified in the need to import labour first for infrastructures projects, and then for the rubber plantations. The different seasonality of the rice cultivation in the Mekong facilitated the movement of labourers along the river; that is, they did not need to trade off their own household cultivation. Still, this equally created a situation of surplus farm labour, which relatively reduced wages (Sansom, 1970). In other words, a movement of labourers took place, similarly to the Red River Delta, at the same time, which created a relative abundance of labour. This will be discussed further in chapter 5.

Nonetheless, this labour surplus does not imply that there was no settlement (permanent) at the frontier, but it does bring up a core argument in Myint's theory: the lack of specialization.

3.4.3 Subsistence versus Specialization

As argued in the previous chapter, establishing specialization within a rice economy was more complicated since rice was a multifaceted crop. It was a subsistence crop, cash crop, and an input of further produce (i.e. seeds and wine). This means that we need to resort to other indications.

First, the lack of diversification of the economy could be seen as a result of lack of specialization. This will be discussed in detail in chapter 5, but, for now, it is important to note that rice remained the most important export commodity in Cochinchina[19]. Other produce like maize, tobacco, and tropical fruits were minimal in relation to rice. Rubber was not a direct competitor (at least from the point of view Cochinchinese labour), as its cultivation was a French project and took place in areas that were not well suited for rice cultivation. Urbanization increased substantially, which could be an indication of a growing service sector, and probably employed a large number of farmers and/or children of farmers. But, overall, the Cochinchinese economy was a traditional rice economy during colonial times. Since yields did not increase during this period, but rice production and exports were boosted dramatically, it is plausible that there was no real specialization at micro level. That is, farmers responded to the new incentives to increase rice production but remained within a subsistence production economy.

A second indication of a subsistence rice economy could be found in the 1930s. Myint's vent for surplus may be considered as an explorative theory in the sense that there is no clear indication for when the growth is expected to cease: When there was a decrease in demand? Or when one of the factors stopped being at a surplus? Or when both factors were not at a surplus? To some extent, one could think that any one of the three premises could compromise growth, but his assumption is that independently of which premise it is, the surplus of both factors does not create incentives for technological change.

For Cochinchina, the Great Depression and the aftermath years are instructive. As we can see below, the land under cultivation decreased dramatically (in 1934), and there were no reports of famine or emigration from the colony (with the exception of Chinese traders), and this period may be understood as the subsistence bound of the Cochinchinese rice economy. The 1937-drop may be explained by the devastating typhoon that hit Indochina

19 In 1926, the value of exports of rice (and derives) was 153 million piaster, followed by 76.8 million of other products, 16,325 of rubber, and 12,362 from mining (BEI 1927). A similar volume and distribution took place in 1927. Overall, rice exports earnings were 61.7% in 1913, 74.5% in 1921, and 69.0% in 1929 (Brocheux and Hémery, 2011, p.123). According to the Syndicat des Exportateurs Francais d'Indochine (1938, AOM, annexe VI), the exports (as in value) of rice were above 65 per cent until 1930, 55 in 1931, 59 in 1932, but 50 or below for 1933 and 1937. Indeed, the value of the exports from Indochina was reduced from 1930 until 1937, but that was probably due to the price collapse.

(Gunn, 2014), but, by 1940, and before the Japanese occupation, land was again under cultivation without major inflows of immigrants. These processes could reinforce the argument that land and labour were at surplus, but that at this point in history the arable frontier was probably closed (Sansom, 1970).

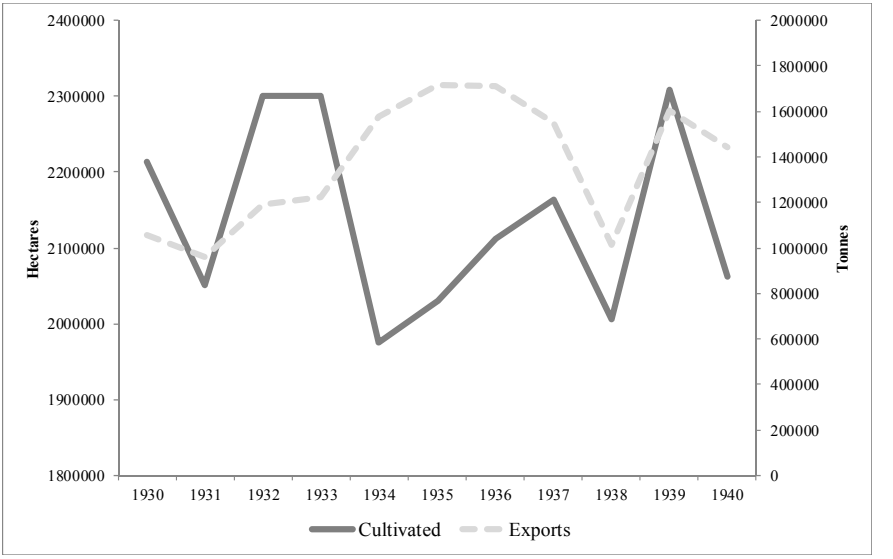

Figure 3.11 Land under cultivation (ha) and rice exports in Cochinchina

Source: Exports (AOM); land under cultivation: 1930 to 1933, from Giacometti (official records), 1934-1940 from Indochina Rice Office (AOM)

Figure 3.12 Price of Export Rice in Saigon

Source: Rose (1985)

In sum, so far it has been shown that the capacity for surplus production in Tonkin was, as expected, lower than in Cochinchina. As has been argued, Myint indicated that the possibility of farmers to be part of the new economic opportunities was a function of the existence of surplus land and labour. In classical terms, this would mean that it was only Cochinchina that benefited from these new economic opportunities thanks to the open land frontier and surplus labour. Both economies experienced output growth; for Tonkin it was involutionary (population growth outpaced production), but for Cochinchina it meant the possibilities of increasing output per capita. Regardless, Myint's theory does not help us to understand why there were no technological investments, especially when the land frontier closed. The analysis needs to be taken to the level of income per farming household to fully understand the possibilities or constraints of farmers to innovate. There could be an intrinsic logic of this regime of growth that points at the possibility of stratification within the rice trade. As argued in an African context by Gunnarsson (1978) and Hopkins (1973), it is probable that processes of within village differentiation took place as a result of household differences in land size and tenure, soil fertility, degree of indebtedness, and luck. Consequently, further analysis has to be done to understand the mechanisms by which Cochinchina became known for the large inequalities in land distribution that played an important role in subsequent decades of violent conflict.

3.5 Concluding Remarks

Cabotage, underreporting (for all variables), and a complex system of trade relations complicate a stylized view of land intensification (only via new areas under cultivation), excess production, and international demand. It is not as easy as to establish a rice deficiency region versus an exporter region. Two processes of land intensification took place at the expense of labour intensification. The different factor endowments however limited the surplus availability of both labour and land from responding and being part of the commercialization of the rice economies via foreign trade.

For Cochinchina, the question of why there was no specialization remains. Land was put under cultivation, which was a remarkable development, and is probably explained by a behavioural change among the farmers. But in a labour scarce economy, wages should have increased, and hence incomes, which in turn would have been conducive to processes of specialization. This was not witnessed. Cochinchina remained a rice economy, which eventually collapsed and led to rebellion and violent civil war. Myint, in his later works, discusses the inequalities within the rice trade. This requires to be addressed in the next chapter so as to shed some light on the potential institutional constraints and opportunities during colonial times. Especially if we look closer at the development of the 1930s in Cochinchina, we see that more than 100,000 ha of land were left uncultivated. This was partly a result of the collapse of prices, but equally important for increasing conflicts due to indebtedness within the cultivation system. Another critical juncture to explore further is when the land frontier closed, and farmers would have seen their possibilities constrained.

For Tonkin, it has been shown that the cultivation system led to involutionary processes, as investments in increasing land under cultivation did not seem to substantially improve the conditions for farmers. There was an important aspect to look closer at though. The high population densities, and already indications that there were mechanisms in the village economy (like mutual assistance), were bound to have an institutional impact on shaping the behaviour of the farmers of the North. This will be taken up in the next chapter.

In comparative terms, paradoxically enough, rice exports were at similar volumes prior to the arrival of the French (Li, 1998; Martinez, 2007), but the divergence in surplus capacity between the two rice economies became dramatically manifested from the turn of the century and the first three decades. In the Red River Delta, land was already more intensively cultivated than in

Cochinchina. This took form in different features, including multi-cropping intensity, number of rice varieties, and use of fertilizers. The result was greater yields (in average and median) than in Cochinchina. But these intensification processes came with higher labour costs; in the Red River Delta, processes of labour intensification made labour less productive and constrained the rice cultivation, with fewer opportunities to leave the rural economy. Thus, the surplus capacity was constrained by the requirements of the cultivation system, but we lack an understanding of the institutional effects of such a constrained cultivation system on the behaviour of farmers. For Cochinchina, the initial land abundance (e.g. land rents) could explain the lack of incentives for investments, but the Great Depression and the closing of the land frontier should have changed the incentives by the 1930s. The institutional mechanisms involved are taken up in the next chapter.

4. The Institutional Dynamics of an Open and a Closed Frontier

That colonialism had an institutional impact is a truism, since being colonised represents in itself an institutional change at some level. The challenge lies in establishing the causal role of colonialism in the country's long-term development. This is not different for the case of Vietnam. As already mentioned, trying to design a line of inquiry on whether there was a colonial institutional impact would be arguably in vain; there is no null hypothesis. Colonialism ought to have had an impact during colonial times in Vietnam, while it lasted[20]. But, for the study of its long-term effect, one might say that what matters is to achieve a deeper understanding of the institutional mechanisms at work. Since the interest is in how these have shaped the functioning of these economies, the focus is on economic institutions. Colonialism (seen as a complex system of actors, structures and actions) might have played a role, or not, in the formation these institutional mechanisms.

Here, the proposition is that the institutional mechanisms were conditioned by the factor endowments of the two different rice economies. In the Red River Delta, cultivated with scalpel precision, the scarcity of land in relation to labour resulted in well-defined and rather autonomous village

[20] This chapter refers to French colonialism; see Fall (1966, pp. 12-19) for an account of Vietnamese colonialism from the independence of the Chinese in 938 to the complete occupation by the French by 1883. During this long period, the borders of "Nam-Viet" ("South[ern country of the] Viet"] expanded into the lands of the Chams and Khmer. Fall claims, in relation to European colonialism, that " It [Vietnam] carved out its territory through military conquest over states whose level of indigenous cultures were at least equal, if not superior, to its own. […] It was simply and purely a process of colonial conquest for material gains, no more, no less. The fact that it took place on contiguous territory does not make it any more respectable than, say, the Russian conquest of Hungary" (Fall, 1966, p. 15).

institutions (norms, structures, etc.). This probably resulted in greater institutional persistence and resistance towards change. The Mekong Delta, on the contrary, was a later settlement and more open in its composition, even its in geographical lay out (Hickey, 1967); the availability of land, in a labour scarcity economy, would lead to new incentives to extend the frontier in a period where the worst forms of labour constraints were not an option (see slavery). In these conditions, a change of the relative prices of factors probably induced institutional change.

The overall implication of this understanding is that the institutional mechanism derived from factor endowments at the outset of colonialism is twofold: first, the factor endowments conditioned the pre-existing institutions that affected the choices of the main actors (e.g. village stratification), and second, the relation factor endowments - local institutions would have also influenced the colonial institutions.

By doing such an analysis, the inquiry moves away from the colonial impact towards institutional change during colonial times. This may help us further elucidate the differences in the economic dynamics of North and South Vietnam.

The previous chapter already contended that there are no indications to assume that the French favoured one delta over the other in relation to the opportunities to access foreign markets. The French, through the control over ports, benefited from taxing exports independently. The fundamental question is whether farmers had the capacity to respond to the growing demand. That is, were farmers capable of increasing the productivity of their main assets (labour and land) to increase surplus production without risking subsistence? To answer that question, this chapter focuses on the institutional incentives and constraints of farmers when it came to engaging in processes of land intensification in the two economies. This, as already claimed, would condition the possibilities of the farming households to increase surplus capacity. The end result may be measured according to income levels, and that will be analysed in the next chapter. Here we look into the economic institutions that might have influenced such possibilities of improvement (i.e. accumulation) for the majority of the population, and suggest that these institutions were conditioned by the factor endowments of each village economy. In sum, considering the commercialization brought by colonialism as an exogenous opportunity for accessing markets, the focus is on the institutions that might have either facilitated or constrained the process. In other words, we are interested in

discussing the institutions that defined how inclusive or extractive the transformation of the rice economies was during colonial times.

4.1 The Inclusiveness and Extractiveness of the Transformation

Taking it back to the cases; Cochinchina was a frontier economy. The French administration would have had a great interest in rapidly putting more land under cultivation and fomenting trade. This was of considerable urgency due to the debts incurred as a result of the conquering and initial infrastructure investments (Fall, 1966; Murray, 1980). Labour was, however, a scarcer factor than land, and consequently one of the potential institutional mechanisms would have materialized in the capacity of the elite to restrict labour movements (Domar, 1970). The elite, however, is considered a more encompassing term than colonial actors; it includes the local elite in all its nuances (political, economic, imperial, village, etc).

The initial expectation is that the local elites would have sought to restrict labour movements for two main reasons: first, it reduces transaction costs (finding and hiring labour) and, second, it creates a situation of labour abundance, which in turn pushes wages down (lowering production costs). The outcome of such behaviour would have been an increase in inequalities and an extractive growth process. On the other hand, the French administration benefited from the expansion of the frontier, which would have created incentives for not restricting labour movement. Exemption of tax payments for the first five years of cultivation was one strategy. This, in turn, should have led to a more homogenous settlement, such as the one that characterised the Northern part of the US and Canada (Turner, 1893)[21]. The result would have meant a more inclusive growth process. Incomes, in these conditions, would probably have been determined by market and land conditions; that is, farmers

[21] The French administration recognized the local land registers as valid proof of ownership, especially in frontier areas. This, from a formal point of view, should not be considered very different from the 1841 Pre-emption Act in the United States to protect the squatters, earlier settlers of the American frontier (North, 1966, p. 4)

who had better lands and access to main transport networks, or farmers who did not experience crop failures (due to diseases, etc.), would have had better opportunities to accumulate. Therefore, under those conditions, the driving force of how equal or unequal the distribution of income became was not necessarily a direct outcome of institutional mechanisms, at least not initially. It might just as well have been driven by market mechanisms (as discussed in chapter 3).

During the 1920s in Cochinchina, when the economy benefited from almost a decade of increasing rice prices and new land was put under cultivation, the expectations are that there were processes of concentration of land ownership and economic stratification. This is reflected in an inequality measurement, and may be understood as an outcome of the market mechanisms indicated above. But that would be assuming that land was equally available for the population. The resulting question is whether there were inequalities of opportunities to access land. This shifts the focus onto the institutions that regulated how land was distributed and under what labour or tenure conditions. The expectations are that as rice prices were increasing, and the land frontier remained open, there would be land rents. This might lead to a surge of the landed class (á la Domar). The use of the word "surge" is purposive. Unlike the argument that a landed elite was a colonial outcome, there are several works stressing that the pre-colonial extension of the Mekong led to the consolidation of a landed elite (Li, 1998; Fall, 1966)

The greatest difficulty lies in how to set expectations for Tonkin, where the high population densities and long history of settlement had a strong institutional effect. This takes this study to the earlier literature. In a controversial and influential debate, Scott's *Moral Economy* (1976) versus Popkin's *Rational Peasant* (1979) provided seemingly opposing interpretations of the effect of commercialization (colonialism) on peasant economies. Scott's objective was to provide an understanding of the peasant's perception of how extractive these new institutions were, and the consequent implications for why peasants may have revolted. In our study, the focus is exclusively on how the literature has interpreted the village institutions and how these, in turn, influenced farmers' behaviour. That is, we are not entering into the discussion on the outcome variable (i.e. rebellion).

Nonetheless, this debate is more relevant to the understanding of our two rice economies than might have initially been presupposed. Both Popkin and Scott based their work on evidence from Indochina. Scott's starting point is the traditional, non-capitalist, feudal village economy in Southeast Asia where the

majority of the population was at severe subsistence risk. It is inherent in his argument that, at the time that these villages were exposed to the capitalist forces and institutions, they had already moved to a closed rural economy. Class relationships and social norms were clearly defined. These villages, according to Scott (1976), characterized most of Southeast Asia, albeit with few exceptions – lower Burma and Cochinchina (see for instance Scott, 1976, p. 40, 43, 60, 202). Thus, it could be rather safe to conclude that his generalizations are partly inferred from Tonkin. Popkin (1979), on the other hand, bases his work on Cochinchina and interprets the village as a more open institution, where those strong social norms did not seem to play a decisive role.

Their empirical difference has greater implications for the two interpretations of the effect of colonialism and expansion of markets. Although they both acknowledge that these economies had significant differences in factor endowments, to the extent that they became a premise in their analyses, the implications and conclusions of their work are applied to a 'universal' peasantry. This chapter shows that both authors are right insomuch as the factor endowments of each village economy are limiting the representativeness of their work.

The idea that the villages and their institutions were remarkably different is also discussed and developed by Rambo (1973) and Hickey (1967), and reflected on in major works discussed so far (e.g. Gourou, 1945, 1954; Henry, 1932; Gran, 1975; Murray, 1980; Mus, 1949). They will be discussed throughout the text, though we may synthesize the core of the argument as a dichotomy of structures: open versus closed, autonomous versus integrated; enclosed versus lineal; traditional versus modern, etc. The implications for the understanding of the farmers' behaviour have been put forward in these works by quoting one of Gourou's observations. Gourou (1945, pp. 331-332) wrote: "the inhabitant of Cochinchina has much less of the peasant mentality than the inhabitant of Tonkin. The Tonkin peasant, strongly attached to his land, dreams of increasing it, piece by piece, thanks to whatever savings he can realize. The Cochinchinese, living in a region of large estates, is not attached to the soil to the same degree; he is less stable, perhaps less of a worker, more inclined to gamble, more apt to engage in speculations which are astonishing in their audacity and variety".

Consequently, if we relate this debate (the closed versus open village) to the extractiveness/inclusiveness of economic processes during colonial times, the institutions for analysis are: i) those that condition access to land and the new economic opportunities; ii) restrict or facilitate labour movements. That is,

village stratification, land tenure and distribution, and the potential colonial involvement.

4.2 Two Rice Village Economies

The farming population, seen as peasant households, is found under the bulk group "tenant and small owners", which should be differentiated from a landlord in the classical understanding. That is, a landowner has no direct link to the rice fields and production; he is simply not a farmer. The standard view is that tenancy was a Cochinchinese phenomenon, while the Red River Delta was a small-scale peasant farming economy. This was not completely accurate. The fact that Cochinchina, especially the west, became a rice land of large states cultivated in tenancy requires an explanation. Let's start with the two forms of tenure.

4.2.1 Tenancy and Small Landholding Owners: The Differences in Dependency

Tenancy is normally considered as a Cochinchinese and colonial phenomenon, that is, a colonial outcome of special significance in Cochinchina (Scott, 1976; Wiegersma, 1988). Brocheux and Hémery (2011, p. 264) stated that " […] the latifundia system and proletarianization of the peasantry shaped the rural society in the central provinces of Cochinchina, and, still more, in the west". There, a tenant farmer (*ta dien*) was usually a wage labourer who sought settlement in new areas, or was a landowner who lost his land and remained as tenant.

As a general rule, in new settlement areas a landlord would have normally preferred large tenant holdings to smaller. This facilitated the collection of rents by reducing the number of actors involved (Sansom, 1970, p. 32). This arrangement lowered the transactions costs for the landlord, but at the risk of concentrating their earnings on fewer actors. The contract was almost exclusively based on cultivation rents, which meant that the landlord transferred all the risks of crop failure to the tenant. They were the ones who bore all the risks, as a crop failure could represent a subsistence threat and a request for "tolerance" from the landlord.

In a labour scarce situation, such as in the frontier of the earlier settlement, the risks for both actors were higher (rents tended to be higher and so were the defaults[22]). In contrast, in more settled areas and with the arable frontier probable closing by 1930, tenants avoided requests of tolerance from the landlord since there could be competition between tenants to get access to landlords' lands (see Sansom, 1970). Anyway, this is characteristic of areas of land abundance, with greater potential for putting new land under cultivation. The implication of this understanding of the expansion of the frontier was correlated with the formation of a landed elite.

In the North, tenancy was de facto likewise widespread, as will be discussed below, but it had other implications. As discussed in chapter 3, since the Red River Delta was probably at HLET, the institutional implications are arguably the base of Scott's Moral Economy. Due to the vulnerability of farmers to climate and bad harvests in Tonkin, the peasantry under these circumstances was ruled by the 'safety-first' principle[23] (Scott, 1976, p. 15). In other words, their behaviour is expected to have been risk adverse, which, in turn made the cultivator prefer "to minimize the probability of having a disaster rather than maximizing his average return" (Scott, 1976, p. 18)[24]. His argument is based on the claim that if cultivators are regularly subjected to bad harvests that threaten their subsistence, and that does not necessarily mean one bad harvest (as there may be potential alternatives to survive[25]), but a disaster that affects a wide area, or several consecutive disasters for a family, the incentives for the farmers to minimize risk are greater than to maximize profit. Still, these two principles seem not to be mutually exclusive. But the priority for farmers is to guarantee minimum income first, which explains their choice of techniques of cultivation and social arrangements. Accordingly, farmers may oppose new techniques if yields fluctuate and create greater insecurity. Scott was actually describing a

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[22] The literature indicates that the rents were very high, but that there are reports of farmers leaving with advances (Gran, 1975)

[23] Scott borrows this concept from the Roumasset (1971) study on the Philippines.

[24] This understanding of the rationality of the peasant fits Simon's (1955) 'bounded rationality' more than the neoclassical view of a profit-maximizing agent, which is in line with the methodological stand of this work.

[25] Popkin (1979, p. 158) reports how Tonkinese peasants modified their diet to survive; 97 per cent of all cereals and grains were consumed by humans, and rats, pond fish and bugs accounted for 5 per cent of the calories of most peasants (based on Dumont, 1944).

normal farming household in the Red River Delta, as shown in the previous chapter.

Under these circumstances, as demographic pressure changed the man to land ratio in a closed land frontier, two consequences were imminent. The first one, as argued in chapter 3, was that the existing technological capacity to maintain the population was strained. The second, as put forward by Scott, was that the 'balance of exchange', that is, a measurement of the bargaining powers of the landowner versus tenant/labourer, probably shifted towards the landowner (given that they kept the coercive power). The underlying argument is that the relationship of dependency between the patron (landowner) and client (tenant or labourer) was progressively strengthened since the later needed to rely on the former for credit and inputs, and in bad harvests even for their survival. This was due to the closeness and imperfection of markets (or lack thereof). That is, the landlord became a substitute for markets and a welfare provider.

This relationship, according to Scott, was based on the norm of reciprocity. The feudal (land)lord[26] required the population to survive; the peasantry was his tax base, loyal servants and potential soldiers. The expected result is greater flexibility in tax or rent collection. In years of bad harvest, the landlord would only take the surplus left after guaranteeing the minimum for the tenant to survive. He would also provide advances on the harvest, support in case of diseases, inputs and credit, etc. This subsistence minimum became a principle embedded in the social contract between the two, but under the premises of a context of shortage of land, capital, and outside employment opportunities (Scott, 1976, p. 13). These conditions were important to be met; otherwise, the peasant (even the household) may have migrated, or found another employment or capital source that could help him survive without resorting to the landlord or other institutional arrangements.

The normal understanding is that the coercive power of the landlords was related to military power or other forms of repression, but, as discussed in chapter 3, the cultivation system was so labour-intense that labour would have had difficulties migrating and settling elsewhere. The important aspect for the landed elite would have been to keep their farming population at subsistence,

[26] Le Than Khoi (1981) claimed that pre-colonial Vietnam was feudal, similar to other Asian economies. For a broader discussion on Asian feudalism, see Hoadley and Gunnarsson (1996).

and since subsistence was provided by access to land (land was a scarce factor), the role of the village elite in controlling land distribution would have been fundamental. This type of state is what North, Wallis, and Weingast (2006) have defined as a natural state; a selected group of actors, with control over violence and resources, formed a personal coalition and granted themselves special privileges. These, in turn, created rents and incentives amongst the elite to seek consensus in order to avoid violence and consequent falling rents (North, Wallis, and Weingast, 2006, p. 5). The question is why the large farming population did not revolt. The neo-classical answer would be a rational understanding of an efficient system (North and Thomas, 1973). Scott's argument is not far from this explanation. The reciprocity in the relations between landlords and peasants, along with the vulnerability, bound the farmers to a mutually beneficial system, which was an efficient response to guarantee subsistence. But as Gerschenkron sharply contended "The possibility that the main, if not the only, danger against which the peasant very frequently was in need of protection was the very lord is not mentioned" (Gerschenkron, 1971, p. 655)[27].

In conditions of low opportunity cost of labour, shortage of capital and land, and worsening man/land ratios (which characterised the Red River Delta), the farmer was under what Scott calls a 'crisis of dependency' (Scott, 1976, p. 40). This led to a self-reinforcing mechanism of dependency. The survival potential of the peasant relied on an institutional arrangement that reinforced the need for dependency by, for instance: i) strengthening a system where labour was not to be released to obtain better opportunities elsewhere, which in turn hindered village stratification; ii) external intra-elite competition that allowed peasants to seek another patron (a classical conflict between the local elites versus central states or other lords). Thus, landlords would have perceived the French administration, or even a greater presence of provincial mandarins, as a challenge to their power hegemony in their village economy (see for instance Woodside on intra-elite conflicts). We should expect great resistance by the local village elites to any involvement by the French.

In the South, the relation between tenants and landlords was generally more restricted in scope than the North, and the tenants obtained inputs and other forms of credit from other sources, mainly the Chinese traders (Gran,

[27] This is quote from Gerschenkron's review on J. Hicks' "A Theory of Economic History"

1975; Hendry, 1964; Henry, 1932; Hickey, 1967; Melin, 1939; Sansom, 1970). There was, however, a land frontier determinant here. The newly settled regions were the ones with greater tenancy and later on absentee landlordism (Henry, 1932; Gourou 1945). It is also noted that as contracts became more stable and secure, landlords could distance themselves from the rice fields, and the figure of a rent collector or foreman became frequent (Sansom, 1970). This did not exclude the possibilities for greater dependency between the two actors, but one may argue that, especially in the case of absentee landlordism, the costs of managing a closer dependency relation would have been higher than a one-time rental payment.

Southern tenants, and not the landlords, were in charge of hiring extra labour. This meant a difference from the Northerner, since many well-to-do tenants became landowners and direct employers (Gourou, 1945; Sansom, 1970). The possibilities of hiring labour were mainly a function of rice prices, rent payments, and land availability. That is, in periods with increasing rice prices, the surplus capacity of the tenant was via acquiring contracts of larger estates and keeping costs of labour down. The latter could be achieved despite the labour scarcity. As rice cultivation was the dominant activity, and land was not intensively cultivated in this period of history, farmers seasonally migrated, creating a temporal labour abundance effect (Gran, 1975; Sansom, 1970). Still, this effect was not as remarkable as in the Northern delta, mainly explained by the significant difference in the numbers of seasonal workers. In good periods, the prospects of the frontier created incentives for farmers to work seasonally in order to acquire enough funds to put new land to cultivation. This was the probable mechanism during the 1920s in Cochinchina. But when prices collapsed as the result of the Great Depression, the payment of rents probably diminished the possibilities of hiring labour; if labour was not hired, the tenants of larger estates would not be able to afford the payment of rents, and there would be no (or few) labour opportunities. As the payment of rents was concentrated in a few actors, the landlords would also run a deficit. This could explain part of the phenomenon witnessed during the early 1930s, when lands were left uncultivated and indebtedness skyrocketed (these aspects will be taken up again in the next chapter).

This does not mean, however, that there were no close relations between tenants and landlords in the South. It is probable that well-to-do tenants who became landowners and rented out part of their land had a much closer dependency relation with their tenants. One could think that as long as the managerial costs were not a burden, extra land would be rented out as an

important extra income source. In other words, a larger number of actors tried to benefit from land rents.

Part of the profit from land development came from the possibilities of benefiting from a poorly functioning credit market. The farming households that became landowners probably constituted part of the new village elite. As Brocheux and Hémery (2011, p. 101) recorded, there was a shift of the village elite to allocate some of their labour to manage their estates, and not political positions as they used to, and continued to do in the North. But this new stratification of the village elites is considered a source of new conflicts. The new local elite lacked legitimization, especially if compared to their counterparts in the North (Popkin, 1976). Furthermore, Popkin claimed that villagers might have hindered others from taking advantage of the new opportunities (labour or credit) in order to keep the power balance within the community (Popkin, 1979, p. 65).

In sum, for both economies it could be concluded that the imperfection of markets (especially credit ones) led to different substituting mechanisms. In the North, the traditional landed elite sought to maintain and reinforce the relation of dependency with the farming population. The expectation is that there was great resistance to any change that could challenge the hegemonic power of the elites. In the South, on the contrary, villages had a loose structure and new villages were formed. Hence, it becomes more difficult to identify the traditional elite. It is more plausible that market-mechanisms allowed for the rise and consolidation of new actors, especially those linked to the rice trade. A rising merchant class and a class of elite landowners, who based their power on commercial strength, were expected to bloom under these conditions, which would have had an effect on the stratification of the village economy.

4.2.2 Stratification

The two different types of village economies, which were partly explained by the distinctive factor endowments, would have had implications for the stratification. The overall expectation is that there were greater possibilities of stratification for Cochinchina, thanks to the opportunities brought by the land frontier. In contrast, the explanation for the North has been provided in Geertz's involutionary terms. Brocheux and Hémery (2011, p. 265) write "a growing peasantry [in the North] had to search for its subsistence in 'restricted' rice growing. Here, we recognize the phenomenon of socioeconomic

'involution' described by Clifford Geertz in Java". Geertz (1973, p. 96) maintained that the outcome of colonialism in Java was a growing rural society with institutions that were reinforced to maintain the population barely at subsistence. This meant that the marginal returns were decreasing, as were those of the elites, leading to a situation of 'shared poverty'. The result was barely any stratification in rural Java. This position has been criticized by White (1983) both on empirical and theoretical grounds (for a deeper discussion see Axelsson, 2008).

It has already been said (in chapter 2), first, that attributing involution to colonialism misses the potential causal mechanisms of the cultivation system, which arguably preceded the French. Second, a view of an equal (or equally poor) peasantry may lead to the assumption of a homogenous rice society. This could in turn simplify agency within the village, and consequently bias the discussion on potential forces of change from within.

This said, these distinct relations and opportunities are a reflection of how Scott (1976) and Popkin (1979) have understood stratification in both economies. Following the 'safety first' principle, Scott states that a hierarchy of 1) smallholder, 2) tenant and 3) wage labourer was preferred by the peasant (Scott, 1976, p.35). The explanation is twofold: i) a smallholder, unlike the other two groups, had one more factor of production than his labour, i.e. land, which was a key means of subsistence; ii) this relationship probably ran parallel to the expectations of protection from the patron. The more consolidated the social contract between the landlord and farmer, the more probable that the subsistence guarantee was maintained. The fact that the farmer may have chosen to remain a smallholder or a tenant, even if the returns to labour were worse than for a wage earner (especially in a boom market), was explained by the economic insurance the landlord provided (Scott, 1976, p. 37). The empirical question is consequently how many smallholders there were. Scott's theory is somehow indicative that there could not have been many, since the moral economy was based on a relation of dependency between landlord and tenant. This ownership or type of ownership is what might have caused confusion, resulting in it being considered as an attempt to explain Cochinchina (which clearly does not fit the premises of the theory). The discussion on ownership will be taken later. Let's focus now on the argument that access to land was fundamental for the survival of the peasantry.

It is thought that land was considered a major safety valve under these premises (subsistence threat). This idea is not new to development economists. Access to land remains a constant in the calculations for the survival of the

farmer, although land tends to be increasingly more fragmented over long periods of time, leading to a potential worsening of returns to land. This is because land needs to be more intensively cultivated, which requires new techniques to maintain soil fertility and increases in productivity (Boserup, 1965). If those changes do not take place, the survival of the farmer is under serious threat, as previously explained. This understanding of the peasant's rationale, guided by the safety-first maximum, is a logic conclusion under the conditions that Scott (1976) describes. In a closed economy, whatever technological or institutional improvements take place may easily be absorbed by population pressure. That is, the explanation is not necessarily institutional; the cultivation system has a growing labour requirement to keep up output per capita.

In overall terms it can be understood that, if in a household's lifetime, disasters occurred with relative frequency and the opportunities for technological improvements were scarce (see HLET), the farmer would have prioritized surviving. This was of special concern in the North. Rambo (1973) presented a survival risk index for the Northern and the Southern Vietnamese peasant environments (based exclusively on environmental hazards) and concluded that the risks were 1.6 times higher in the Red River Delta than in the Lower Mekong Delta (Rambo, 1973, table 21, p. 422).

There is, however, a gap in Scott's theory on what happens when there are positive years. Scott does not refute that there were boom years during colonial times when new markets were opened and new technology was brought in (irrigation projects, for instance). As shown in the previous chapter, French investment must have lowered transport costs by constructing canals and railways in both rice economies, and increased land under cultivation thanks to the new dike systems in Tonkin. Scott agrees that income levels on average were higher for tenants and wage earners, especially in Cochinchina, than for the average small scale farmer in Tonkin. And it is at this point that one of the largest divergences between Popkin and Scott can be found. For Popkin it is illogical that the farmer did not take the opportunities of the frontier, given the differences in wages (more on this in next chapter). Once the labour requirements for land cultivation in the North are included in the equation (which as claimed in the previous chapter were substantially different from the southerners), the assessment becomes more nuanced.

A logical conclusion of Scott's argumentation is that if new surplus was generated in the North, the landlords would have captured it. This is not an improbable extractive mechanism given the dependency relationship these two

actors had. In the South, quite to the contrary, the dependency was lesser and contracts were more stable, which would have created incentives for farmers to obtain a surplus. This represented their saving and investment capacity, and will be studied in detail in the next chapter.

Summing up, land access was unquestionably fundamental for the survival of the population, but tenure conditions (whether tenancy or ownership) were part and parcel of greater stratification of the economy. Let's examine the distribution of land in the two economies.

4.3 Land Distribution

As a historical constant, Le Thanh Khoi (1981) suggests that there were three types of land in Vietnamese history: communal, private, and granted (that was land given to mandarins, soldiers as part of their salaries). All land belonged to the Emperor but farmers, by cultivating and paying taxes, were granted access to the village lands or commune (in Vietnamese *xa)*. The villages kept their autonomy via the communal lands, which were mainly rice fields exploited for the provision of public goods. The tax collection was a village responsibility, and not an individual-Emperor affair. There were other lands, within the communal area, such as temple and rituals land (see for instance Ory, 1894). This said, the distribution amongst these three types was anything but constant. Quite the contrary, it had been a constant source of conflict through Vietnamese history (see the work of Le Than Khoi, 1981). An understanding of a peaceful and harmonious traditional village before the arrival of the French (e.g. Wiegersma, 1988) does not seem to be in accordance with Vietnamese history, but it has remained influential, as will be shown below[28].

[28] For a summary of the major changes in land tenure in pre-1954, see Minh Quang Dao (1993)

4.3.1 Two models of unimodality in Tonkin: an Asian bimodality?

The view of Tonkin in general, and the Red River Delta in particular, as a smallholding peasant economy is still echoed today (Merette, 2013), although, as Gourou (1945) and Gourdal (1938) reported, the extent of tenancy may have been greater than is believed. There are two main explanations: first, land records were poorly kept; and second, as a way to avoid paying taxes, landlords or other creditors normally signed contracts allowing for land to be bought back within 30 years (Goudal, 1938). Considering the difficulties that the farmers of the Red River Delta had, it is not improbable that many lost their *de facto* ownership of the land. This of course raises the question of why they kept on paying land taxes if they had no ownership. But that will be explained below.

The implication is that the records available are of ownership and are representative of the land distribution of the farming population. Whether they were actual owners is another matter. As for now, let's try to give an empirical picture of the changes in land distribution. For our discussion of land distribution there are only two data sources by province, and the rest will be for Tonkin as a whole.

Again, Henry (1932) is our source for the first estimate of distribution by province (see table 4.1).

Table 4.1 Land Distribution in the Red River Delta by province and ordered by number of small cultivators (less than 0.36 ha)

Province	0 - 0.36	0.36 - 1.8	1.8 - 3.6	3.6 - 18	18-36	> 36	Total
Nam Dinh	81716	21029	5099	1760	119	30	109753
Ha Dong	75795	35757	5747	1693	20	3	119015
Hai Duong	75706	41840	8558	3449	89	23	129665
Thai Binh	61546	20215	3744	1589	69	41	87204
Ninh Binh	41114	13241	3192	1217	59	12	58835
Bac Ninh	40802	26136	5199	1303	51	8	73499
Hung Yen	37231	21224	4071	1498	38	11	64073
Kien An	36970	15689	3552	779	41	10	57041
Ha Nam	29010	12497	2738	1017	68	13	45343
Son Tay	20689	10276	1985	520	22	2	33494
Vinh Yen	17610	13596	3065	1157	125	39	35592
Phuc Yen	15780	11648	2700	881	32	19	31060
Bac Giang	15495	16509	5403	2242	62	39	39750
Delta	**549464**	**259657**	**55053**	**19105**	**795**	**250**	**884324**
Total	**594091**	**287792**	**60303**	**20720**	**818**	**252**	**963976**

Source: Henry (1932, p. 108)

This means that 92 per cent of all owners lived in the Delta, but this distribution is even more skewed towards large ownership; almost all the largest and second largest owners (18-36 ha) were in the Delta: 99.2 and 97.2 per cent, respectively. This is an interesting landscape of tenure and cultivation. The delta had the largest population, cultivating on small landholdings, while, simultaneously, larger estates were found.

Gourou (1945, p. 279) reported similar figures: 586,000 proprietors held less than one *mau* (0.36 ha) and 283,000 from 1 to 5 *mau* (0.36 to 1.8 ha). He pointed out, however, that the official classification (as reported by Henry, 1932) was not completely representative of small ownership, as a household with 3 *mau* (given that they owned a buffalo and had land of average quality) should have been considered a "small-property owner in easy conditions". But keeping to these categories, he estimated that those owning less than 1.8 ha occupied about 33.6 per cent of the cultivated area (440,000 ha), the middle

group (1.8 – 3.6 ha) held 26.6% of the area (320,000 ha) and large proprietors (more than 3.6 ha) had 16.6% of all cultivated land (200,000 ha). The remaining 20 per cent of cultivated land was communal land. He admitted, though, that this classification is rather hypothetical. His fieldwork in different villages revealed that large ownership was more present than evidenced by the official statistics. This means that small ownership, that is, less than 0.18 ha (half a *mau*) could have been more common than believed. This signifies that a large part of the population had barely any access to land, and had to hire themselves out as labourers (Gourou, 1945, p. 280).

In 1938, the *Residence Superior du Tonkin* (RST) stated that the introduction of a regime of real estate was a necessity (AOM, RST, 1938, p. 20). A report published that same year showed that small landowners (from 0 to 1 ha) comprised in effect 87 per cent of all ownership, but had only 35 per cent of the arable surface. The second group (from 1 to 5 ha) had 12 per cent of the ownership and 50 per cent of arable surface. The big landowners (above 5 ha) represented 15 per cent of the surface and 1 per cent of the ownership (AOM, RST, 1938, p. 2). In this report we have no estimate of communal land. The officials in charge of the report stated that the decisions on communal lands were taken orally and they could not find records on that (AOM, RST 1938, p. 7).

Pham's (1985) study focuses on peasants during colonial times: "[I]n fact, determining the distribution of property in Tonkin was very complicated. For example, a survey conducted by the [colonial] administration with the intention of establishment the proportion of proletarians turned out to be impossible due to the concealment of the facts by landowners and notables. Thus, in four Southern conscriptions of the province of Hai Duong, 36,000 out of the 73,000 registered members were not landowners" (Pham, 1985, p. 64). Chinh and Giap (1974, p. 33) found that many villages in Tonkin were inhabited by tenants. All rice fields in Tan Hanh (Thai Binh province) and Than Houg, Hat Cat and Back Long (in Dam Dinh) belonged to landlords in other villages.

The complexity of Tonkin reaches another level when one tries to analyse land distribution. If one focuses on the number of cultivators, the conclusion is that Tonkin was a region of small cultivators. More than 60 per cent owned less than 1 mau, and almost 92 per cent owned 1 hectare. This indicates that the distribution is L-unimodal (that is, peaking on the left). But if we consider land *under cultivation*, it peaks on the right (towards a J-unimodal distribution). Only a few, on the right of the distribution, owned large tracts of the land under cultivation.

If the previous data is compared to the one reported by the cadastres in 1941 (see table 4.2.), there are indications of a polarization. That is, it is probable that inequalities in land distribution increased in the Red River Delta during the 1930s.

Table 4.2 Number of Cultivators (see households) in the Red River Delta

	1941 RST Cadastre						
Province	**0-0.3**	**0.3-0.6**	**0.6-1**	**1-5**	**5-20 ha**	**20 ha or higher**	**Total**
Bac Giang	23686	10244	8112	15159	1362	118	58681
Bac Ninh	90457	22771	13326	15466	585	71	142676
Ha Dong	137166	20647	11670	934	628	90	171135
Hai Duong	133123	32929	20639	19086	2076	189	208042
Ha Nam	64593	12944	6394	7544	478	46	91999
Hung Yen	72307	17188	10130	12100	754	79	112558
Kien An	66506	16341	8998	8483	474	71	100873
Nam Dinh	157559	23634	12439	12439	1037	207	207315
Ninh Binh	55600	11188	7038	10539	939	102	85406
Phuc Yen	31183	9566	6854	7526	455	1	55585
Son Tay	59718	11890	6886	7901	312	17	86724
Thai Binh	161969	26563	13389	12958	950	130	215959
Vinh Yen	42272	11802	7284	11069	880	1027	74334
Delta	**1096139**	**227707**	**133159**	**141204**	**10930**	**2148**	**1611287**
Tonkin	**1154931**	**249847**	**149158**	**170351**	**13113**	**2260**	**1739660**

Source: AOM

Note: these households might have cultivated more than rice.

This means that Tonkin was affected by a bimodal structure of rice land. This did not take Latin America's proportions (de Janvry et al, 1989), but, adjusted to the factor proportions of the Delta (and the labour requirements of rice cultivation), it connotes a very unequal rice society.

One could argue that if large estates were taking form in the North, how is it possible that nobody seems to have observed it? The important aspect to bear in mind is that land was extremely fragmented, as large landowners rented out the land in smaller parcels. Whether this was just an outcome of the normal

process of land intensification, or a thought-through strategy of the landed elite to keep a pool of labourers and hide large estates, is hard to estimate. Still, it is probable that by renting land out in smaller plots, which could be adjusted to the ability of households to cultivate them, the landed elite could keep a pool of labourers and farming households in a village. This practice of redistributing land in small parcels for cultivation was also the norm in the South (Brocheux and Hémery, 2011).

4.3.2 Excessive Land Fragmentation: Parcelling

A probable outcome of increasing population pressure on non-increasing arable land was excessive parcelling. Due to inheritance and cultivation practices, land was becoming increasingly fragmented. Tonkin's Government (RST) reported that there were 16 million parcels[29] in 1937, and for the whole of Tonkin the number was 17.7 million in 1941. As identified in a report by the cadastral services of Tonkin in 1938, a birds-eye view of Tonkin showed the intensive fragmentation of the land. They identified 1,229,200 ha, divided into 13,793,000 parcels, which were less than 0.089 ha on average.

This problem of parcelling was even worse, because those 1,229,200 ha, divided into 13,793,000 parcels, were distributed among 1,453,400 proprietors (AOM, RST 1938, p. 2). Another dimension of the problem was that the average farmer had less than one hectare of cultivation, and this was spread over ten parcels. The number of parcels in the province of Bac Ninh was reported to be greater than in the whole of Cochinchina, which is 60 times as large (Gourou, 1945, p. 276).

As already discussed, this excessive parcelling was an outcome of inheritance practices, with an equal division of the inheritance amongst sons, and the need to maintain the water level in the rice paddies. Gourou (1945) reports that, due to the water needs, the land was divided into small horizontal paddies bounded by little dikes. The interesting aspect is that Gourou points out that this was more likely to happen in the Upper Delta where the surface was more broken, than in the lower Delta. There is a relation between the initial settlement of the Annamites in the upper delta, and the fragmentation of the

[29] This same figure is reported by Gourou (1945, p. 276)

land, especially for the cultivation of the 10th month rice, which was the most important (in volumes). Gourou indicates that it was the upper regions of the delta (Ha Dong and Hai Duong) that witnessed the first settlements, and it was the village of Nhi Chau, in the province of Ha Dong, that was the most highly parcelled at the time, with 32 parcels per hectare (Gourou, 1945, p. 277). The 1941 cadastre (AOM) reported that those provinces with more than one million parcels were, in descending order: Hai Duong, Bac Giang, Bac Ninh, Ha Dong, Thai Binh, and Nam Dinh.

The problems of excessive land fragmentation are well-known (see for instance Binswanger and Elgin, 1984). They can be summarized as the difficulty of rationalizing production costs, which led to inefficiencies of labour, and hindered the use of animal power and mechanisation. Another consequence was the trade-off between arable land and dikes; Gourou estimates that 2 to 3 per cent of the land was used for that purpose. There was also the effect on land prices. The majority of the cultivators owned or had access to small plots of land, which reduced their value considerably. Considering that they owned very little at an aggregate level, the households were dependent on each fraction of a hectare they could cultivate. Nonetheless, in the hypothetical case that they wanted to sell their property, the fragmentation was such that it was not very attractive for the buyer. On a similar note, Gourou writes that when the Forest Service wanted to rent 2.5 ha of rice fields in Bac Giang to set up a nursery, they had to negotiate with 76 proprietors (Gourou, 1945, p. 278). Although anecdotal, it highlights the potential inefficiencies of the system and the large transactions costs embedded in this economy.

One could argue that a solution would have been to consolidate farming land per household by a redistribution of parcels, while trying to maintain the number of ha per household. Without being able to test exactly how the settlement in this region took place, we cannot be certain, but it is plausible that the most fertile land was cultivated first (given the form of irrigation); as population put pressure on existing land, new land was cultivated, leading to more fragmentation. Thus, families may have had plots with different fertilities, making consolidation impossible. Some families would have lost out on yields, and, considering how vulnerable they were, there would have been a natural resistance to such reform. There was no proper insurance market, which led to farmers hedging their risks via parcelling and relative diversification (as we will discuss in the next chapter).

The cultivation system and its implications for land size and distribution point at the complexity of the village economy in Tonkin. There is one more

aspect to include, and that is communal lands. They were larger in Tonkin than in any other part of Indochina, on average 25 per cent of the land compared to only 3 per cent in Cochinchina (Gourou, 1945). The fact that Cochinchina had a lower percentage has been interpreted as a negative colonial impact, making farmers more vulnerable in the South than in the North (Scott, 1976; Wiegersma, 1988). The next section presents an alternative understanding of communal lands.

4.3.3 Communal lands: a result of factor endowments and inequality?

Communal lands had a welfare function: the produce derived from them was meant to be used for public services, such as basic schooling and health care, public works, the village watchmen's salaries, and the salaries of the one to three public officials (including the village chief) (Vu Van Hien, 1955). They have been considered the "great institution" (Long, 1973). Consequently, under this premise, the fact that Cochinchina had less communal lands than Tonkin has led to the impression that the Cochinchinese farmers were worse off. Although it may be that the Cochinchinese famer was more dependent on his own plot, and that, in the case of harvest failure, the household had no other land to resort to, it does not preclude the fact that the communal lands had an extractive mechanism. Without refuting the standard interpretation of a degree of socioeconomic insurance, we would like to add another dimension to the understanding.

In a broad sense, communal lands refers to a large number of lands devoted to different purposes, for instance: for the temple, exclusively for the mandarins, for the cult of the ancestors, etc. (Henry, 1932, p.68; Ory, 1894). But these should be distinguished from what is called *ruông công diên*, communal rice fields. These were rice lands, which were divided amongst the taxpayers. They were the *commons* and unalienable. One could expect that when new economic opportunities were brought up by French colonialism, processes of privatization would have happened. The increase in rice prices and demand for rice would have incentivized the intensifying of cultivation and privatization of these *marginal lands* (à la McCloskey (1972) for Europe).

As we know, that was not the case in practice, since the distribution and tendency to privatize these lands were commonplace even prior to the French presence (Long, 1973). Nonetheless, as part of the contract between the Emperor and the farmer, dating back to 1000 BC, those that paid their tributes

had the right to access those lands, and every three years they were redistributed amongst the inhabitants of the village (Chinh & Giap, 1974). Communal lands remained in Tonkin during colonial times and they were positively correlated to the number of cultivators. That is, the larger the number of cultivators (population), the larger the number of communal lands (Gourou, 1945; Wiegersma, 1988).

As long as farmers (males from approximately 18 to 65) paid their taxes, their households had the right to cultivate. But, if farmers stopped paying taxes for three consecutive years, the land could be reclaimed and distributed amongst of the members of the village (including the non-registered ones, for instance widowers). The distribution of communal lands was a village affair, where the Emperor was not involved unless conflicts arose (Le Than Khoi, 1981).

In the village, and in this context, we can identify the following actors: i) the village chief, who was one of the better off (the landed elite); ii) the tax payers/registered villagers (cultivators who, by paying the poll and land tax, had the right to cultivate the imperial land and communal lands); and iii) the non-registered, but residents at the village. These were probably other male children who were part of the household; that is, dependants of the tax-paying male/household. It is estimated that only one-third of all eligible males had their names on the registers (Long, 1973, p. 63; Fall 1985, p. 165 based on data from 1903; we obtain the same ratio based on archival data).

We cannot assume, though, that the village chief was a single ruler, but part of the landed elite of the village. There are indications that there were different family lineages (Papin, 2002) and conflicts may have occurred. One may expect that when the time came for the village chief to decide on the distribution, there was a degree of *fairness* within the elite to keep the equilibrium and maintain rents. This could be interpreted to mean that property rights were secure for the elite à la North, Wallis and Weingast (2006). For instance, Chinh and Giap (1974, p. 79) reports that, before the auction of the communal lands, the village chief had pre-arranged to grant one of the fallow lands to an influential family in the village for 110 piaster. This family sublet it to the village inhabitants at 15 piasters per *mau*, that is 225 piasters for the 15 *mau* (5.4 ha), making a profit of 115 piasters. The abuse of power was repeatedly reported and was a source of conflict (Long, 1973).

According to Popkin (1976), 60 per cent of the families were landless or cultivated less than 0.36 ha by 1930. It could be argued that, for a large part of the population, the existence of those communal lands became the main source for survival or an important extra income, and hence their preference for the

existing order. The key difference between those groups was substantial; while those that had some rights to cultivation in their name might consider the land as complementary, the landless (or non-registered) relied on these fields for their subsistence and became completely subordinated to the village elite.

But why would the landed elite want to keep communal field land? The moral economists (see Scott, 1976) would argue that it was part of the reciprocity of the village society. In part that could be understood as a self-reinforcing mechanism; the greater the population pressure, the more vulnerable the cultivation becomes, and the greater the need to keep communal lands. The existence of communal lands helped support population growth (to an extent), and consequently the existence of a large supply of cheap labour for the landed elite. Since land distribution was more unequal in areas that were more densely populated, the relatively high presence of a landed elite (in a province) was positively correlated to the existence of communal lands.

There is one more dimension. Chinh and Giap (1974) claim that in areas that were very densely populated, land was never allocated amongst the villagers since it would become very scattered. Hence, the land was cultivated and the output was the "tax money" for the village (Chinh and Giap, 1974, p 78). This way, they could maintain the land, the worst-off group (landless or with insufficient produce) would survive, and the landed elite could keep whatever surplus was left after paying the due taxes.

Popkin (1979) claims that these collective lands were not the best lands, and that should be logically so, as the best fertile lands probably had been already claimed and obtained by the village elite. But that does not mean that they were not an escape valve for distressed peasants, and clearly an important factor in the decision making process of all village actors.

Pham (1985) suggests that in villages with large areas devoted to communal lands, families tended to have more children so as to increase their rights to those lands. It is hard to prove how the direction of causality goes. But even if he were right, the increase in population, in areas that were vulnerable to bad harvest, would probably put a strain on the production capacity of the village (Boserup, 1965). As land became more scarce, and hence more valuable, the village chief would have incentives to make the land private, thus making the excess labour work for him as tenants.

Examples of such practices are found in the literature. Equally so, official complaints were made by farmers about the village chief's conversion of such lands, even to the French Resident Superior. It seems that one of the greatest

sources of conflict in the history of Tonkin was the (unlawful) appropriation of communal lands (White, 1981).

Summing up, the communal lands had a welfare function. As in McCloskey's (1972) argument for English open fields, their persistence might be interpreted an indication of their efficiency. Nonetheless, they had an extractive function. The vulnerable situation, both in land access and tenure conditions, made a majority of farmers rely on this institution. This study hypothesizes that one of the reasons for the migration patterns discussed in the previous chapter (contracts of three years to the rubber plantations) was the payment of taxes. If a village resident stopped paying tax for three consecutive years, he lost his right to communal lands. This threatened his and his family's survival. The result was that the landed elite could keep a source of cheap and dependent labour force, while simultaneously spreading the fiscal burden of the village (for which they were responsible) among a larger number of actors. Indeed, the new market opportunities incentivized a greater control over communal lands (larger land rents) and surplus extraction but not via their privatization. The fact that communal lands were proportionally lower in Cochinchina (3 per cent) should thus not be considered as making the average farmer more vulnerable, especially if the land frontier was still open.

4.4 Consolidation, Absentee Landlordism, and Tenancy in Cochinchina: a colonial or market-led formation?

Cochinchina was known for its large estates, but this was part of an already ongoing process. The Nguyen Dynasty had granted tax exemptions and promoted the establishment of larger landholdings to guarantee the extension of the frontier. There was already a gentry in Cochinchina when the French arrived (Li, 1998). But as shown in chapter 3, the expansion of the frontier during colonial times was remarkable. The significant costs of clearing land and construction of canals led to the auction of the new lands. Land became a commodity to a greater extent. The French had all the incentives to speed the processes up, so as to recuperate their investments as soon as possible. This was especially acute at the turn of the century when there were pressures from Paris for a financially self-sufficient colony (Brocheux and Hémery 2011; Murray,

1980). This meant that the administration favoured the formation of large estates, although there are indications that this was not always the policy. The French authorities tried to curb the amount auctioned and lands under 50 ha quantities of land were granted for free. There were land tax exemptions for 5 years (7 for rubber plantations), and, in case of conflict, the traditional land registers (*dia bo)* were accepted as valid determinants of ownership. Since 1885, the legal status of the dia-bo was recognized (Gran, 1975, p. 250).

Based on White (1981, pp. 34-35), the French concessions of land by region are illustrative of the change towards Cochinchina. The amount of land granted in Indochina as a whole tripled from 1900 to 1930 (from 300,000 to 900,000 ha), and Cochinchina was the initiator. The first lands were granted in Tonkin, more than in Cochinchina, but, by the 1910s, and especially in the 1920s with the expansion of rubber, most lands granted by the French were in Cochinchina.

With the exception of rubber, rice land (that is, the rest of the land) was intended to be a small scale farming enterprise (apart from one rice company). The French gave opportunities for previous cultivators to claim their land. Rice lands, with a few exemptions, were in the hands of the local population. Nevertheless, not all land was put under cultivation, whether because of lack of labour or because it was acquired for speculation is impossible to determine at this point. What is known, based on Chesneaux (1966), is that in 1931 600,000 ha of land was granted in formal concessions, but only 300,000 ha was cultivated.

One could expect that as long as the land was developed and put under cultivation, and hence the export sector was booming, the French authorities did not regard land tenure as one of its biggest concerns. This does not mean that land conflicts were not frequent. On the contrary, they were a frequent (if not the most common) source of work for the Courts (for a thorough account see Gran, 1975). It is probable that cultivators who moved to the frontier discovered that their land had been assigned to a landlord, and that they had no right to it. Alternatively, a land developer requested and was granted rights to land without respecting the cultivators' rights to the land. It is probable that this process was riddled with inefficiency, randomness, and unevenness. It may be assumed that security to some extent was granted; otherwise, land would have remained uncultivated, but the extent of the unfairness of the process should not be underestimated. After all, the result was years of conflict in the region and new land reforms to curb landlordism (more on this in chapter 6).

As we have already stated, it is probable that as more land was cleared for cultivation in Cochinchina, and concessions were granted, the impact of French land tenure policies was more straightforward than in Tonkin. But as Bassford (1987) has shown in his doctoral thesis, land concessions cannot be equalled to actual land tenure. One of the important aspects of the commercialization of the economy is that land becomes a commodity, and in an economy expanding as quickly as Cochinchina's did, land became a profitable asset.

For instance, looking at the difference between land by concession and the actual distribution reported by Henry, one can identify the significant discrepancies (Table 4.3)

Table 4.3. Land Distribution in Selected Provinces (in percentage) in Cochinchina

Province	Small less than 10 ha		Medium 10 to 50 ha		Large more than 50 ha	
	Concession	Henry	Concession	Henry	Concession	Henry
My Tho	70.7	43.1	10.8	25.6	19.5	31.3
Cho Lon	24.9	49.4	12.5	33.5	62.6	17.1
Tan An	23.5	32.6	6	29.3	70.5	38.1
Can Tho	27.2	18.2	12.3	30.1	60.5	51.7
Bac Liey	9.2	10.1	13.4	24.4	77.4	65.5
Total 14 Western Provinces	**21.0**	**22.5**	**11.5**	**32.5**	**67.5**	**45**

Source: Author's based on Bassford (1987) and Henry (1932)

This indicates that the process of consolidation in Cochinchina was not necessarily a direct outcome of French concession policy, but that there were other mechanisms at work.

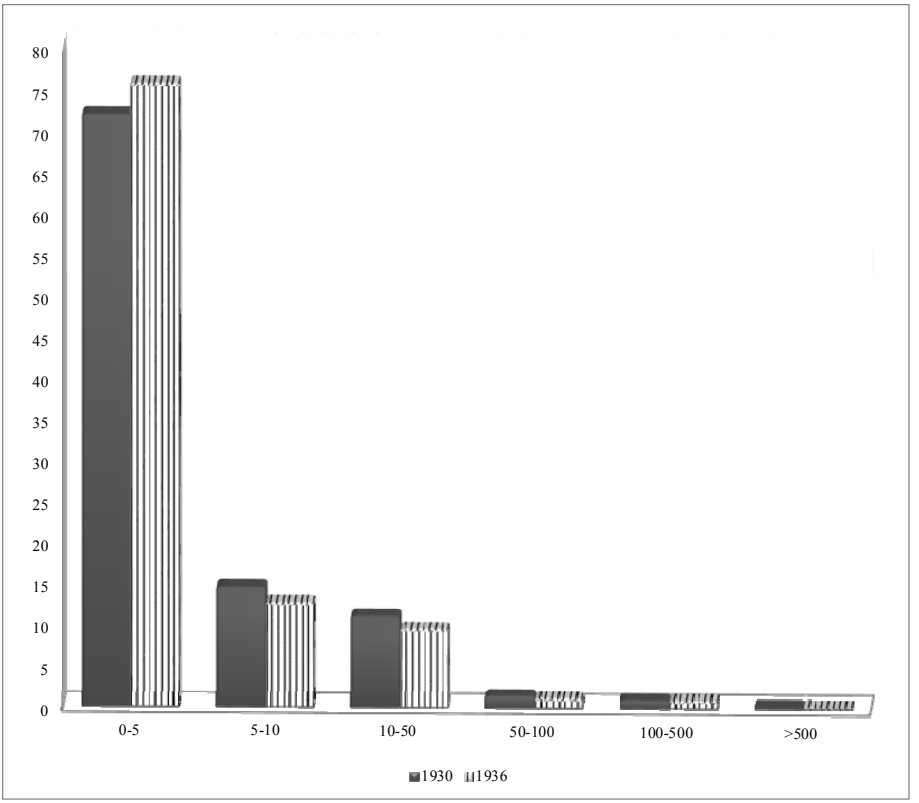
Bassford's (1987) conclusions are in line with the findings that Henry presented in 1931. Land consolidation had taken place in Cochinchina. Bassford (1987) however noted that there were two parallel processes in place: the Far West, where new lands had been opened, was in the hands of absentee landlords, living in Saigon, and the primordial native population. In the second process, which took place in the West of Saigon, small-scale farmers lost their lands to middle to large size operators.

This data is from just before the Great Depression, which became a critical juncture in Indochina, especially for Cochinchina. As land was left uncultivated,

conflicts and riots started to spread, and the French took up the task of establishing a better functioning of the rural rice economy.

As is shown in the next graph, there was a polarization in ownership from 1930 to 1936, when the middle group of landowners lost land to the large owners (44 new proprietors above 100 hectares in 1936), and became "small" scale land operators.

Figure 4.1. Percentage Land Ownership by Land Size Distribution (ha) in Cochinchina



Source: AOM, *Direction des Services Economiques de L'Indochine*, N. 1987 "*Proprietaires Fonciers des Pronvinces Rizicoles en Cochinchine de 1930 a 1936"*

The problem has two extra dimensions that ought to be included. For Cochinchina so far the discussion has been on land ownership, but we know that barely 20 per cent of the population were registered landowners (Henry

1932), which leaves out tenants and temporal wage earners. This is a very important dimension to the understanding of the rice economy and will be dealt with in more detail in the next chapter when we attempt to construct the social tables of the rice economy.

The second one, as already discussed, lies in the diversity of the village economy. The Cochinchinese farmer, unlike the Tonkinese, did not require his landlord to provide inputs. As has been discussed, the former was more exposed to market forces. These were poorly functioning markets (personal and asymmetric), and it was via the Chinese trader that credit was more frequently obtained (Gran, 1975). Traditionally, the Annamite bought imported merchandise and inputs from Chinese traders, and not from colonial actors. The greatest difference between Tonkin and Cochinchina was not in the existence of Chinese traders or Indian "bankers", but in the extent. In Cochinchina, the Chinese controlled the milling of rice and its transport to Cholon (the Chinese city), while the French controlled the export. But the Chinese were permanently present and increased in numbers as the rice frontier expanded. In Tonkin, they had their quarters in Haiphong and controlled the transport from the rice market of Nam Dinh, but did not have a strong presence in the village economy (Gran, 1975). It is not completely wrong to correlate the presence of Chinese with the degree of economic activity (Robequain, 1944). It is clear that Cochinchina was a much more commercial and dynamic economy, only by looking at the number of Chinese traders and operating companies. This will also be brought up in the next chapter.

The result was the rise of a middle-class of peasants and a merchant class, at least until the Great Depression. Brocheux and Hémery (2011, p.205) writes: "the middle-class peasants, represented in Vietnam by the image of 'a tile roof and a jackfruit tree' (*nha ngoi, cay mit*), probably benefited from the colonial economy, because they took advantage of the boom in rice farming during the 1920s. But their insertion into the market economy exposed them to the risky fluctuations in prices and export levels. Those left behind by Cochinchinese prosperity were specially the Khmer Krom, Vietnamese settlers fleeing the controls of the plantations owners, and the more unstable elements on the frontier".

This exposition to market forces made the Cochinchinese farmer more vulnerable. This is why Scott (1976) concludes that commercialization, or its outcome, was more extractive than in the North. There, the farmers could resort to communal lands and other institutions to guarantee subsistence, but, as argued in the previous chapter, these farmers added surplus to subsistence

(Myint, 1958). Hence, the worst outcome of the Great Depression was subsistence since land was still in abundance relative to labour. Furthermore, even Scott remarked that the misery felt in the North was never experienced in the South; not even in the aftermath of the Great Depression (Scott, 1976, p. 78). The key aspect is that if, according to Scott, extractive institutions are those that leave the farmer closer to subsistence, would it not be the North, and not the South, that was more extractive?

Bringing up the idea of extraction without discussing the potential role of the French administration might be considered incomplete. The potential colonial direct involvement in the village economy could take two forms: political via the administration, or economic via fiscal policies.

4.5 French involvement and Colonial Politics

As indicated in chapter 1, Popkin (1976) made two important contributions to the debate. First, by having Annam, where the French had no intervention, as a counterfactual, and comparing it to Tonkin, he argued that the outcomes in living standards and conflicts were similar. Hence, he alleged that this was not at all a colonial institutional story. And the second; considering the two economies where French presence was most direct, he claimed: "the same French policies did not always produce the same local changes in all regions of the country. This regional variation suggests that local incentives and organization limit the ability of a central government to induce or direct change" (Popkin, 1976, p. 433). This means, of course, that the French barely changed the local incentives and organizations.

The scope of the French administration in Vietnam did not *directly* reach the village. By this is meant that the French left the village to administer itself as it had been done previously both in the North and South (Brocheux and Hémery, 2011). Cochinchina, as we know, was colonised before the other regions/countries, and there was a more active policy of assimilation (even attempting to enter village administration by choosing notables) during the first decades, but this was very costly and not as successful (resistance was made significant by, for instance, the impossibility of finding translators at provincial level). Brocheux and Hémery (2011, p. 90) claim that the French administration came to the realization that "you don't govern against the elites".

While the position of village chief in the North was sought and usually contested amongst candidates, in the South "[T]hese families [the affluent and influential], who had previously provided the majority of notables, preferred to delegate their clients to serve on the village councils and to devote themselves to the management of the property" (Brocheux and Hémery, 2011, p. 101). Many scholars, including Brocheux and Hémery (2011), understand such a transformation as an institutional void.

The idea that the village in the South moved from its traditional format to become an administrative unit is commonly claimed as an institutional colonial outcome (Gran, 1975; Murray, 1980; Mus, 1949; Scott, 1976).One may be able to argue that colonial powers changed the incentives of a large number of significant actors at the village level, but it is harder to claim that it was a direct colonial outcome. It could have been just an institutional change in colonial times. Rambo (1973) presented a thorough analysis of how the Southern village (new settlement) responded to different environmental factors and resulted in a newer type of rural system, by means of substitution and evolution, than the one in the Red River Delta (Rambo, 1973, p. 411). The general policy of the French was to leave the villages to be run *traditionally* (if we exclude the first decades of colonisation). Moreover, it is hard to assess whether such a change in the behaviour of the elites led to improvements for those who were worse off, but it indicates that there were more gains to be made in commercial/economic activities than in political ones, and that opportunities were created for new actors ("clients"). This leads to a new understanding of the village structures, where the economic and political elite could become more differentiated.

It could be concluded that the North, when it comes to power structures, remained mainly unaltered (the impermeability of the village was stressed by Wiegersma, 1988). The village chief was still from the landed elite in the North, and kept family relations with the Council of Notables, the first supra village political organization. Papin (2002, p. 25)[30], defines the council of notables as "[…] a site of power and conflict. More than this, it was a site of conflict *for* power" (italics in original). It was composed of the village chiefs, canton officials, old men and soldiers, and mandarins. The stay in power as village chief was centrally regulated and topped at three years. After these three years the village chief could become head of a canton or deputy head (Papin, 2002, p.

[30] Communal archives, approximately four thousand dossiers, have been discovered in Hanoi

30), or remain in the Council of notables as second or third notable. The importance of the Council of Notables in village administration and ruling of the population is noted without exception (Gourou, 1945; Murray, 1980; Paige, 1978; Thompson, 1937; Woodside, 1971). In 1921, the French tried to pass a reform that would have challenged the power of the Council, in favour of a more democratic (less family clan dominated) process. In 1928, after numerous boycotts, the reform was reversed.

In sum, at the village level, the formal institutional effect of the colonial powers was negligible. Nonetheless, one indirect form of affecting the farmers directly would have been via fiscal policies. And this could have been partly so when the French tried to make all males pay in order to stop the distinction between the registered and non-registered villagers. While this has been interpreted as the imposition of colonial capital institutions and individualist mentality (Wiegersma, 1988), there are also those that argue that it was meant to allow non-registered access to land and to regularize their situation. The problem is that these could have meant a greater fiscal burden per household. To the author's knowledge, there is not much information about whom these non-registered actually were, but there are occasional reports of their numbers within a province (in 1903 in Tonkin, there were 442,594 registered to 614,361 non-registered in Fall, 1966, p. 166). The question then is, if the accepted understanding of the villages in Tonkin is that they were closed, and restrictive of "external" members, should these non-registered be males that were subordinated to a household? In other words, there was a patriarch who paid taxes (poll and land tax) per household, and records were kept of other males that were supposed to contribute indirectly to the household and probably via *corvée* labour, but were not in the tax records. This is just an open hypothesis, though it prompts us to question the French fiscal policies.

4.5.1 French Involvement and Fiscal Policies

Due to the impossibilities of achieving village administration, the French had to rely on local administration for the collection of toll and land taxes, including in Cochinchina. These had already been in place prior to colonisation (Le Thanh Khoi, 1981; Long, 1973). Hence, it is not accurate to discuss taxation as an extractive colonial institution (Acemoglu, Johnson and Robinson, 2001). Furthermore, AJR use the "French policies in Vietnam" as an example of reinforcement of extractive institutions (AJR, 2001, p. 16). They refer to

Wiegersma (1988). She claimed that the personal tax increased from the "traditional 10 per cent to 50 or 70 per cent of income from communal land parcel" (Wiegersma, 1988, p. 71). This figure has been contested by Long (1973, p. 56), even to indicate that the tax burden could be lower than Wiegersma's "traditional 10 per cent". This meant that the French, especially after Doumer's federalization of the budgets of the Indochinese union, relied on indirect taxes for their main revenue (rice exports, salt, and opium) (Brocheux and Hémery, 2011; Fall, 1985).

This had a regional component. As Cochinchina had a lower population but greater production and exports of rice, the fiscal charge per capita should have been greater. In the North, due to the large population, the increase in personal tax (to 2.5 piasters for all males, though the first reform of 1898 was to tax non-registered only 0.3 per year) meant an increase in volumes, but a lower fiscal pressure per capita. In Cochinchina, the head tax was 1 piaster per year. Wiegersma (1988, p. 69) claims that one of the reasons for the French administration to increase the tax rate was the difficulty in collecting.

The second aspect is in line with the idea that the collectivist nature of the Northern village reduced the pressure (Scott, 1976). After all, taxes were paid as a village and not as an individual. The closeness of relationships and the different collective institutional mechanisms reduced the burden (Wiegersma, 1988). One may argue that it is true given the dichotomy village versus central (imperial or colonial) state, but it could lead to extractive institutions within the village, as argued earlier. In Cochinchina, the system was similar, which made the individual more vulnerable, but the open land frontier gave some opportunities to escape.

In Tonkin, the total revenue from direct taxes (including personal tax from French and Foreign Asians) increased from 4.6 to 11.1 million piasters from 1904 to 1927, but as a percentage of the total budget, it went from 70.1 to 59.0 per cent. In Cochinchina, the revenues from direct taxes went from 4.1 million in 1904 to 9.4 in 1927. It followed a similar decrease in percentage, from 75.6 to 50.3 (Fall, 1985, p. 179). In Cochinchina the Foreign Asians, more than the Annamites or Europeans, were levied the most. Considering the unevenness of the distribution of population, Cochinchina's per capita tax burden was higher than in Tonkin, even though the Tonkin tax rate (land and head tax) was higher.

The differences in tax rates for both land and head is arguably illustrative of an institutional acknowledgement of the distinct character of the two

economies and a response of the colonial administration to the existing local institutions.

This said, Scott claims that the traditional Southeast Asian state is more in line with Myrdal's soft state (Scott, 1976, p. 53). The states' inability to control and co-opt the local elites led to great difficulties in collecting revenue, more so in Tonkin than in Cochinchina. Scott (1976, p. 53) finds evidence in the fluctuations of traditional state revenues, especially in bad harvest years, and official documents that allowed for remissions in areas hit by floods, pests, or drought. This challenges the view of an exclusively extractive colonial state (e.g. Nguyen, 1978; Wiegersma, 1988). But if peasants could escape to the forests in times of collection or move to another location, it was detrimental to interests of the local chiefs. Thus, the local elites resisted all changes that could benefit the possibilities of farmers to challenge the structures of the village economy.

4.6 Concluding Remarks

This chapter has argued that the initial institutional conditions were relevant for the future development of the rice economies. These conditions, however, cannot be fully understood without considering the fundamental role of factor endowments. In the Tonkinese village, the closeness of the structure and the "stability" of the social norm, where the landlord played a substitute role for markets (including insurance), led to a greater resistance towards any change by the colonial powers. It is more probable that the North suffered from institutional persistence, and the existing landed elite (aka village political elite) took whatever new economic opportunities arose. This provides a dual view of the fundamentals of the Moral Economy theory; whereas there was a degree of efficiency in many of the institutions to guarantee subsistence, there were mechanisms for the village elite to extract surplus and keep the equilibrium.

This interpretation is line with Scott (1976), but it does not contradict Popkin's interpretation of Cochinchina (Popkin, 1976, 1979). For the South, the conclusions are yet hard to draw. It is important to have a deeper understanding of which institutions conditioned the possibilities for farmers to be part of the new economic opportunities. That is, were the farmers capable of increasing the productivity of their main assets (labour and land)?

According to Adelman (1986, p. 54), there are three main factors that affect the majority of the rural population when new economic opportunities

arise, namely: *the distribution of assets, the institutions for asset accumulation, and the institutions for access to markets*. She claims that how the poor benefit from growth depends on how these institutions interact with the economic development strategies. In the case of the North it is probable that, due to the factor constraints, the lack of land possibilities and surplus generation led to neither access to markets nor accumulation.

In the South the picture is more nuanced and complex. The farmers had access to land, but tenure conditions may have played a role in the incentives for investments. It is more probable that the formation of new economically powerful groups resulted in conflicts and to a degree of extractive processes. We need to discuss the potential for accumulation, as it has been shown that not all of it was institutionally conditioned, and that markets (and the rewards of having access to land) must have played a role.

These aspects will be discussed in the next chapter.

5. Measuring Rates of Extraction

The previous chapters have shown that surplus-generating capacity differed between the two rice economies in colonial Vietnam. The question to address here is how extractive these processes were. Based on the best available estimates, this chapter shows, via the construction of social tables and calculation of extraction ratios, that the rice economy was more extractive in Tonkin than in Cochinchina. This counters a long held view that it must have been Cochinchina, with the formation of large estates, where extraction was the greatest (Merette, 2013b; Murray, 1980; Scott, 1976; Wiegersma, 1988).

Our stand deviates from the related colonial literature (Acemoglu, Johnson and Robinson; Engerman and Sokoloff) in two ways. First, inequality and extraction are not synonymous. Second, colonial institutions do not exclusively define the potential of extraction in an economy. Extraction is a function of surplus capacity of the economy, which is partly determined by its factor endowments. If examined at one point in time, the potential of extraction in an economy is closely related to its capacity to generate that surplus (one cannot extract more than is generated), while the measurement of economic/income inequalities is a reflection on how that surplus is distributed. The implication is that, in order to reach a deeper understanding of the potential impact of colonialism, it may not suffice to argue that colonial powers extracted (Acemoglu, Johnson, and Robison (AJR) 2001), but rather to assess how extraction took place. Was it by limiting the capacity to generate a surplus by, for instance, reallocating labour or hindering the development of new economic opportunities? Or was it by affecting the distribution of incomes? And most importantly, what are the long-term effects of such processes? By first rephrasing the question from colonial extraction to potential extraction during colonial times, and then disaggregating the potential mechanism, one may argue that these mechanisms would have had different effects on the institutional paths of development.

In order to assess the interrelationship of surplus, inequalities and extraction, a new method introduced by Milanovic et al (2007) is applied. They

developed two concepts to measure ancient inequality: *the inequality possibility frontier* (IPF) and the *inequality extraction ratio*. The novelty of these concepts is that they are inherently relative. Unlike commonly used indicators, this approach allows us to estimate the level of inequality within a country vis-à-vis the maximum potential level of extraction at a given time and level of income. This will, in turn, improve our understanding not only of how extractive elites were at one point but, if measured over time, discuss the potential causal link between available surplus and distribution.

The main assumption behind the calculation of the IPF is that the distribution of income in a society is such that the subsistence minimum for its poorer classes is guaranteed. The maximum extraction is achieved when the majority of the population is at subsistence level. What is left of the total income is the surplus that is shared among the richer classes. When incomes are low, the surplus is limited, which would tend to create a small elite and a low level of inequality. However, once average incomes start rising as a consequence of economic growth, the surplus increases, leading to a greater maximum possible inequality. The interesting empirical question is whether the elites fully exploit that maximum or there are changes within the income distribution. The ratio between the actual inequality (that they measured with a Gini indicator) and the maximum feasible inequality is what they named the *Inequality Extraction Ratio* (hereafter Extraction Ratio).

In their paper, *Measuring Ancient Inequality* (Milanovic et al, 2007), the authors discussed in detail all the necessary steps to derive the IPF more formally (see pages 8-11). For simplicity, the final formulation is presented.

$$G^* = \frac{1-\varepsilon}{\alpha s} s(\alpha - 1) = \frac{\alpha - 1}{\alpha}(1-\varepsilon)$$

G* denotes the maximum feasible Gini coefficient for a given level of mean income, which is expressed as a multiplier of the minimum subsistence level (s), that is, αs (where α>1). Thus, the IPF is dependent on two variables: ε, which denotes the proportion of people belonging to the upper class, and α, which denotes how many times the mean income is above the subsistence minimum.

Some Caveats

It is important to note that in the derivation of the IPF there is one crucial assumption: the within inequality for the upper classes is not significant. This is so if the elite is very small in relation to the whole population. Yet, it might be more difficult to sustain in societies with clearly divided power groups, and in modern times where it might be difficult to define the elite. Due to several constraints, mainly on data, we are discussing an economic elite or an elite determined by income levels, but there could be other actors that are not included but are as important in determining the income distribution and inequalities of the economy (for instance, trading or mining companies).

This takes us to one of the potential limitations of this this approach, which is that it is solely based on income. It is probable that one of the main sources of inequality in a country is wealth. Wealth inequality is, however, more difficult to estimate (both currently and historically), which makes income distribution a more comparable variable to look into. Equally important is the difficulty of estimating incomes in historical contexts when many of the transactions are not marketed (for instance, via barter or payments in-kind). This could cause some biases in the estimates. In this study, the largest bias in this respect comes from the fact that land (access, possibilities of accumulation and its exploitation) is understood as the greatest source of income for the population, but it is also a clear indicator of wealth, which, as mentioned, is challenging to express in an income measure. We know that there were transactions of land (Gran, 1975), but no substantial evidence has been found to provide a estimate of land value (to the author's knowledge).

In order to calculate the IPF, we need to know the number of social/occupational classes, their proportions of the population, and their mean income. For the rice economy, that means land size and tenure. A subject of debate is the level of subsistence. Both $400PPP and $300PPP are considered (Milanovic et al, 2007) in the calculations. It is argued that, in Asian societies, the needs for subsistence are lower than in other geographical locations (mainly due to climate), so the latter could be a preferred reference, though calculations are presented for both (see Allen, 2013, on subsistence baskets). This study understands the concept of being at subsistence as an observed outcome measure. Subsistence may be achieved via different mechanisms and under different conditions for individuals; thus, even if being at subsistence is a state, it should be contextualized or at least understood in its proper context, especially if one is interested in how to break out of that equilibrium. In other words, there may be different factors that drive a population to subsistence. Colonial

literature normally attributes it to institutional factors, for instance slavery or serfdom, but there could be major natural disasters that lead to successive crop failures and leave the population at subsistence. These are very different mechanisms, which condition the implications for future development.

5.1 The Two Deltas: Expectations on Linking Surplus, Inequalities and Extraction

Milanovic et al's (2007) method allows for a cross sectional analysis of inequality in an economy vis-à-vis the potential, but the objective of this study is equally to discuss how the two variables, surplus and inequalities, interact. It has been argued that inequalities affect how factor markets function, for instance, in the allocation of labour and access to economic opportunities and accumulation (e.g. access to communal lands or land in general). This may hypothetically have an impact on the potential for economic growth. In the colonial debate, when the objective is to theorize on the potential impact of colonial intervention in future performance, or explain current underperformance, the question is whether it is higher extraction (measured as the extraction ratio) or higher inequality that is more detrimental for long-term economic growth. We will take this discussion in the next chapter, but as far as this chapter is concerned, the inquiry should be focused on how inequalities came to be, and more specifically on the dynamics of the economy and its effect on class formation and economic differentiation. From the previous chapter, we take up the objective of discussing how inclusive or exclusive the processes of economic systems were by assessing the income of the main actors of the two rice economies.

Economic growth was limited in the North, which reduced the opportunities for a change from an initial state of a seemingly relatively equal but extractive economy. The South experienced remarkable growth. But why was there not a structural transformation? The previous chapter argued that the process of land intensification was relatively inclusive, in the sense that labour movements and access to land were not as extractive as in other colonies. Polarization took place though. Inequalities are expected to have increased partly as a result of market-led inequalities and partly because of institutional failure to fully bring in the poorest groups (á la Adelman, 1986). This might push the poorest groups towards subsistence.

Let's go back to the debate on the role of economic growth and inequality. In the colonial debate, Engerman & Sokoloff (1997, 2002, 2005, 2012) argued that the economic processes during colonial times in the Americas were extractive. Nevertheless, income per capita was higher in those colonies than the northern counterparts. This was partly due to the extractive process of economic growth; these economies exploited their comparative advantage at the expense of labour (plantation economies of sugar or cotton with slave labour). Consequently, at least in the short run, inequalities may not have affected the surplus potential of the economy; it might even be argued that the surplus was generated by keeping these unequal institutions. In the longer run, however, it restricts access to economic opportunities and lowers rates of public investments in schools and other factors conducive to growth.

Based on Adelman (1986), we may conclude that the possibilities for the poorer groups to improve the productivity of their main assets (land and labour) would have been compromised. One may contend that as the slave population grew considerably and economic surplus was generated, the extraction ratios were very high from the early phases of colonisation. Still, this process of economic growth did not create incentives for investments in technology; that is, the growth was achieved by the exploitation of the favourable factor endowments and suppression of labour. This contrasts with the expansion of the land frontier by peasant farmers, which is supposedly a more inclusive growth process (AJR, 2001[31]; E&S, 2005), but was it inclusive because inequalities did not increase or because it was a less extractive process? This question has two implicit dimensions. To a great extent, these are measures of macro processes, and these have been the focus up to this chapter. There is a micro component here, though, which is the capacity of farmers to accumulate. In other words, the possibilities of the frontier in Cochinchina might have allowed for a less extractive process, if labour was permitted to move and settle, but it might not have precluded an increase in inequalities.

The expectations are that inequalities, especially in land, were higher in Cochinchina than in Tonkin, due partly to market mechanisms and partly to institutional factors (derived from the large number of tenancies and large

[31] Robinson, in a later paper with García Jimeno (2011, p. 53), has presented a qualified version under the name: "conditional frontier thesis". In their words "This takes into account the fact that the consequences of the frontier are conditional on the initial political equilibrium when frontier expansion occurred" (Garcia Jimeno and Robinson, 2011, p. 53).

holdings). Extraction, on the contrary, is expected to have been higher in Tonkin than in Cochinchina, as a result of the significant land and cultivation constraints of the Red River Delta (aka being at HLET).

In order to calculate the extraction ratios, we need estimates of average incomes for each of the groups in different periods. The greatest difficulty is the lack of individual income data, which, in turn, forces the analysis into an assessment of the household economy and its most probable income sources and expenditures. The implication is that we ought to assume that there is no within variation for each group.

This is not the first attempt to calculate Extraction Ratios, and consequently this chapter contains a critical review of previous attempts to calculate extraction ratios for colonial Vietnam. This makes it necessary to disaggregate the rural rice economy into its actors in the two regions.

5.1.1 Previous Attempts

This chapter is based on a previous and pioneering attempt (López Jerez 2011), which contains a calculation for the whole of colonial Vietnam, and hypotheses of expectations based on Tonkin and Cochinchina treated as independent units (pending regional GDP estimates). It applies a GDP estimate for the whole country to the calculation of economic classes in the two economies, and shows that Cochinchina was more unequal and extractive than Tonkin. The paper considers that those results are partial.

First, there are the data constraints. For Cochinchina, the data is based on registered landowners, which, as we have shown, were barely 20 per cent of the population, and leaves out tenants and temporal wage earners; while in Tonkin, the category poor peasants includes all groups from coolies to small-scale owners, which ought to be decomposed as we will show below. Second, and most importantly, based on currently available estimates, GDP per capita in Cochinchina was three times larger than in Tonkin on average (Bassino, 2000b). This implies that the potential for extraction was greater than in Tonkin.

The expectations in that paper were that GDP per capita in Cochinchina ought to have been larger, and inequalities greater in Cochinchina than in Tonkin (since land was distributed more unequally). This is in line with the commonly held view of Cochinchina as an unequal economy with large landholdings and absentee landlordism. Nonetheless the paper argued that extraction could have been lower, especially in relation to the North, where the

majority were at subsistence. This will be discussed in this chapter. The results were illustrative of the problem stemming from not separating the two economies.

A second attempt was carried out by Merette (2013b). She calculated social classes for the two economies for the year 1929. Her expectations were in line with the argument of the moral economists (see Scott, 1976), i.e., that inequalities and extraction ought to have been higher in Cochinchina than in Tonkin, but "the results show, somewhat surprisingly, that Tonkin was more unequal than Cochinchina, despite the latter's greater potential for high levels of extraction suggesting differences in the structure of these economies at the time". Her results show that the extraction ratio was higher in Tonkin than in Cochinchina, to the point of reaching the maximum; this, she asserts, is "… *unrealistic* considering that much of the colonial economic ventures were located in Cochinchina" (Merette, 2013b, p. 23) (italics added).

Two comments may be made: extraction and inequalities should not be treated synonymously, and extraction is not only a colonial phenomenon or, in other words, exerted only by colonial powers. As already discussed, assessing the impact of colonialism in an economy is very challenging indeed, because it is impossible to consider the null hypothesis; but if all outcomes are referred back to colonialism, the analysis may hinder the objective of understanding the mechanisms at work and risk becoming tautological. As already discussed, these had been functioning societies prior to the arrival of the French; the role of pre-existing elites in establishing extractive institutions should not be underestimated. Furthermore, the fact that Cochinchina was more successful (measured as GDP per capita) was due to its favourable factor proportions. It does not mean, however, that all colonial economic ventures led to similar outcomes in relation to inequalities; for instance, one may argue that the rubber plantations had a different outcome in terms of inequalities and the dynamics of economic growth than land development for rice cultivation, which affected a greater number of the population, and was a subsistence crop.

Let us look closer at Merette's results. Given a subsistence of 300$, she obtains a Gini of 35.54 for Cochinchina and 38.56 for Tonkin vis-à-vis extraction ratios of 0.46 to 0.76, respectively (Merette, 2013b, p. 23). The extraction ratio she obtains is in line with our expectations, but it is indeed surprising that income inequalities were so similar and even higher in Tonkin. She herself argues that there may be biases in the data; for instance, that payment in kind was more commonplace than in Tonkin than Cochinchina,

which implies an upward bias in Tonkin. There are, however, other potential biases that were only partially assessed and should be discussed further.

One of the most probable sources of bias derives from a common problem: we do not know the income of the elite. Merette based her calculations on tax records for Europeans, but the last bracket was 'above 13,200$' (Merette, 2013b, p. 12). Although she coincidentally obtains the same average income of rich Europeans in the two economies that year, we do not know the *variation* from the lower bound within each region. In order words, were the 'rich Europeans' *much* richer in one region than in the other? One would appreciate a background on whom these rich French were, or at least which activities they were engaged in, before making an assessment on how realistic this estimate and assumptions are. There is also the already mentioned difficulty of dealing with companies. In Tonkin, for instance, Goudal (1938) reports that as much as nine-tenths of the total value of the output from mining came from as few as six companies in 1929 (Goudal, 1938, p. 20). A similar problem is found for Cochinchina and the rubber companies.

A second potential problem, which is not really discussed, comes in the category 'large landowner' for Cochinchina. Estimating the income of this group is challenging indeed. Merette settles for an average income of 1000$ (Merette, 2013b, p. 14). Without refuting this value, it is important to note that she bases it on a 'typical' Vietnamese rubber grower in Cochinchina (taken from Aso, 2012). First, it is stated that these were landlords with lands of less than 50 ha, but those, according to Brocheux and Hémery (2011, p. 127), accounted for less than 7 per cent of the acreage (the rest were corporations). Second, for calculating the population of this group, Merette takes data from Henry (1932), which is from rice and not rubber. The result is that she bases the income per capita of this group on income of a rubber plantation owner, but based on a rice-land owning population, which was greater than rubber-owning population. This could be problematic.

In the case of Tonkin, Merette takes 9.6 members as representative of a large landholding household, which makes the number of large owners higher, but the income per capita lower. This number, though provided by Gourou (1945), should be regarded with caution. Gourou referred to people who were dependent on the household, which meant that some members could have been labourers (many children of poorer families lived with richer families as labourers). He calculated the costs incurred by large landholdings in Tonkin, which is not to say that the income generated by their activities was shared equally amongst 9.6 members. For the case of Cochinchina, Gourou indicates

that it is safe to take a household of 5 for all groups, which Merette uses for her calculations, but as the 1964 RIES survey showed (Stroup, 1965), the higher income households are reported to have had more members there too[32]. There is indeed a relation between having a lower income and having fewer members, since lacking members with earnings would make the household poorer. The direction of causality is not clear, however. The reason is probably that the children or other members migrated and/or became members of a relative's household. Although we cannot discard the skewness of the distribution for lack of exact knowledge of the fertility differences of groups, it is probably expedient to either take an average number for all households or keep the difference for both regions. There is also no indication that differences in fertility by class would take such dimensions at this particular point in history. Out study uses five as the average number for all households in both regions. This is because, even though higher income households could "afford" more members, it is not advisable to minimize the effect that those members had for lower income households. One may argue that the excess or shortage of members, given a normal fertility rate, has an economic value added either by supplying labour or by demanding labour. Even in Cochinchina, just because the village economy and institutions were more open, it did not mean that family or kinship lost its power. Many workers in Saigon sent part of the incomes earned back to their families for support (Sanson, 1975).

Consequently, we cannot be certain of how the biases just discussed could alter the results. On the one hand, it could be that taking larger households in Tonkin creates a downward bias, but it may be balanced out by the in-kind payments that led to increases in the net incomes of the lowest groups. And then we have the unknown of how much richer the French elites were; if they were richer in Cochinchina than Tonkin, which is a plausible expectation, the inequalities in Cochinchina would have been higher. Unfortunately, the biases could drive the results in either direction.

A fundamental point of divergence between our study and Merette's is the focus. Her starting point, and reference to validate her results, is real wages in

[32] Stroup (1965, p.19, table II) summarises household size and number of adults per household, by income group and region in South Vietnam. Having South Vietnam West and South Vietnam East (including the Mekong Region and Saigon) as the reference, the variation goes from 3 members (group under 5,000$) to 7 and 8, respectively (group 50,000$ and over). For each income subcategory the household size increased.

Hanoi and Saigon. She writes "the wage gap between the two regions is not nearly as large as the GDP per capita between those regions. Clearly the economic divide suggested in GDP per capita data far over-estimates the actual differences between the standards of living for the urban populations of Tonkin and Cochinchina" (Merette, 2013b, p. 6). This might well be so, but it could be argued that it provides only a partial view when the objective is to discuss inequalities and extraction for the two economies. The urban populations were very small in relation to the rural (4.3 per cent for Tonkin and 14.0 per cent in Cochinchina at the height of colonisation). Furthermore, the growth of GDP during the colonial time was highly driven by the rural economy (exports of rice, rubber, mining). Consequently, the urban economic activities are not necessarily a clear representation of the growth in these economies. It would be misleading to start with one of the smallest groups, both in volume of employment and in value added to the economy, or to use urban wages as a reference of living standards of the populations of those two regions. Although Merette includes other groups, she has more than 80 per cent of the population, which was rural, lumped together into two groups. The greatest proportion is under the category "tenant/farmer/small landowner", which comprised almost 46.0 per cent of the population in Cochinchina and 55.6 per cent in Tonkin. The second rural group is named "daily wage labour" and comprised 38.0 and 36.3 per cent, respectively. It is probable that some of those included in the first rural group (as farmers or small landowners) were also daily wage labourers, and hence they were probably counted twice.

The results are most striking, though. She obtains an average income of 74$ for tenant/farmer/small landowner in Cochinchina, which is only slightly higher than 70$ for the same group in Tonkin. This is counterintuitive, since the majority of the rural population in Tonkin barely reached subsistence and, based on Gourou, as she does, we know that "[…] in Cochinchina there does not seem to be a class at so miserable a level as in Tongking; according to our observations Cochinchinese coolies have annual incomes reaching 135$, whereas a great number of Tongkinese peasants live on a maximum of 70$ a year" (Gourou, 1945, p. 552); either there is an overestimation in Tonkin or underestimation for Cochinchina, or simply a problem resulting from grouping these categories together.

By grouping such a large share of the total population together and attributing to them a similar income, while simultaneously obtaining the same income per capita for the elite in the two regions, it is not surprising that the Gini coefficients turned out to be so alike. The consequence is that the results of

her general analysis are merely driven by the differences in GDP per capita, and hence the large divergence in extraction ratios for the two economies. In other words, the results of the extraction ratios solely reflect the differences in GDP per capita.

This reflection sheds some light on the potential limitations of using this approach. The extraction ratios are highly dependent on the composition of class groups. The lack of data may lead us to assume a less stratified economy that there actually was, interpreting the inequalities and extraction of those societies accordingly. Therefore the focus of the analysis in this chapter is on deepening our understanding of the rice economy and its actors, which, in turn, could lead to more realistic estimates, or at least estimates that are more conscious of the potential biases and limitations.

In sum, if we bring the rice economy back into focus and link this back to Merette's (2013b) conclusion, i.e. the importance of the structures of these agrarian economies, we need to disaggregate the rural groups.

5.1.2 Land Intensification, Familization of Labour, and Seasonality of Labour Supply

It has already been claimed that the economic life of the two deltas was determined by the seasonality of rice cultivation. The first and most significant difference between the two regions was the degree of land intensification, which was a result of population pressure and land availability. This, in turn, conditioned the allocation of labour and the possibilities for surplus generation since the drivers of land intensification were different. The expectation is that, during colonial times, when multi-cropping was only a Northern phenomenon (Gourou 1945, 1954), labour availability during the off-season in rice cultivation was lower in Tonkin than in Cochinchina. This in turn reduced labour productivity and the opportunity cost of labour. The outcome was that tenants and/or small-scale farmers in the Red River Delta found it more difficult to achieve subsistence. In contrast, the experience of the Cochinchinese farmer would have been more diverse, depending on tenure conditions, landholding size, and closeness to the frontier (as argued in previous chapters). These would have had implications for yields and transports costs (that is, lower returns), payments of rents, and indebtedness. Nonetheless, on average, we expect that they were better off than their Tonkinese counterparts thanks to the land availability and relatively easy movement to the frontier.

The first and most important difference was that, due to the population pressure in the Red River Delta, land was so fragmented that there was no equivalent group in Cochinchina. This group of 50 – 80 per cent of the cultivators with less than 0.36 ha in Tonkin constituted a category of its own.

5.2 Red River Delta: Subsistence at the Intensive Margins of Production

In the Red River Delta, the expectation, derived from the understanding that it was at a high level equilibrium trap (HLET), is a farming household with a minimal disposable income. Consequently, there was a greater need to diversify household production to maintain subsistence and lower the dependence on markets. This, in turn, would have led to a reallocation of labour, first to maximize land productivity and then to obtain any other earnings in order to achieve a subsistence income. Diversification at farm level, in a situation where specialization is this limited, is understood as a response aimed to maximize the sources of income. These farming households had rice as their primary crop, which made all other crops and economic alternatives secondary though necessary for survival (Gourou, 1945). It is more probable that the choice of which non-rice crop to cultivate was a result of a combination of soil fertility (ecological possibilities) and costs of labour intensification; that is, whether the opportunity cost of labour working outside the household was higher or lower than could be obtained from cultivation of another labour-intensive crop.

The outcome was that these households diversified their produce and income sources, which is characteristic of subsistence farming, partly as a result of the familization of labour with small, if not zero, returns to labour (Chayanov, 1966). For instance, one of the children could have worked in a textile factory in Thai Binh, one could have migrated to the rubber plantations in Cochinchina, one may have been sent to a richer relative to work as a labourer, and the tenant himself/herself was a seasonal rural labourer (see accounts in Gourou, 1945; Lam, 2000). This said, these were not permanent positions. As already discussed, there were complaints from mining companies and other industries about a large part of the labour force leaving during the peaks of the cultivation. Equally significant, the majority of those that left for the rubber plantations returned after three years (Robequain, 1944), probably to keep their rights to the land. One could argue that, given the few available

mechanisms that the farmers had to insure themselves against crop failures, diversification was achieved by labour allocation and not by cultivation strategies (that is, trading rice for other crops).

This interpretation is somehow different from Merette's (2013a, p. 157). She maintains that the Tonkinese's strategy of planting dry crops in between harvests was a result of their engagement in crop diversification. The only way we can test that is by considering the case where famers were given more land to cultivate and, *ceteris paribus*, decided not to cultivate rice. Indeed, this hypothesis is hard to test, but the indications we have from different sources are that all investments in putting new land under cultivation in the delta led to increasing land under rice cultivation for a first or second crop (Dumont, 1957). In our framework, this action of cultivating between harvests is considered as a process of land intensification under constrained circumstances, and not necessarily as an active choice of diversification.

The overall implications of land intensification by combining rice and dry crops were twofold: in the performance as a sector and in incomes. First, at sector level, if this behaviour had been common amongst farmers, the Tonkinese rural economy would have been more diversified than the Cochinchinese. This would have been a result of widespread processes of intensification of land use at micro/farm level. Consequently, at a more theoretical level, it is problematic to talk about Tonkin's diversification (Tonkin) versus Cochinchina's specialization looking only at aggregate outcomes (Merette, 2013a). In the case of the latter, the fact that there was a surplus of land and labour with which to obtain a rice surplus for export in Cochinchina does not necessarily and automatically mean that households specialized in rice cultivation (as argued by Myint's vent-for-surplus). Reports during colonial (Gourou, 1945) and post-colonial times (Hendry, 1964; Hickey, 1967; Sansom 1970) have shown that vegetable gardens (including tropical fruits) and fishing were the normal occupational activities in the off-season for rice cultivation in Cochinchina, which was not so different from Tonkin. Therefore, the use of the term diversification to represent the existence of diversity in the production for subsistence consumption might be misleading. Diversification is a term normally used to refer to the agricultural transformation of the economy as a step forward from subsistence farming; when farming households start specializing (hence less diversification at farm level), and given that this leads to increases in household

disposable income, there will be changes in the patterns of food consumption and domestic production, resulting in increasing exports (see Timmer, 1997). Consequently, the diversification of the Tonkinese economy[33] should be understood as a result of too many farming households behaving under a subsistence threat; the paradox, though, is that if Cochinchinese farmers had really specialized, why was there no apparent diversification at sector level[34]? The fact that we do not obtain the same results at aggregate level as for Tonkin could be interpreted as subsistence farming not being as widespread in Cochinchina, but, on the other hand, the creation of a large exportable surplus during sustained periods should have led to an endogenous process of specialization and increased incomes at farm level (and hence transformation). Apparently, this did not happen.

Second, the intensification of land use would have had an impact on income levels. Merette claims that "… peasants in Tonkin were rumoured to have access to a more home-grown food and home-produced goods, reducing their dependency on monetary income" (Merette, 2013b, p. 28). If farmers had little specialization because they were at subsistence, and required such strategies to achieve subsistence, they might have reduced their dependency on markets. But this was possibly an outcome of involutionary processes. The consequence is that they reduced not only their dependency but also their possibilities of marketing any produce.

5.2.1 Land intensification and Effective Demand

Gourou described the major investments in water control and irrigation that had taken place in the 1920s and early 1930s as follows: "the year, we note, is a full one, and the overabundant population of the Delta is necessary to meet these many tasks. The land is exploited with the greatest intensity. Few are the lands which bear only a single crop; major river bed lands, where the summer flood stops all work; high rice fields with soil so poor that a dry-season crop

[33] Merette based it on greater presence of vegetables and domestic animals, along with employment in textile and mining

[34] There were other exported commodities, including rubber, maize, and pepper, but Cochinchina's land was primordially used for rice cultivation (Bassino, 2000a).

would not pay; middling high rice fields with a soil too argillaceous to support dry crops and which cannot be irrigated to grow a fifth-month rice crop; low rice fields inundated all summer. On the rest of the Delta at least two crops are grown, either two rice crops, or a dry crop and a rice crop; but sometime three crops are raised (two of rice and one dry crop; two successive dry crops and one rice crop; three rice crops) and in exceptional cases four crops: at Phu Dong [in Bac Ninh province], there are three rice crops (rice of the fifth month, the three-moon rice, and the tenth month rice) and a crop of batatas wedged between the tenth-month harvest and the transplanting for the fifth-month" (Gourou, 1945, p. 412).

Under other circumstances, such a level of activities might have led to a vibrant rice trade and market economy. Gourou himself estimated that though the commercial life was full of activity, the total turnover was small due to the limited value of the transactions (Gourou, 1945, p. 610). He estimated that in 1934 each peasant had no more than 50 francs a year traded with the world outside of the Tonkin Delta (Gourou, 1945, p. 257). At that time this was equal to 5 piasters, which was the equivalent of 50 kg of rice in Hanoi. This low value was partly due to commercial specialization being limited to a few smiths and soya cheese and pancake vendors (Gourou, 1945, p. 613). The rest sold hand-woven baskets and some vegetables. The produce was similar, resulting in market saturation and suppressed prices. In larger provincial markets, one could find pharmacists (mostly Chinese) and more specialised traders, such as cloth merchants. Gourou indicates that in one of these markets, where a hundred-odd traders were found, the merchandise was not worth more than 400 piasters (40 francs) and even less was sold. If we add the impossibilities of storing produce, households (mainly women) engaged almost daily in marketing activities, which again reinforced the labour intensity at very low productivity, and was a trait of the farming economy of the Red River Delta.

If we link these aspects; as population grows, the surplus production becomes more limited, which in turn decreases the effective demand. The lack of demand influences the possibilities of investment in new products and hence the economy enters a vicious cycle, and is trapped in a subsistence economy (aka HLET).

5.2.2 Widening subsistence and extraction

When calculating income levels, a first approach is to rely on cost-benefit analysis. Estimating the income of farming households under subsistence conditions is, however, more complex than just knowing how much land they own, its productivity, and selling price, and then deducting production costs and taxes. When it is done in such a fashion (see for instance Gourou, 1945, p. 537), the result is that from 50 to 60 per cent of all peasant families (in Gourou's sample year) were not even close to subsistence; the expenditures were on average greater than the total income. For the calculation of the extraction ratios, subsistence is assumed to be the "income" of these groups. This forces us to: first, shift the analysis from estimating income (since the probable outcome was subsistence) to understanding how they achieved subsistence; second, determine who was not at subsistence.

Chapter 4 indicated that a process of polarization could have taken place in Tonkin from 1931 to 1941. The outcome was that 60 to 90 per cent of the Tonkinese farming households were achieving pure subsistence production; that is, as a "self-contained and self-sufficient unit where all production is consumed and none is sold and where no consumer or producer goods and services from sources external to the unit is purchased. Pure subsistence production is characterized by the total absence of commercialization and monetization" (Wharton, 1969, p.13). The commercialization was so minimal that one may say that the village economy in Tonkin found itself close to such an extreme. This has even more implications at farm level.

We start with the income side. We have established that a larger number of the rural population in the Red River Delta cultivated 1 *mau* (0.36 ha) or less. Let's take a certain number of scenarios given 1 *mau* and the following criteria: i) the rice cropping index (one crop or double cropping at 10 per cemt, 50 per cent or 100 per cent of the area); ii) yields classified as low, medium and high: 1.0 tonne per hectare, 1.5 tonnes per hectare or 2.0 tonnes per hectare. These are considered rice yields, meaning that paddy yields were higher (a conversion of 0.52 (based on Gourou, 1945, p. 317). This is a slight overestimation of the low, which should not be seen as a minimum (Gourou indicates that some areas with difficult access or soil quality could yield under 1 tonne per hectare of paddy), but the high one is probably closer to the maximum yields.

We then take rents as half of the rice harvest and consumption as a bare-bones minimum (500 grams a day for an adult and half of that per child). The amount consumed is also downward biased as we consider the household to

have 2 adults and 3 children. It is more probable that the children were older (greater nutrition demand) and that there were elderly relatives who may have required more than 250 grams a day. As a reference, contract labour at the rubber plantations in Cochinchina received 750 grams daily (Goudal, 1938, p. 143)

Table 5.1. Different scenarios for a farm household of 1 *mau* (0.36 ha) in Tonkin

	1 crop only			Double Cropping (cropping index)								
				1,1			1,5			2		
Yields (tonnes/ha)	L	M	H	L	M	H	L	M	H	L	M	H
Production (tonnes/year)	0,36	0,54	0,72	0,39	0,59	0,79	0,41	0,62	0,83	0,72	1,08	1,44
Rents	0,18	0,27	0,36	0,198	0,297	0,396	0,207	0,3105	0,414	0,36	0,54	0,72
Consumption (tonnes)	0.638 (2 adults *0.5 kgs/day + 3 children * 0.25 kgs/day)			0.638 (2 adults *0.5 kgs/day + 3 children * 0.25 kgs/day)								
Net without rents	-0,278	-0,098	0,082	-0,248	-0,048	0,152	-0,228	-0,018	0,192	0,082	0,442	0,802
Net with rents	-0,458	-0,368	-0,278	-0,44	-0,341	-0,242	-0,431	-0,3275	-0,224	-0,278	-0,098	0,082

Source: Author

Note: L stands for Low; M for Medium; and H for High. It relates to Yields (see text for explanation).

If we were to take the average of 1.5 multi-cropping index and a medium yield, which is what characterized Tonkin (discussed in chapter 3), the results, even without rents, indicate that the family could not produce enough for their own consumption. This shows that it is very probable that the majority of the population in the Red River Delta were living below the suboptimal conditions for survival (based only on rice); even in the most optimal hypothetical cases, where double cropping of the whole area was achieved and both crops yielded 2 tonnes per hectare, the payment of rents would have left the household with insufficient seeds for the next harvest and cover living costs. This is where the institutional mechanism came into play (in the form of the landlord).

The dependency relation between landlords and tenants was partly via inputs; mainly the fact that the tenant, once having given the share to the landlord, did not have enough for the next harvest (Murray, 1980; Popkin, 1979; Scott, 1976). A way for the farmers to reduce the need for seeds was by transplanting rice. Gourou reported that, by doing so, 20 or 30 kilograms were saved per hectare, which added considerably to the quantities at the disposal of

peasants (Gourou, 1945, p. 253). This also had the advantage of allowing for a second crop as the cultivation time was shortened. Whether this behaviour was a response to the extractive institutions in place (i.e. the payment of rents to the landlords) or for minimizing operating costs and increasing output (in the form of intensifying land use), the outcome was that it came at the expense of labour productivity. Women were normally in charge of transplanting rice and household labour was occupied in the cultivation of a second crop. This is part of the involutionary mechanism, as proposed by Huang (1990). It is probable that these two factors interacted in conditioning the behaviour of farmers.

In the hypothetical case that rents did not need, or were not, to be paid, it was only under conditions of the highest fertility of the two crops that they could obtain a surplus; except if all arable rice land at their disposal could be cultivated in a second crop. This scenario, however, was unrealistic due to the natural conditions of the cultivation system and the irrigation and water control requirements. As already mentioned, the norm in the Delta was the fragility of the cultivation, and the second rice crop's yields were on average lower (see chapter 3). Hence, it is unrealistic to assume that these households could benefit from such possibilities. The most plausible scenario is that once there was a harvest failure, these households had to rely on the landed elite of the village for seeds or other inputs for the next harvest (Dumont, 1957). It is also known that many sent their children to work for the wealthier families, which in turn reduced the food demand, and the salary obtained helped pay for other fixed costs (like taxes) (see for instance an account of such practices in Luong, 1992, pp. 58-59). Under this premise, it is probable that the loss of children's input in cultivation (normally in charge of collecting manure) had to be compensated for by a redistribution of labour within the household. This, in turn, would have made the cultivation more labour-intense, measured as working hours per worker, and involutionary to a certain extent.

One may reject the figures given by Gourou, that is, results pointing at living under subsistence, by claiming that it is improbable that such a large share of the population relied on so little land[35]. And therefore it might be claimed that landholdings were much larger than the statistics showed. This could be interpreted as a strategy devised by the local village elites to reduce the payment of taxes or at least to exaggerate the bad conditions. Considering the high

[35] 1 *mau*, 0.36 ha, is not even half a football field

population pressure on many of these areas, the land fragmentation and parcelling reported from different sources make a "shared poverty"/"moral economy" a realistic situation (Geertz, 1963; Scott, 1976; Wolf, 1957).

5.2.3 Labour Productivity and Seasonality

Chapter 3 showed that that labour productivity was low due to the degree of land intensification. This had consequences for the seasonality of labour. The outcome was a self-reinforcing mechanism by which land was intensively cultivated to feed a growing number of people, at the same as that part of the population was not fully released from agriculture.

Under these conditions, the introduction of modern chemical fertilizers or more animal power or mechanization became unrealistic[36]. The majority, and an increasing number, of the rural population had limited land availability to keep cattle and even less money with which to buy livestock. Introducing a new technology would have been costly and risky, and considering how vulnerable the cultivation was to natural disasters, the rational behaviour of the farmers would have been to be risk averse (as discussed in chapter 4 and put forward by Scott, 1976). As land was reaching the greatest elasticity given traditional technology, and labour was fully utilized at very low productivity, the opportunity cost of labour became increasingly insignificant. When Robequain deduced, from annual wages (49 piasters in 1931), how many days labourers worked given a minimum daily wage of 30 cents, he concluded that on average the Annamite was employed 163 workings days a year (Robequain, 1944, p. 234). He might not have considered, however, that the rest of the year they were probably engaged in rural work.

Goudal summarized this category of farmers (below one hectare) as follows "the very poor peasant possesses nothing but a few ares [1 are = 0.01 ha] of rice fields, scanty equipment for tilling the land, a pig, a few poultry and no savings of any kind. He works the land with his family, hires out his labour to neighbouring landowners and works as a wage earner during the agricultural slack season. To him and his family rice is a luxury, which enters into their diet

[36] This conclusion is similar to that drawn by American officials when comparing the possibilities of the Mekong River Delta and the Red River Delta (NARA)

only immediately after the harvest; for the rest of the year they are underfed. In a bad year he has to borrow in order to buy food, and once he has got into debt he is soon ruined" (Goudal, 1938, p. 190). The second from the bottom group, those from one to two ha, probably hired an ox, cow or buffalo for the year, but they normally relied on mutual assistance for planting and harvesting, since it was too expensive to employed wage-paid labour. Three ha seemed to be the lower bound for the better off in the village (Gourou, 1945).

The presence of a few home animals is what constitutes Merette's (2013a) base for the argument that the Tonkinese household was more diversified than the Cochinchinese. But it might also be considered a sign of vulnerability and lack of specialization.

The 1930s was a period when increases in land under cultivation were expected as a result of the irrigation efforts of the late 1920s and early 1930s. Nonetheless, as already stated, polarization seemed to increase. Indeed, there were a few bad harvests in the late 1930s, but it was also that some surplus was generated to allow the larger landowners to acquire more land. Hence we expect that there was an increase in extraction in this period.

The greatest challenge here is to determine, based on land size, how a household could have the possibility of rising above subsistence level. This is not an easy task, since we lack data on the composition (i.e. land distribution) of the villages. It was not easy for the French authorities or scholars to identify the large landholdings, due to the extreme parcelling in Tonkin and the different manoeuvres by the landlords to hide this (Gourou, 1945; Chinh and Giap, 1974). Based on Gourou (1945), well-to-do farmers were those farming within the group 1 to 5 ha, whereas Dumont (1957) argued that a farming household of a couple of ha could have had the physical capacity to produce above subsistence, but it was probable that it became indebted at some point, and the landed elite extracted the surplus (as argued in chapter 4). We will take this up again when constructing the social tables for the rice economy.

5.3 Cochinchina: Stratification without Specialization

It has been argued that one of the greatest obstacles to the structural transformation of agriculture (rice) in Cochinchina was the lack of specialization; that is, the farmers added surplus production to their subsistence. The abundance of land, along with the colonial investments in drainage,

allowed an increase in land under cultivation at very low capitalization. Still it is hypothesized here that the processes of growth, though inclusive to some extent (because the way land was developed did not involve the most extractive forms of colonial development common to the colonisation of other regions), led to significant inequalities. These inequalities, as noted in the previous chapter, were a result of both colonial interventions in auctioning large plots of land and market mechanisms.

The focus here is, consequently, on why the Cochinchinese farmer did not specialize. It is considered that the consolidation of a plutocratic rice trade, and the indebtedness of the cultivation system, strengthened by the Great Depression, created important inequalities in the distribution of the profits of trade. The availability of land and the opportunities for exporting rice, even of slightly lower quality than their regional competitors, were probably conducive to improvements of living standards, and enabled the farmers to increase land under cultivation. This did not create incentives for productivity-enhancing investments during the 1920s. In the 1930s, land use intensification was considered necessary (for instance Sansom, 1970), but this could not be achieved at low capitalization; investments in irrigation and inputs (seeds, fertilizers) were needed.

Regardless, the stratification that took place in Cochinchina was different from that in Tonkin because the abundance of land relative to labour during the colonial time allowed for more land allocation per farmer. This had implications for both ownership and tenure; that is, the economic differentiation was based not only on whether one was a proprietor or not, but also on the size of the tenure contracts. The reason was that the land availability and seasonality of the rice production allowed for an increase of land under cultivation at a relatively low cost of labour inputs. There were few incentives to intensify land use (only the oldest provinces around Saigon reported some double cropping in the mid-1930s (Sansom, 1970); but they are not found in any official reports). Against expectations, the outcome was small scale farming, and mainly run by household units. Small-scale in Cochinchina has a very different connotation to that in Tonkin; Gourou writes that five ha was the generally accepted limit for a small-holding in Cochinchina (Gourou, 1945, p. 340). This meant that the amount of land was at least five times larger than the counterpart in the Red River Delta. Prosterman reported, based on the 1960-1961 survey, that it was closer to two ha (Prosterman, 1970, p. 753).

With this in mind, we have to consider the following groups: landless labourers (coolies), tenants of holdings (0 -5 ha and 5 -10 ha), and landowners

of 0 to 5, 5-10, 10-50, 50-100, 100-500, and above 500 ha. This classification is partly path dependent on Henry's (1932) first colonial work on land distribution, and then on Gourou's 1937 inquiry on living standards of the Cochinchinese farmers (published in 1945). This said, though Henry worked for the French administration, his classification does not fully correspond with the administration reports on the concession data (the lower bound for Cochinchina was 0-10 ha based on archival records for 1929 (AOM)), and Henry is the only one that provides an estimate of distribution up to one hectare. This is probably a reflection of a more realistic distribution of land than the official concession data. In other official sources, however, we do not get that level of disaggregation, which hinders our possibilities of comparison over time. The only systematic comparison can be done from two data points in land distribution, i.e. in 1930 and 1936 (AOM, *Direction des Services Economiques*, N. 1987). Since Henry's work was presented at the 1931 colonial expo (and published in 1932), it is probable that the data is representative of the late 1920s and 1930-1931. To the present author's knowledge, there are no reliable statistics on landholding distribution prior to 1930 (a similar observation was made by Gran, 1975, p. 70).

5.3.1 Stratification and Economic Differentiation

Coolies (landless labourers) are those that had no rice land and only derived their income from wages. Gourou, however, reported that they might have had a vegetable garden, which was probably insufficient for rice cultivation and that is what made them landless. This was probably a small group as, according to Gourou, tenants constituted the most numerous rural class in Cochinchina (Gourou, 1945, p. 521). Considering that there was land available for settlement, many served as labourers until they could find rice fields to cultivate. These people were in the process of becoming tenants or small-scale landowners. The key aspect to determine is whether they went one way or the other. How often did cultivators start farming in virgin lands to later on be told that those lands were part of an auctioned estate and had a new owner? It is impossible to estimate the magnitude of the problem at this point; part of the virgin lands, in the form of large estates, was auctioned while other parts were conceded after requests (Gran, 1975, p. 251). There are references in the literature to this type of conflict, and the French court ruled in favour of the cultivator if he could show that land was registered at the local land registers (see more in Gran,

1975). But considering that the costs of clearing the land were estimated at 60 to 80 piasters per hectare (Gourou, 1945, p. 357), which is higher than a labourer could earn yearly (Gourou, 1945, p. 351) indicates 50$ in 1928), along with the costs of necessary tools, the cultivators would have been highly indebted from the start. The peasant could get a preliminary certificate and claim the harvest, but if taxes were not paid in the second (prior to the 1894 decree) or third year after, the claim was rejected (Gran, 1975, p. 251). He would not have had the means to pay the land tax and register the land under his name. And even if he did, the costs and time to claim, along with the knowledge necessary to fight in court, would have endangered the subsistence of the farmer[37]. The second aspect is how many parcels of already cultivated land were requested and granted. That is, this was done by landlords who abused the system for their benefit and not the cultivator's. The outcome, independently of the mechanism, was that the frontier provinces of the West were the ones with a smaller number of small-scale farmers, and consequently tenancy was widespread (Henry, 1932; Gourou, 1945).

The exact number of coolies is undetermined. Merette (2013b) provides an estimate of agricultural contract labour based on the data reported by Goudal (1938); the report only stated that there were 15,972 wage earners in agricultural undertakings. This was presented in a summary table taken from a "pamphlet published by the General Labour Inspectorate" (Goudal, 1938, p. 295). When Goudal discusses agricultural workers (in pages 105 to 107), he refers to plantation workers, hence it is not clear what kind of agricultural workers that data refers to. The shortage of native labour for the plantations (e.g. the need to import labour from Tonkin) may be considered significant for the opportunities of farmers. Working at the plantations was probably the low bound of the coolies' labour opportunity cost.

The greatest challenge lies, however, in knowing the within distribution of the tenant population since there are no records, and they were the great majority of the farming population of Cochinchina.

[37] Until 1905, land registration had to be done in Saigon only, which clearly favoured some actors over others (Gran, 1975, p. 248).

5.3.2 Tenancy: Extensive but incognito

We may find different economic relationships in the rice economy of Cochinchina for the category tenants. On the one hand, the tenant's own household needs had to be met, and, needing larger landholdings, he hired daily labourers. Under the latter premise, tenants sought lower labour costs, and as long as there was an ample supply of cheap daily/seasonal labourers, they could take up larger landholdings than their own labour supply allowed (as also argued by Sansom, 1970).

This said, many tenants, especially in the earlier phases of settlement and land development, could only count on their own labour. Under these conditions, tenants sought to maximize land use and family labour to first guarantee subsistence, which meant their own consumption plus payment of rents and advances, and then to obtain a surplus that could be traded. Consequently, tenants tended to diversify and employ family labour to have a larger plot of land under cultivation. Sansom (1970) notes that depending on the size of the household (which may have included the possibilities of accessing the labour of relatives) tenants were granted land by a land developer: "tenants were free to take as much land as they could cultivate; the average family took 7 ha, a small family 3 to 5 ha, and a large family 10 ha" (Sansom, 1970, p. 23).

Gourou estimated that tenants usually rented about five ha (1945, p. 354). Above five ha, the household would have to resort to wage labourers too frequently, while those who rented one or two ha needed supplementary employment, and were to constitute the group of seasonal migrants (Gourou, 1945, p. 354). Thus, it is within the group that some would have demanded labour, while others would have been the supply of extra farming labour.

In relation to the Red River Delta, the abundance of land relative to labour in Cochinchina (land availability and labour scarcity) consequently led to higher labour productivity. Gourou reports "according to the observations at our disposal, the cultivation of one hectare of rice field sown directly requires 68 days of human labour (including 23 days of female labor) and 14 days of animal labor; a rice field with one transplanting: 85 days of manual work (23 days of female manual labor) and 15 days of animal labor; a rice field of two transplanting: 87 days of manual labor (25 days of female labor) and 12 days of animal labor. In Tonking the preparation of a hectare of rice field requires 200 days of human labor and about 18 days of animal labor" (Gourou, 1945, p. 360-361).

A rice harvest in Cochinchina required only 35 to 44 per cent of the labour that a rice harvest took in Red River Delta (Gourou, 1945, p. 362; Dumont, 1957, p. 139). And if half of the land in Red River Delta took double cropping, the manual labour consumed per hectare in Cochinchina was only 20 per cent of that in Tonkin. In the frontier, the labour intensity was even less, 50.7 days of human and 7 days of animal labour (Bernard, 1934), which is line with the argument that, by facilitating the access to the new lands, the low labour intensity required for the cultivation of these lands incentivized a change in the allocation of the labour of farmers. As already argued, the intensification of land use in the Red River Delta required greater labour inputs (seen as working hours) due to the need to fertilize, nurse, transplant, water control, etc.

Since much of the labour in Cochinchina was contracted by piece, that is, by activity in the rice cultivation, farmers (both men and women) could migrate from East to West (Gourou 1945, 1954). The West was so lightly populated in the 1920s that three-fifths to four-fifths of the cultivators were from other parts of the delta. There were also migratory workers who started from the Upper Delta and finished at the lower Mekong Delta. The harvest started in November and December for the early maturing straws, and the season went on for two more months for the later maturing (Gran, 1975, p. 53). These migrants could earn 0.6 piasters per day for a season of three to five months (Henry, 1932, pp. 50-52), and were probably a combination of tenants and labourers. According to Sansom (1970, p. 40), seasonal migration (at least organized migration) in the 1950s was insignificant as a result of changing opportunity costs, due probably to the closing of the arable land frontier and population growth from the 1930s onwards. Nevertheless, since Gourou (1945) reports, based on his fieldwork 1936-1938, that the *seasonal* migration of many small tenants was part of their search for income, Sansom 1970's statement that migration had already ceased by the 1930s is not completely clear. Nonetheless, it is probable that competition amongst tenants and labourers increased as the land frontier was closing and prices in the early 1930s collapsed.

There is no indication that greater processes of labour intensification took place until the 1960s. Hendry (1964, p. 135) reported in 1958/59 that a labourer worked only 150 days a year[38]. Seasonal labour movements became

[38] Hendry 1964 reported that only half of the labourers worked four months a year and "a very small proportion of village laborers have more than six months of regular employment" (Hendry, 1964, p. 135)

organized. “Each labor contractor has from 40 to 60 people, both men and women, working under his direction. The laborers approach a contractor of their choice at the beginning of the year, and once having agreed to work under him they may not change to another during the year” (Hendry, 1964, pp. 133-134). The change in working days was reported in 1966, when the farming households he sampled reported that a labourer could work 250 days (Sansom, 1970). This was due mainly to labour shortage and increased wages. This shortage was a result of different factors: the military draft, insecurity, and labour intensification in the household economy, which released less labour than previously, and incentivized the use of new seeds and techniques that softened the peaks of the cultivation and allowed for a more extended cultivation period. The pressure from the Viet Cong against abusive working conditions and for minimum wages played a role in increasing labourers’ wages from one-eleventh or one-twelfth of the crop to one-sixth in 1966 (Sansom, 1970, p.132).

The key aspect here is that we cannot be certain what happened to the distribution of tenancy. There are estimates of how much of the population was rural. Henry (1932, p. 193) only indicated that it was not usual for tenants to have more than 5 ha rented, and in some provinces they could add some ha for floating rice, but there are records of families, with animals at their disposal, renting 7 ha. Gourou tried to estimate how much of the area was farmed out; “large and medium holdings represent 87.5% of the area of the estates in central and western Cochinchina. A small part of these large and medium holdings is exploited directly; but, as all the land is not in rice fields and as the medium and large landings are only in rice fields, we can estimate at 80% the proportion of the rice fields that are farmed out, say 1,800,000 ha” (Gourou, 1945, p. 355)

Of the 255,000 cultivators reported by Henry, only 64.5 per cent engaged in direct exploitation of the land; this probably included 86,000 with less than one hectare, and 78,540 (approximately 80 per cent of the second group with 1 to 5 ha). The rest relied on tenant farmers to cultivate their lands (Dumarest, 1935, p. 215). That is, approximately 165,000 cultivated land directly, but the amount of land cultivated was distributed as follows: small ownership (12.5 per cent), medium size owners (42.5 per cent), and large owners (45 per cent of the surface) (Henry, 1932; and Gourou, 1945, p. 340). Thus, the amount of land that was farmed out, as indicated by Gourou above, was considerable, even more so if there was a discrepancy between land in ownership and total cultivated land (1.9 million ha in ownership out of 2.3 million). It seems, though, that 10 ha is the reference size for a landowner who relied exclusively on tenants for the cultivation of his lands (Melin, 1939, p. 15).

5.3.3 Processes of Polarization

The early 1930s has been described as a period of increased insecurity and instability (Brocheux and Hémery, 2011). The fall in prices started to be felt in 1930. The quotations of paddy, which had varied between 6 and 7 piasters, went down to 3.79 piasters (Melin, 1939, p. 6). The outcome was that land, especially in the most hazardous areas in the extreme West, was left uncultivated (Melin, 1939), and 1,961,000 ha was the lowest for the whole of Cochinchina in 1932-1933.

The boom of the 1920s and the collapse after the fall in rice prices showed the in-built risk of indebtedness in the system. The farmers required at least 3 years to recuperate their initial investments in clearing and cultivating land (Sansom, 1970), given that crops were successful. These first payments had to be in cash and, hence, those that developed the frontier at the end of the 1920s were probably unable to recoup their losses. Many "capitalists" who acquired lands and invested in different activities during the 1920s saw it all collapse in the Great Depression. It was estimated that the total indebtedness in 1932 reached 55 million piasters (Goudal, 1938; Melin, 1939, p. 3), of which 35.6 million piasters represented the debts of 2,662 landowners who appealed to the Agricultural Loan Service for assistance to settle their debts on 400,000 ha of rice fields.

Melin's (1939) work on the indebtedness points at gambling, luxurious consumption by all actors in the economy, unfunded investments, the usurious rates of the Chinese and Indian moneylenders, among others, as the reasons for the debt crisis. It is plausible that all played a part for different actors, but much of the crisis is understood to have been poorly functioning financial markets, which the French administration did not correct (despite Melin's (1939) appraisal of French intervention). The French administration prioritized the rubber plantations and whatever credits were granted to the rice economy were passed on to landlords and not to the cultivators. The landlords then lent money to the cultivators, who could not always repay. The 1930s hence brought bankruptcy to many, but the support again went to the French colonialists and Vietnamese vested interests, and not to the cultivators. As landlords started to reclaim their rents, farmers revolted (Brocheux and Hémery, 2011; Scott, 1976).

If we take it back to tenancy, we will show below that wages were supressed, resulting in farmers lacking the incentives to intensify labour inputs at such low prices. Gourou reported a similar picture to Henry's prior to the Great Depression. It is indeed probable that part of the indebtedness of landlords was

due to the impossibilities of tenants to pay rents. We cannot be certain, however, whether there was a partition within the tenancy distribution; that is, whether land was fragmented into smaller tenancy agreements, even though labour became more abundant. This is important since, as indicated by both Gourou and Henry, having 2 ha to having 5 ha meant a substantial difference in the behaviour and economy of the farming household; while the former required extra income sources, the latter was an employer.

Statistics show that, from 1930 to 1936, four provinces reduced their area under rice cultivation by approximately 20,000 ha each. Of those, two were in the far west (Baclieu and Chaudoc), and the other two were in the middle east (Mytho and Tra Vinh) (AOM, *Direction des Services Economiques de L'Indochine*, N. 1987). The total amount left uncultivated in the 14 most important provinces reached 128,400 ha, which was compensated for by increases in some other provinces (but overall it was minus). These areas, with lower yields, were the hardest to cultivate. Since rents were proportional to yields, it is probable that this was not the major concern for landowners, but possibly an important part of the surplus of many tenant households and small owners. We know from chapter 4 that, during this period, the number of small scale owners increased at the expense of the middle of the distribution, which led to an increase in inequalities (there was a slight increase in the top of the distribution). Nevertheless, it is hard to infer changes from ownership into tenancy. Since large landholdings remained, we may assume that the distribution of tenancy remained the same. If middle size landowners were forced to sell their lands, and, along with the fewer employment opportunities, they could not afford to hire labour any longer, there was probably increasing competition to become tenants. This might have resulted in tenancy agreements of smaller size. This is why Sansom (1970) claimed that tenancy contracts were normally of two ha.

The lingering question is why farmers did not specialize. If rents were proportional, we should not initially expect that farmer did not have the incentives to specialize. Griffin et al (2001) have claimed that the type of contract is not necessarily a determinant of changes in productivity. This is of course given that the risk of expropriation was low; that is, that the contracts were stable (i.e. low transaction costs). One may argue that this would have been transformed throughout the expansion of the frontier in Cochinchina. Gran (1975) claimed that it was frequent for farmers to leave the lands and escape if problems arose (for instance, with the titling). But this behaviour is expected to have changed as the frontier was closing. Hence, rice prices would have become

the determinant for putting the marginal lands under cultivation. Unfortunately, the Great Depression hit the rice trade hard. As prices collapsed, those with access to better lands, and lower costs and better credit situation would have fared better. The most plausible scenario is that polarization took place during this period (a similar conclusion is put forward by Le Coq et al, 2001).

As already mentioned, specialization at macro level (as a sector) happens when the incomes of farmers increase (Timmer, 1997). This is required to take the study further into the channels of rice marketing.

5.3.4 The Rice Trade in Cochinchina

The following graphs (5.1 and 5.2) show the price differential for 100 kg of rice between producers at Cholon from 1925 to the beginning of 1940. Since we have data from two sources, it is presented in two graphs. In the years that overlap, 1934 to 1936, the difference is minimal, and slightly higher taking the second source (this is probably due to the conversion of measurement units; for producers, the price is normally given in gia; for the calculations of the first graph, the gia is converted as 23 kg, but it could have varied from 20 to 23 kg depending on the quality of the paddy (Melin, 1939, p.15).

In the first graph we can see the devastation of the Great Depression; the price fell by almost 80 per cent from the highest in 1929 to the lowest in 1934.

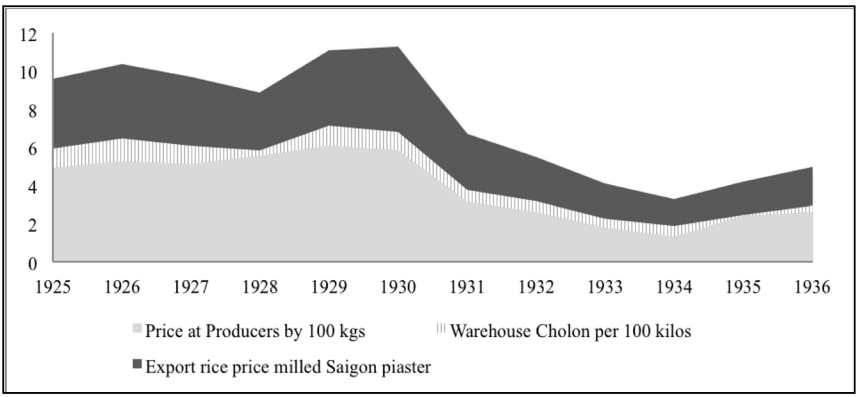


Figure 5.1 Paddy Prices at Three Points of the Rice Trade (in piasters)

Source: Melin (1939, p. 23) based on Rapport au Conseil Colonial sur la situation de la Cochinchine pendant la periode mai 1936-avril 1937-. Export Rice Price from Rose (1985)

In the following graph, which shows the significant difference in the distribution of profits, we have data only for a few years on paddy prices after milling for export.

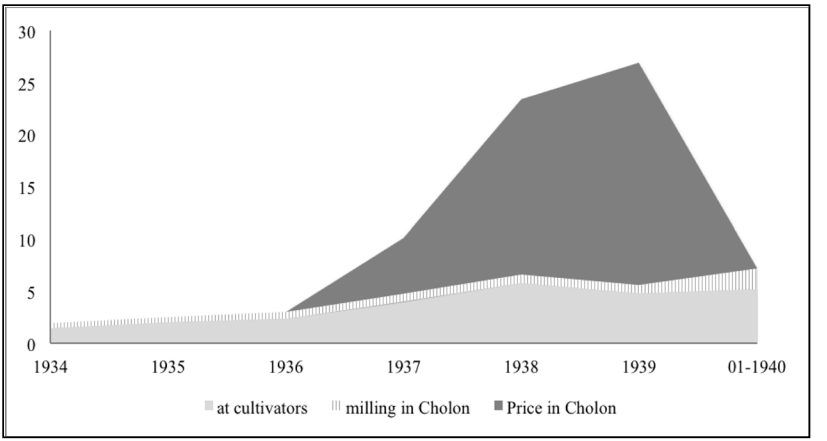


Figure 5.2. Prices of 100 kg of Paddy at Three Points of the Rice Trade (in piasters)

Source: AOM services economiques

Note: One also has to take into consideration that the price for producers is an average of the quotations given by the 14 delegations and there is variation within provinces, but we will need more observations by province to have a better estimate of the differences.

The missing link is the traders. Brocheux and Hémery (2011, p. 122) claim that "it was Cholon's powerful Chinese middle class that controlled the complex system of paddy collection and storage, the small river craft for transportation, Cholon's factories (seventy-two in 1939, of which fifty-five had large capacities), and pricing and sales. They also controlled [….] the powerful syndicate of paddy merchants (with eighty members in 1930) who financed and concentrated on the collection of paddy from inland. In 1930, some forty Chinese trading houses and, especially, eleven French concerns controlled more than 80% of the exports"

A report written to the General Governor by the director of the Economic Services in 1940 (AOM, *Direction des Services Économiques, Rapport de Le*

Directeur, N. 1476) presented a more detailed analysis of the problem of the rice economy in Cochinchina. It indicated that the difference in paddy prices for producers (reported by the Indochina Rice Office and the local government) and in Cholon varied from 1.75 to 1.97 piasters. The variance comes from the two different quotations for rice for the producers. The local government reported higher prices than the Rice Office, and this, according to the report, was due to the conversion factor of gia and picul. The average difference in price was then 1.86 piasters per 100 kg. Of this, 0.45 to 0.6 piasters is attributed to river transport, and extra expenses (AOM, 1940, p. 3), and the rest was the profit margin.

The report estimated that, in January 1940, the profit was the largest of the past decade (1.97 piasters per 100 kg). During that month, 162,000 tonnes of milled rice were exported, which meant that 280,000 tonnes of paddy (162.5 kg of paddy to 100 kg of rice) had been traded. Given the differential of prices for producers and at Cholon, the margin was 3,836,000 piasters (excluding transports costs). This margin represented 1 per cent of the total value of exports in 1940 (based on export data from Bassino, 2000a, p. 305).

Another estimate of the trade for 1958 comes from Hendry (1964). He writes: "Transportation costs by truck (Tan An to Saigon-Cholon) in 1958 were VN$10 per 100 kilos, in addition to the taxes levied on the shipment in Tan An before it left for Cholon. Over and above the cost of milling the rice, offset by selling the bran, the markup on whole milled rice between Tan An ad Cholon was in the vicinity of VN$43 to VN$48 per 100 kilos which included transportation cost, bagging, taxes, and a profit of from VN$5 to VN$10 for the merchant" (Hendry, 1958, p. 124). This is in line with the profits officially reported (AOM, 1940).

We take it that the merchant got a profit of 10 per cent of the price and the amount exported in order to calculate his income per capita. We may assume that it would have been enough for the running costs of the business plus living expenses. This could be a downward bias because part of the trading would have been for domestic consumption.

The extent of the impact of the Chinese goes beyond trading rice (from transport to milling), and they were the main providers of credit for farmers: "Cholon belongs to the Banque de l'Indochine through the intermediary of the Chinese" (in Brocheux and Hémery, 2011, p. 122). Farmers could purchase basic products, lamps, cotton and everyday consumption products from the Chinese in exchange for a part of the crop at harvest (Gran, 1975; Rambo, 1973, p. 136). This is important; if one was to try to estimate the terms of trade

given official import data, it would create an important bias as the consumption for a great majority of the rural population was supplied by the Chinese.

At this point, there is no estimate of the operating costs and living standards of the Chinese traders, and we have an estimate of the payment to the Chinese in the form of "[…] farm produce at a price agreed long before harvest plus high interest on the loans (average 30 to 40 per cent)" (Khanh, 1993, p. 47). Of course, we do not know the rate of defaults.

The Chinese, as already mentioned, had been present prior to the French (Engelbert, 2007), but they boomed in parallel with the expansion of the rice lands. The Chinese owned five out of eight rice-mills in Saigon-Cholon at the end of the nineteenth century, and 13 out of 20 in 1920. In the 1930s, the Chinese owned 75; the Vietnamese 16, and the French 3 (Khanh, 1993, p. 65). The Great Depression led to a drop from over a hundred mills to approximate 70, of which only 60 per cent were run by the Chinese.

In several official reports, the 'official' position pointed a finger at the Chinese for all the problems of the rice trade (AOM). The commission of the exporters (mainly French actors) was presented as legitimate due to the risks associated with the cereal trade (AOM, 1940, p. 8). It became clear however that, during the Depression years, the Chinese were forced to close down their businesses (unlike the French export houses and big landowners that were supported). It is telling that the same report shows different margins.

There is one further link. Unfortunately, we have only one observation of the decomposition of the prices for the last link of the rice trade, but it is also telling that the profits were concentrated at the last link of the trade and in fewer hands (AOM, 1940).

Based on the same report, the average price of rice n.1 (25% broken) was 14.521 piasters Free on Board (FOB price) in January 1940, The price was calculated from the following entries (table 5.2)

Table 5.2 Example of Price Formation (100 kg) from producers to FOB in January 1940 in Cochinchina

At producers	5.22
Arrival in Cholon	7.19
Cholon_milled rice at 25%	11.68
Usinage	0.30
Bagging	0.97
Transport (Cholon-Saigon)	0.08
Shipping (control, surveillance)	0.097
Double sewing	0.022
Interests (8% for a month and half on half of the value)	0.069
General Fees (2%)	0.278
Route waste (1.5%)	0.21
Export commission (1.6%)	0.223
Price, along side (FAS) without taxes	13.94
Ventilating	0.007
Taxes	0.574
Price, FOB	14.521

Source: AOM (1940)

In January 1940, of the 263,000 tonnes of paddy, 162,000 tonnes were milled rice, which meant, 21,319,000 piasters (of which almost 400,000 piasters was for the French exporter, which included the benefits from the export of rice flour, and 13,728,600 was distributed among the cultivators).

In sum, the profit of the rice trade was dominated by a limited number of actors who benefited from an imperfect market. The monopolistic behaviour of the main actors gave the farmers the lowest price (farmers were usually misinformed about the price in Cholon) for production of the less refined product (paddy). Transforming paddy to milled rice, with traditional technology, was a labour-intensive process (Gourou, 1945; Dumont, 1935, 1957). The literature indicates that Chinese traders mixed rice of all qualities in the process of transport. If so, this would have discouraged milling at the farm, as the Chinese traders would not have paid for the extra effort. There is some anecdotal evidence that several large landowners with estates close to Cholon

invested in their milling and transport facilities, as a way to eliminate the Chinese link, but this was not an option for the hundreds of thousands of tenant farmers (Brocheux and Hémery, 2011).

5.4 Social Tables of the Rice Economy

In this section we will proceed to the construction of the social classes of the rice economy, followed by the income estimates, Gini coefficients, and extraction ratios.

For the calculation of the extraction ratios, we need to have the maximum Gini. This is calculated taking GDP per capita in 1990 PPP prices and the subsistence levels. GDP per capita is calculated from Bassino's estimates (2000b). The GDP figures at current prices are converted to constant prices in 1950, when we have Maddison's estimate of GDP per capita in PPP. A conversion is applied to the series in constant prices in order to be able to use estimates for other years. The estimates seem to be accurate, with Cochinchina having, on average, a GDP per capita three times higher than Tonkin's.

The extraction ratio is calculated by dividing the actual Gini by its potential (note that we assume that the potential or maximum feasible is considering an elite representing 0.1 per cent of the population).

Since the data sources are different for each economy and for different years, comparing class to class in the two economies should be done with caution. They should be read from within each of the economies.

5.4.1 Cochinchina

Gourou, through the help of the Administration, carried out a survey to estimate the incomes of the farming population. The results are summarized in the following table.

Table 5.3 Income estimates of Farming Classes in Cochinchina (approximately 1937)

	Average landholding (sample)	Income	Expenditures	Net	Per capita (5 members)
Coolies without land		135	101	34	6.8
Small tenants (less than 5)	2.6	151	101	50	10
Middle sized tenants (5-10)	5.3	203	142	61	12.2
Large tenants	18	538	398	140	28
Middle sized landowner	8 ha	538	281	257	51.4

Source: Gourou (1945, pp. 514-531)

Gourou, however, argues that there is no data on incurred debts; that is, the net income is not representative because the payment of rent on harvest was annually agreed, and there were also the advances that were made (by either the landlords or the traders), which are not accounted for. Moreover, it could be argued that tenants, when they could obtain a surplus, had more incentives to acquire more land than to improve the land under cultivation, because they could shift to a higher class group, i.e. a hybrid: a farming landowner. These were probably well to do farmers who acquired land, and kept some of it for their own cultivation and rented the rest out to others.

For calculating the net income, we extrapolate backwards from the 1936 data point; if a farmer's income was 10 piasters per capita, given a producer price of 2.63 piasters for 100 kg (based on a conversion of 23 litres per gia), and in 1930, the price was 5.83 piasters, that is, 2.2 times higher, we assume, *caeteris paribus*, that the income was double. We have also removed the group of tenants with more than 10 ha. Gourou provides an estimate based on 18 observations and indicates that this group, due to the land possibilities, could become landlords if not too indebted. Thus, if indebted, the surplus was insignificant, and if not indebted, it was included in landed groups.

For the population of tenants and coolies, Gourou estimated that 1.8 million ha were farmed out and the normal way was via tenancy of 5 ha. If we divide these two numbers, we arrive at 360,000 cultivators. For the year 1938, the same number is used, but adjusted to population growth during the period (0.04 per cent). The population data is from the same source, which makes it more reliable. Since no source provides the distribution of tenancy, we have assumed that the relation of ownership, that is, how many small-scale owners

there were in relation to the total, is the same as for tenancy. This is an important difference from Merette's (2013b) assumption. Though the number is the same (since it is taken from the same source), we do not assume that all these cultivators were daily wage labour or coolies (Merette, 2013b, p. 10); first because daily wage labour could be part of the seasonal migration that many farming tenants resorted to, while the very word coolies has a connotation of having no rice land available whatsoever. Furthermore, Gourou argues that tenancy was the most widespread arrangement. We agree with Merette (2013b) that cultivation was carried out by small-scale farming; that is, the majority of the farming population (whether in ownership or tenancy) should have had between 2 and 5 ha, but if one divides the whole rural rice economy between the two groups (or three, if one includes the coolies), the large landowning effect on inequality is lost. As we have already pointed out, the rice-land owners have to be included.

In order to get a better estimate of landowners, which Gourou did not include in his inquiry because they did not farm and "usually practice absenteeism" (Gourou, 1945, p. 530), we rely on Melin's (1939) estimates. Melin groups the provinces in four big regions, which varies slightly from the division used this far. In parentheses, E is for east; ME for middle east and FW for far west[39].

It is important to note that Melin's (1939) argument was that the landowners of Cochinchina had no possibilities of investing. This is probably a counterargument to Henry (1932), who was very critical of the large land owning class for not investing in irrigation and quality of rice. Hence, we should expect a downward bias in the estimates, especially for the larger groups.

[39] The old provinces include: Cholon (E), Mytho (ME), Cocong (ME), Bentre (ME), Vinhlong (ME), Travinh (ME), and south of Tanan (ME). The second group consists of the provinces of Sadec (ME), Cantho (FW) and eastern part of Soctrang (FW). The provinces of the extreme west, which coincide with the group far west, are: Baclieu, Rachgia, and the western part of Soctrang; and the provinces of Longxuyen and Chaudoc for floating rice (Melin, 1939, p. 18)

Table 5.4. Net Income per hectare of Landowners by Region in Cochinchina

	Price at the producer	Old provinces	Sadec, Cantho, E Soctrang	Provinces in the extreme orient	Floating rice
1925	1.13	27.01	30.76	25.89	14.88
1926	1.21	29.17	33.32	28.19	17.16
1927	1.18	28.36	32.36	27.32	16.68
1928	1.28	31.06	35.56	30.22	18.28
1929	1.4	34.30	39.40	33.70	20.20
1930	1.34	32.68	37.48	31.99	19.24
1931	0.72	15.94	17.64	13.98	9.32
1932	0.606	12.86	13.99	10.67	7.49
1933	0.417	7.75	7.94	5.19	4.47
1934	0.3	4.60	4.20	1.80	2.60
1935	0.559	12.43	12.48	9.21	6.74
1936	0.604	12.80	13.92	10.61	7.46

Source: Melin (1939, p. 29)

Given the following prices at producer (piasters by gia), the net income per hectare per geographical area is as follows:

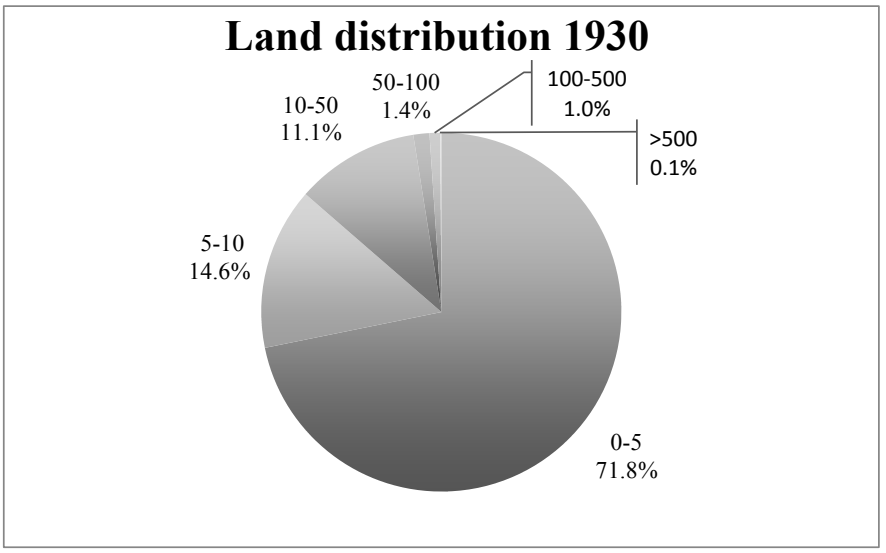
Table 5.5 Price at Producer and Consequent Net Income per Hectare in Cochinchina

Incomes (gia per hectare)	Old provinces (Yields) 1.6 t/ha	Sadec, Cantho, E Soctrang (Yields) 1.6 t/ha	Provinces in the extreme orient (Yields) 1.2 t/ha	Floating rice (Yields) 1.1 t/ha
Land rental	30	25	20	22
Rent for the buffaloes	0	5	8	
Advances in paddy	0	10	10	
Advances in cash	0		5	
Hazards of cultivation	3	8	9.5	6.6
Gross revenue gia	27	32	28.5	15.4
Expenses (piastres /ha)				
Land tax ($)	3	2.3	1.9	1
Tax on animals		0.4		
Amortization of livestock		0.7	1	
Expenses on canals and barns	0.5	1	1	0.5
Expenses on supervision		1	1	0.7
Other			2	
Total Expenses	**3.5**	**5.4**	**6.9**	**2.2**

Source: Author's based on Melin (1939)

Since we have land distribution for 1930 and 1936, we can estimate the net incomes per group.

First, we calculate the average amount of ha per land size group by multiplying the number of owners with the average land size of their group. The problem comes from having 500 at a lower bound for the large holdings. We only have one year where we have a complete distribution, though there are records (NARA, RG 469 MTV) that large holdings of above 4000 ha remained after independence. For the calculations we take up the distribution, as presented in figures 5.5 and 5.6.



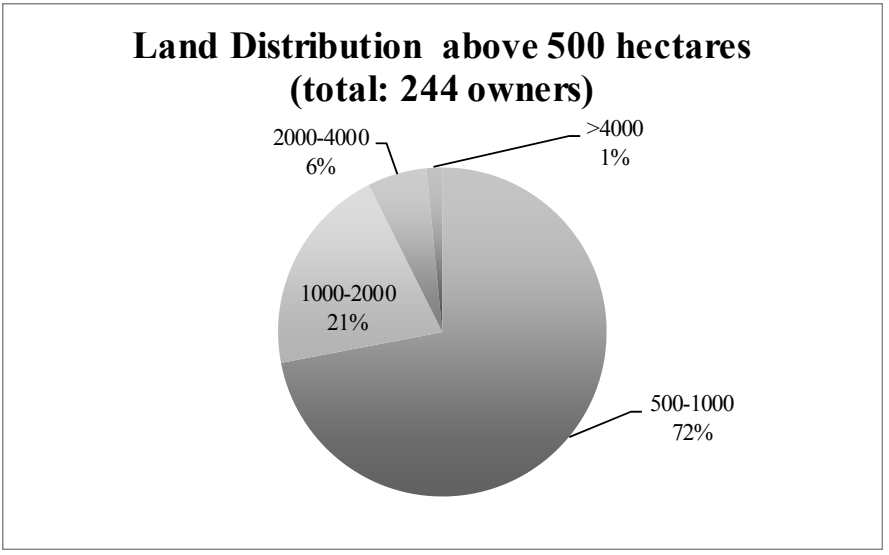


Figure 5.3 Land Distribution up to 500 ha and above in 1930 in Cochinchina

Source: AOM (Direction des Services Economiques de L'Indochine, N. 1987 "Proprietaires Fonciers des Pronvinces Rizicoles en Cochinchine de 1930 a 1936)

Thus, if we weight the 244 cultivators with landholdings above 500, the weighted average is 3,500 ha. This is the one used for both years.

Summing up, the result of combining the estimates from Melin (1939) and the land distribution data and dividing by a factor of 5 (average household size), the decrease in income (piaster) per capita is shown in table 5.6.

Table 5.6 Summary of Income per Capita by Landowning Class in 1930 and 1936 in Cochinchina

Landowning class	1930	1936
0-5	15.8	6.0
5-10	47.5	17.9
10-50	190.1	71.8
50-100	475.4	179.5
100-500	1584.5	598.2
>500	22183.0	8375.0

Source: Authors' calculation based on Melin (1939) and AOM

Melin (1939) reduced their incomes by 20 per cent due to natural hazards. For the calculations of the Gini coefficients, that 20 per cent is included. This is due to the fact that for Tonkin, where farmers suffered more often from hazards, there is no such reduction.

The largest and most significant bias is that all the income for the landed classes is from rents, which means that there is a downward bias for the small-scale farmers, who could have been farmers themselves (and rent some). There is an upward bias in the 1936 results for most groups, since it is improbable that rents were collected for some time, though it could be that the situation was more stable for landlords by 1936. This latter bias may be compensated for by the fact that we have taken averages of the figures in brackets, and the variation could be quite substantial.

For the Chinese traders: we have estimated that 10 per cent of the cost of transport is the net income of the merchant. We do not know exactly how much was traded, but we take the quantity exported that year as a low bound and we take the price from Melin (1939) provides transportation to warehouse Cholon per picul, which is transformation first to a price per tonne, considering the reference that he provides for a picul is 60 kilograms Melin, 1939, p. 23).

For 1930, Goudal (1938, p. 246) reports that there were 250,000 Chinese (75,000 in Saigon and 95,000 in Cholon), and for 1934, the number in Cochinchina was reduced to 171,000 as a consequence of the Great Depression; that is, a 30 per cent reduction. We may assume that the Chinese living in Saigon were more engaged in services, banking and administration. Khanh (1993, p. 72) reports that 19,000 were employed by the French Administration in 1929 (that is 9 per cent of the total administration, which could then be divided between Hanoi and Saigon; some were employed as workers in light and processing industries).

For the actual traders of rice, we take 10 per cent of the difference in prices between warehouse prices less net price at producer and transport. For the milling, we take the difference in price between paddy and white rice, which in 1930 was 44 piasters per ton, and in 1936 was 20.1 piasters per ton (prices taken from Rose, 1985).

Bernard (1934, p. 19) estimated that the rich Chinese traders numbered 8,000 in 1930-1931; we may assume that they were engaged in the rice trade and had equal weight in these three activities. We assume that the reduction was similar for the whole Chinese population, resulting in 5472 in 1936, or 5500 rounded off.

5.4.1.1 Extraction Ratios

The important aspect is that we need to assume that there were no within income variations in each group, that is, that each member of the same social group had the same income. This is indeed a severe challenge if one is interested in dynamics and potential vertical movements. This cannot be overcome, though, due to data limitations, but by striving to disaggregate groups as much as possible, the understanding of the rice economy becomes a closer approximation to reality.

Table 5.7 Social Tables for the Rice Economy in Cochinchina

Cochinchina	1930			1936		
	Number	Population Share	Income per capita	Number	Population Share	Income per capita
Coolies	288000	0.0937	15.1	205920	0.0639	6.8
Tenants						
0-5	1260000	0.4097	22.2	1422720	0.4414	10
5-10	252000	0.0819	27.1	243360	0.0755	12.2
Landowner						
0-5	910055	0.2959	34.1	1016645	0.3226	14.0
5-10	185080	0.0602	57.0	171305	0.0544	21.5
10-50	140705	0.0458	228.2	128500	0.0408	86.1
50-100	18115	0.0059	570.4	15760	0.0050	215.4
100-500	12245	0.0040	1901.4	12400	0.0039	717.9
>500	1220	0.0004	26619.6	1285	0.0004	10050.0
Chinese traders - trasport	2600	0.0008	118.7	1833	0.0006	186.7
Chinese traders in Cholon	2600	0.0008	294.0	1833	0.0006	125.0
Chinese-milling	2600	0.0008	1791.2	1833	0.0006	1876.7
Total Rice Economy	3075220	1	60.03981845	3151395	1	24.13945
Subsistence	300$	400$		300$	400$	
Gini	0.30			0.32		
Maximum Gini	0.81	0.74		0.85	0.8	
Extraction Ratio	0.38	0.41		0.38	0.40	

Source: Author (see text for calculations)

Inequalities did increase in the 1930s as expected. It could be that the relatively low Gini (though it is not that low if one considers that this is only the rice economy) is due to the relative bias in the landowners' data and the distribution of tenancy. We also lack the export houses, which represented a large part of the profit of the rice trade. The inequalities in incomes would also have increased. The largest dimension, which naturally is undermined, is that the majority of the farming population did not own the land they cultivated. The inequality in wealth was therefore larger than this Gini represents.

5.4.2 Red River Delta – Growing Extraction

The calculations are based on the land distribution given by Henry (1932), and the cadastres for 1941 (AOM).

The biggest challenge is that there is no source of income level other than Henry and Gourou, and they provide data based on very few observations. Hence, a large number of assumptions have to be made and explained.

The first group is wage earners. There were individuals who worked annually in agricultural undertakings. The number is taken from Gourdal based on figures for 1929. He noted that the salary was 0.44 piasters but is not clear about how many days they worked. Therefore, we take Henry's estimates for an annual worker, which also includes food and basic living costs (Henry, 1932, p. 29). Thus, the measurement reflects disposable income.

The next group is farmers, and here it is assumed that there were landed cultivators. Unfortunately, the sources provide different categories of land size. Considering that there were not so many groups, the decision here is to keep the original source's classification, even though that compromises within region comparisons.

For 1931, Henry reports more detailed distribution by land size, but his report on incomes is scant (Henry, 1932, pp 283-291). However, he is very thorough in providing detailed data on costs, but he presents five cases taken from different provinces and with different landholding sizes.

For the smallest group, 1 *mau*, he reports that the gross income oscillated between 15$ to 80$. The variation is a function of the degree of multi-cropping. We have taken the average. On the one hand, this creates an upward bias since we have taken net (after operating costs and taxes) for the other groups, but, on the other hand, these farmers had access to other sources of income.

For the coming groups, all income estimates are net. For the next group (0.36-1.8), the data is taken from a cultivator of 1.3 ha (3.6 *mau*). For the 1.8 to 3.6 group Henry gives an example of a cultivator of 3.31 ha. This group had lower operating costs than the previous and next groups. The operating cost per ha. for the previous farmer was 222 piasters, while the cultivator in the next category had 123. Henry indicates that this one had 60 piasters, which seems excessively low, even when accounting for a lower cost per ha as the marginal costs of cultivation reduce as land increases. We assume that the costs should have been at least the same as for the cultivator of a larger landholding. This also helps us compensate for the fact that this farmer was in the upper bound of the distribution, so the assumption, though it creates a downward bias, makes it

more representative of the average. Equally important, the example that Henry provides is taken from the province of Thai Binh, where labour costs were lower due to the abundance of labour. In provinces where labour was less abundant, labour costs were higher and hence a lower estimate could be argued to be realistic (Henry, 1932, p. 282 provides different labour costs in some provinces).

The estimate for the next group (3.6-18) is taken from a cultivator of 6.48 ha. For the next groups, he does not provide any estimate. Hence, we assume that disposable income is a proportion of the average disposable income per hectare of the other three groups, which makes it 87$ per ha. Since we lack distribution within the groups, we take the average number for the 18 to 36 and the minimum. The result is a low bound estimate of income for that group.

For 1941, the data for land distribution is taken from the cadastres, while income is based on Gourou (1945) taken from data for 1936 and 1938. This means that, when calculating the extraction ratio, the maximum Gini is taken from the income per capita of the economy in 1938 (to try to keep all income for the same period). Although the cadastres provide a disaggregated number for those under 1 hectare, Gourou does not. Thus, the first group is 0-1 hectare. Gourou claims: "[…] a great number of Tongkinese peasants live on a maximum of 70$ a year" (Gourou, 1945, p. 552). We deduct 10 piasters for operating costs (tax and basic inputs, etc).

Gourou provides data on income and general costs. Thus, his net income is lower than we get for 1931. To overcome such a bias, we take operating costs as a percentage of gross income and apply it to the income groups. For the group, 1-5 ha, the operating costs are estimated as 1/6 of the total. For the group 5 to 20 ha, those costs become 0.14 of the total. For the final group, we have no estimate. In order to calculate the income, we take the average size of the group before (5-20 ha), which is 9 ha. We calculate the net income per hectare and multiply it by 20 ha. This again creates a low bound estimate for that group.

Table 5.8 Social Table for the Rice Economy of Tonkin

Tonkin	1931			1941			
	Number	Population Share	Income per capita		Number	Population Share	Income per capita
Wage earners	58069	0.0130	25.5	**Wage earners**	58069	0.007	25.5
Farmer				**Farmer**		0.000	
0-0.36	2747320	0.6133	32.5	0-1	7285025	0.898	60.0
0.36-1.8	1298285	0.2898	68.1	1-5	706018	0.087	440.0
1.8-3.6	275265	0.0614	265.5	5-20	54661	0.007	1382.0
3.6-18	95550	0.0213	444.8	>20	10739	0.001	3071.2
18-36	3975	0.0009	2349.0	Total Rice Economy	8114513	1	114.9
>36	1250	0.0003	4053.0				
Total Rice Economy	4479714	1	68.1				
Subsistence	300$	400$			300$	400$	
Gini	0.30				0.53		
Maximum Gini	0.48	0.31			0.53	0.38	
Extraction Ratio	0.62	0.96			1.00	1.39	

Source: Author's (see text for calculations)

The results indicate that Tonkin was a very extractive economy as expected. At a subsistence economy of 300$, which is a better indicator than 400$, the rice economy of Tonkin was at its maximum of extraction. While admitting that there are biases in the data (and partly in the lower number of classes), the results are in line with the expectations. The Red River Delta was under increasing population pressure, while several successive harvest failures constrained the capacity of production. These are the years when rationing was imposed and eventually a famine broke out in the winter of 1944. One to two million people died as a result. Nonetheless, the deaths were not sudden, and there are indications that the figures are cumulative from a series of years of starvation and famine-induced deaths, especially in the Red River Delta (AOM, Provincial Reports; Gunn, 2004).

In comparative terms, the result is in line with expectations that extraction was higher in Tonkin than in Cochinchina. By 1941, the inequalities in Tonkin had grown considerably. This result can partly be explained by the limitations of the data. Since the group with less than 1 hectare was so large, the estimates are sensitive. As already indicated, with so little available information on the incomes of a subsistence economy, it is difficult to construct extensive social classes.

The difficulty in comparing Gini coefficients of the two economies is that, with a clear upward bias in the income estimates of Tonkin (as we have to take gross income for the larger part of the population, which was at subsistence), we do not have the same income source and estimate. We also lack income data for the French export houses, which were more important in the Mekong Delta than in the North, and, as shown, were greatly benefiting from the trade.

As a possible reference for income differences between the two regions, Bernard (1934) presents a crude estimate of incomes of classes in the two economies as a whole for 1931. He has only five classes for the whole economy: European (administrators and military), and Vietnamese (rich, middle and poor class). The Gini coefficient for Cochinchina is 36.5 to 34.4 in Tonkin. The results indicate that income inequalities, at least in 1931, were higher in Cochinchina than in Tonkin. This said, the other Asian members (such as the Chinese or Indians) are not included, which makes income inequalities higher in Cochinchina. Equally important, the figures are for 1931 when the Great Depression must have hit the income of the Cochinchinese farmers harder than the Tonkinese farmers. This reinforces the claim that inequalities might have been larger in Cochinchina, but the economy was not as extractive as Tonkin's.

5.5 Concluding Remarks

Up to this chapter, this study has argued that the interplay between economic and institutional factors facilitates understanding of the two distinct dynamics of the two rice delta economies.

The open land frontier, and the possibilities of migrating, led to an increase in land under cultivation in Cochinchina, which, in turn, resulted in a booming market where new groups flourished, including a middle-class of rice cultivators and a merchant class. The surplus capacity of the South was consequently greater than in the North, even prior to the arrival of the French.

It has been shown that the open village institutions did not constrain labour to the same extent as in the North. But credit markets were insufficient and imperfect, which led to high transaction costs for all actors involved and a development of credit and indebtedness, especially in the 1920s. The inequalities at the time were driven by market-mechanisms, and not exclusively by colonial intervention (as discussed in chapter 4). When the Great Depression hit, many actors went bankrupt, amongst them the Chinese traders and mill

owners, who could be considered to have constituted an embryonic agro-processing industry, however monopolistic. Indeed, they controlled the trade, and it has been shown that the profit remained in a few hands in Cholon and Saigon (French export houses, for instance). This may explain why the large farming population did not invest. But it may also be that the incentives for accumulating land and not paying rents were important determinants of the decision process. This might have become vital when the land frontier closed (approximately in the 1930s), and the population pressure on land increased. At this point, investments in land use intensification ought to have happened, but the most vulnerable groups (coolies and small size tenants) were probably experienced a worsening of their conditions.

As will be discussed in the next chapter, the greatest concern of farmers in Cochinchina in the 1950s was land ownership, while inputs or technological assistance to improve cultivation came second in all surveys. Although the high prices of fertilizers should have been a hindrance to increasing yields, it was their tenure conditions that led to a series of land reforms to curb the significant inequalities in land distribution. The concentration of land ownership in Cochinchina in the 1950s was considered one of the highest in Asia (SRI, 1968, p. B-19)

Due to the low population densities on arable land, the inequality in land size in Cochinchina was further from the bimodality of the rice economy of the Red River Delta. This made the tenure problem, and not the actual size of landholdings, the obstacle for the transformation of the South. This is why the extraction in Cochinchina was lower than in Tonkin, and, thanks to the opportunities provided by the surplus land and labour, we can see a substantial increase in the surplus capacity of the economy. Nevertheless, as the land frontier closed (there could been some marginal lands that were put under cultivation in the late 1930s, after which prices recuperated), needs for intensifying land use came at greater capitalization costs. The growing inequalities, in relation to tenure and the payments of rents, rather than in access to or distribution of factors (á la Adelman 1986), were a hindrance to the transformation. The Viet Cong understood it well "[T]he essence of the national problem is the farmer's problem. The basic problem of the farmer is land. This is a strategic problem we can never neglect" (The South Vietnamese Communists and Rural Vietnam, 1966, in AID memo p 20). The potential of the economy to generate a surplus started to become compromised by the growing inequalities in land distribution, which were pushing farmers to subsistence conditions and investments were not carried out.

The living conditions in the North were very extractive as surplus capacity was limited, but was it limited institutionally or physically? As discussed previously, the capacity of surplus generation in the North had already been limited before the arrival of the French. The costs of intensifying land use while introducing labour saving technologies to facilitate the release of labour would have been very high, especially considering the large population. Somehow one could agree with Scott (1976, pp. 212-213) that the failure of the French was not to industrialize enough; in the sense of creating new economic opportunities. This said, as has been discussed throughout this study, the farmer in the North was both institutionally and physically attached to the land. His presence was necessary in the peaks of cultivation, and even when he migrated, it was not for longer than 3 years so the household did not lose its rights to the communal lands. Thus, the dependency relation that characterized the village economy was an important obstacle to change. While the landed elite had no incentives to alter the conditions, the farming households were subjected to an involutionary process. Increases in population led to more fragmented landholdings, which required more care to cultivate, increased the labour costs of cultivation and required a greater familization of the household economy with rapidly declining marginal returns to labour. The result is that a larger proportion of the population was at subsistence and hence the extraction in that economy was high, and higher than in Cochinchina. After several years of bad harvests, along with extractive institutional mechanisms, the Red River Delta witnessed one of the worst famines of the century.

At the end of the colonial period, the fundamental structures had been laid in both rice economies with significant implications for the situation today. This will be taken up in the next chapter.

6. Linking Past and Present

This chapter takes up the challenge of reconciling the negative outcomes in the 1940s (in terms of inequality and extraction) with a "Miracle economy" in the 1990s. This study has argued so far that the differences in factor proportions, especially in land availability, led to different economic and institutional mechanisms of transformation. The outcome was that North was conceivably at a High Level Equilibrium Trap (HLET) in an extractive economy. The South, on the other hand, experienced sustained periods of growth thanks to the surplus of both land and labour. This strategy of growth, Myint's vent-for-surplus, probably reached its limit by the 1940s, when surplus production was reaching its frontier, and inequalities, based on land distribution, were mounting. In one of J.P.Gittinger[40]'s documents, *Basis for Land Transfer* (NARA, RG 469, MTV), the total area under rice in 1956 was declared to be 1.73 million ha, of which 2,892 proprietors, that is, barely one per cent of all landowners, each owned more than 100 ha[41]. An A.I.D report on land reform (1975, Vol 2.) indicates that, in the previous year, there was a total of 2.3 million ha of rice, of which one-half was owned by 2.5 per cent of the proprietors (more than 50 ha each), whereas more than 70 per cent of the proprietors owned less than five ha each, or an estimated 12.5 of the cultivated land (A.I.D., 1975, p. 7).

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[40] J.P. Gittinger was Assistant Agrarian Reform Specialist. In NARA, from the Mission to Vietnam records (U.S. Foreign Assitance Agencies, 1948-1961), there are subject files for his works in relation to the agrarian reform (1951-1957).

[41] In 1956, inequalities in land redistribution were remarkably high with 5 individuals with more than 5,000 ha, and 408 owning 500 ha or more, while 74.4 per cent of all owners had from 0 to 5 ha (NARA; RG 469 MTV, Box 5). These numbers were provided by the Secretary of State for the National Economy on 12 November 1956 and "attached more confidence" in Gittinger's estimates as they were closer to the Mission's own estimates and figures derived from Henry's estimates of 1931.

For the North this chapter finds that despite the institutional changes of collectivization and de-collectivization (from the 1980s onwards), population pressure with large land constraints remained a barrier to transformation. The South was more nuanced and complex. Hence, the transformation that was to take place from the 1980s was based on rising factor productivity, which led to a rather inclusive process. The vent-for-surplus, however, cannot explain this. Rice exports did become an engine of growth, though this time there was technological change, overall improvements in living conditions, and reduction in inequalities and poverty. Consequently a new framework is presented to help us identify the changes that took place from the 1940s and the 1980s. This requires an understanding of the changes in land and labour institutions, and the economic mechanisms of the rice economy during this period (ca 1940 to 1980).

6.1 The Present Background

Vietnam became a (low) middle-income country in 2011 (per capita income of US$1,260). This in itself is a remarkable development if one considers that, 25 years earlier, it was amongst the poorest countries in the world, devastated after three decades of war. It is even more remarkable that the country managed to reduce poverty and income inequalities. Headcount poverty decreased from 58 per cent in the early 1990s to around 10 per cent in 2010 (WB, 2013). Income inequality, measured with a Gini coefficient, went from 0.45 in 1993 to 0.38 in 2006. This reduction, according to McCaig et al (2009, p. 32), was a result of improvements in the distribution across regions and sectors. This is outstanding indeed. Vietnam is one of the few modern economies that have experienced an average growth of 7 per cent in GDP per capita for more than a decade, and it has managed to reduce income inequalities and poverty.

The main reason for the fall of poverty rates was increased earnings of agricultural workers (Benjamin and Brandt, 2004; OECD 2010, p. 32; Ravallion and van de Walle, 2008; World Bank 2004). This is clearly represented in the decrease in the rural poverty headcount ratio: from 0.709 in 1993 to 0.084 in 2006 (McCaig et al, 2009, table 14). This means that absolute poverty in rural areas has been eliminated, and that agriculture has been a dynamic source of employment. Together, this has meant improvements in the living standards of the rural population.

Rice played a fundamental role in this transformation. First, the recovery and sustained increases in rice production allowed reaching the target of food security for the country. Second, its exports became an engine of growth. During the period 1976-1980, right after Reunification, the area under rice cultivation increased by one per cent, but production stagnated at 11 million tonnes (Young et al, 2002). For the period 1988 to 1995, rice production increased by approximately 5.2 per cent yearly (Young et al, 2002). By 1997, Vietnam had become the second largest exporter of rice in the world (after Thailand).

The explanation for this transformation, and what the majority of the current literature focuses on, is the reform known as Doi Moi. From 1986 a series of reforms started to dismantle a centrally planned economy. They have been considered as rural-oriented development strategies (Timmer, 2009, p. 42). The Land Reform of 1988 (via Ordinance 10) moved the decision making process from collectives to the household. Land user rights were granted to households. A series of further reforms has assigned greater rights to those titles, including the possibility of exchange (although the ownership of the land remains in the hands of the State). Amongst the most important changes that took place were: the liberalization of domestic markets (inputs and output markets), increases in rice prices, expansion of export quotas, and in 1998 the devaluation of the currency by 10 per cent, which favoured exporters. All these policy changes were preceded by significant investments in irrigation and other infrastructures that had previously been destroyed by the war. These overall changes led to positive effects in rural households across the country.

Rice remains the most important crop in the country and occupies the majority of cultivated land in the two deltas. Improvements in production and land productivity, along with increases in real incomes for farmers, have been experienced in both deltas. The difference is, however, that the South has greatly outperformed the North (Benjamin and Brandt, 2004). That is, not only have the paths of the deltas diverged; the differences are probably not about to disappear soon. There is a persistence of the differences in extraction ratios. If we take a crude calculation of extraction ratios for 2006[42], the extraction ratio at

[42] For 2006, we have taken the GDP per capita (US$ PPP) of 530 for the Red River Delta, while the Mekong River Delta had less, 451. Since the RRD includes Hanoi, while the data provided for the MRD excludes Ho Chi Minh City and surroundings, whose GDP per capita was 1,385 in 2006, we have taken an average income of the MRD and Ho Chi Minh City. This data is

a subsistence of 300$ was almost 1.5 times higher in the North than in the South.

While the process of land intensification in the South seems to have followed a transformative process of structural change (increasing total factor productivity and releasing labour), the North seems to remain in a form of HLET. Needless to say, the conditions there are different from colonial times, but the factor endowments of the Northern delta are arguably constraining it from breaking out of the trap.

Consequently, the reform (see Doi Moi) is an insufficient explanation for the differences in performance in the two deltas. Let's look closer at the economies before an alternative explanation is presented for this transformation, and link it to the 1940s.

6.1.1 A Tale of Two Deltas

In order to understand this transformation, the literature highlights the de-collectivization of farming as the main driver (see the seminal work of Pingali and Xuan, 1992). This is only applicable to the North however, where collectivization started in 1958 (more on this below). In the South, there is a commonly shared understanding that collectivization was weak, and that most farmers went back to farming the land they had historical rights to, or that they had handed over to the cooperative or collective (Ravallion and van de Walle, 2008, p. 19). Kerkvliet & Selden (1998, p. 48) claimed that after Reunification, southern villagers, especially in the Mekong delta, "…spurned and fled the small agricultural production cooperatives that local officials had established as a prelude to collectivization. Of the more than 13,000 that had been formed in the Mekong delta, only 3,700 remained by 1980. A few collectives were

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provided by Dang Kim Son (2009), based on VASS-UNDP (2006). For the Gini coefficient in 2006, we have taken McCaig et al (2009); in table 15 they indicate Gini coefficients (based on real per capita income) for North Rural and South Rural, which were 0.335 and 0.352, respectively. The extraction ratio is thus calculated by assuming a subsistence level of 300US$ and a maximum feasible inequality given an elite representing 0.1 per cent of the total population (see chapter 5 for a more detailed description of the calculations, or Milanovic et al, 2007). The results are an extraction ratio of 77.3 for the North and 52.3 for the South.

established, but most of these functioned poorly." These same authors indicated that villagers, in the parts of the Central Coast and Highlands in Southern Vietnam, which had been most devastated by the war, were more receptive to collectives and cooperatives. This was seen as a means to pool resources to recover land use. If one is to take the South as a whole, there could be different estimates of the extent of collectivization based on where in the South one refers to. Nevertheless, the Mekong (and South East area), which is the focus of this study, was not receptive to this transformation. There are even reports of owners boycotting their existing machinery (Pingali and Xuan, 1992, p. 704; Raymond, 2008, p. 11).

In the North, the response to de-collectivization appears to have been positive (Hayami, 2001). Crop (rice) income increased by 7.16 per cent from 1993 to 1998. As can be seen in the graph below (figure 6.1), rural inhabitants experienced growth in their real incomes after the reform. The difference is that, as Benjamin and Brandt (2004) reported, the South experienced a 95 per cent increase in real income per (14.3 per year), versus 55 per cent in the North (9.2 per year) per capita during the 1990s. Considering that Northern rural households' initial average income was 87 per cent of the Southerners', the difference grew. The fundamental initial driver was the growth of crop income. After the initial increase, the annual growth of crop income in the North was only 3.6 per cent in the period 1993 to 2006. In the South, farmers' crop income increased by 14.3 per cent annually during the 1990s, and by 6.41 per cent for the whole period (1993-2006) (McCraig et al, 2009, table 11)

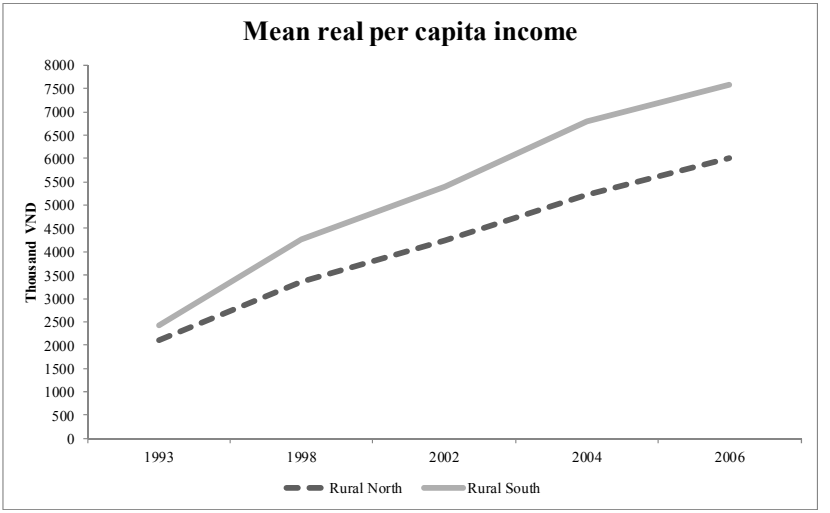

Figure 6.1. Mean Real Income per Capita

Source: data from McCaig et al, (2009, table 10). "All values have been spatially and temporally deflated to January 2006 prices"

These changes of income were closely linked to the changes in rural poverty. During the 1990s, poverty decreased from 58.2 per cent to 38.4 per cent. When Glewwe et al (2000) decomposed these rates, they found that the most significant drops in poverty were for households with the following two characteristics: they were in the South and had more irrigated land. This change, they argued, is associated with increases in land productivity. This suggests that land allocation was probably one of the most fundamental drivers of the processes of equalization in the South.

The fact that (rural) poverty fell more in the South than in the North is due to the extent of the agricultural transformation. In the South, production of both rice and non-rice production grew faster than in the North during the 1990s (Benjamin and Brandt, 2004, p. 17). Crop production grew annually by 8.9 per cent in the South compared to only 2.7 per cent in the North (Benjamin and Brandt, 2004, p. 20). An interesting finding is that increases in rice production did not hinder the growth of other crops (such as coffee) in the South, while in the North non-rice production grew at a slower rate than rice (Benjamin and Brandt, 2004, p. 20). The surplus capacity of an average household in the South was significantly larger than in the North; by 1998,

more than two-thirds of all farm output was marketed in relation to one-third in the North (Benjamin and Brandt, 2004).

This output growth in the South was due to intensification of land use. The land frontier was practically closed. There is an estimate that only 10 per cent of the increases in cultivated land came from marginal lands (the lands of the Plain of Reeds, which had lower soil fertility, were put under cultivation during this period). These lands were not readily suitable for rice cultivation due to their acid sulphate content, but the conversions of swamps into rice fields might be an indirect indication that the returns (the significant increase in rice prices during the 1990s) compensated for the initial investments in inputs and expected lower yields. The rest of the crop increases were a result of greater cropping intensity and higher yields (Benjamin and Brandt, 2004, p. 20; Young et al, 2002, p. 8).

The transformation of the country as a whole has been attributed to the liberalization effect of Doi Moi. Although the reform had an effect, this study claims that it is insufficient to explain the differences in outcomes in North and South, more specifically in the deltas. The literature normally attributes these differences to the variance in initial conditions between the two regions. Ravallion and van de Walle claimed (2008, p. 33): "This difference between the North and South is no doubt a legacy of the lower penetration of market institutions in the North during French rule, the longer period of collective organization in the North, and village economies that have been traditionally less open to outsiders (Loung 1992; Wiegersma 1988)." This is a valid account of observed phenomena. Their approach puts emphasis on political institutions as exogenous forces, but it leaves unanswered the question of why the North followed that path or why the South, in juxtaposition, had greater penetration of market institutions. They are not alone in making these claims about the regions' history; for instance Heltberg (2002) or McCaig et al (2009, p. 31), have suggested that it is the legacy of their history and differences in economies that could explain the transformation.

Our study indicates that the interaction between economic and institutional mechanisms derived from factor endowments may shed some light on today's performance. That is, this is an attempt to provide an explanation for how history may matter for these economies. After all, these initial conditions are the outcome of previous processes. Let's look closer at the two deltas.

6.1.1.1 Red River Delta: The Involutionary Delta?

The initial surplus generated, thanks to de-collectivization, allowed incorporating new technologies into cultivation, especially new seeds that shortened the fallow, and chemical fertilizers and pesticides. The investments in irrigation and better dikes improved the cultivation and reduced the cultivation hazards that had characterized this region. This led to greater intensification of land use. The land constraints in a highly densely populated area remain a fundamental barrier.

In the RRD, the area under cultivation of rice has remained mostly unaltered since 1960 (626.000 ha of rice land and approximately 1 million of cultivated area). Land productivity (tonnes/ha) increased from 2.42 in the period 1975-79 to 3.81 in 1990-94, reaching 4.91 in the period 1995-99 (Tran Thu Son et al, 2004, p. 218). This is an average for the whole delta.

Rambo et al (1993) reported from Nguyen Xa. This village in Thai Binh province had, at the time, greater productivity than the provincial average. Paddy productivity was 6.45 tonnes/ha for the spring crop and 4.68 for the fall crop in 1990. This is a record high return in their observations. The yields decreased to 3.03 the year after. The average for the decade of observations was 5.4 for the spring crop -1981 to 1991- and 4.5 for the fall crop -1981 to 1990. This is indeed higher than has been reported for previous periods in the Delta. High land productivity is not the only factor this village excels in. It has a density of 2,030 persons/km^2 of *cultivated* land (Le and Rambo, 1993, p. 12). This makes it amongst the most populated villages in the world, and means that each hectare must support 20 people. Since multi-cropping is the norm, cropping intensity index was 2.31, the number is reduced to 9 persons per hectare of cropped surface (Le and Rambo, 1993, p. 31). This pressure also means that a failure in one of the crops could put the population under threat. This happened in 1991, when farmers had to resort (as they had done many times in the past) to the produce of their vegetable gardens and the sale of household husbandry (such as pigs and chickens) to survive (Le and Rambo, 1993).

As already argued, land intensification is achieved via labour intensification (Boserup, 1965). Rice is transplanted from nurseries and, on average, farmers spend 233 labour days/ha/crop. The range in the village is 162 to 324 labour days/ha/crop (Le and Rambo, 1993). This amount is not exceptional for the Red River Delta. Tran et al (2004) indicate that the labour intensification ranges from 220 to 280 8-hour person-days/ha/crop and almost all of it manual family

labour. This makes the Red River Delta one of the most labour-intensive irrigated rice areas in Asia, if not the most (Tran et al, 2004).

The implication, as in the past, is that the seasonality of rice cultivation determines when labour is released. Rambo et al (1993) reported that the cultivation was quite synchronized within the same village. The effect is that the opportunity cost of labour is low, as also reported by Pham et al. (2007), which in turns hinders their labour opportunities and incomes.

The fundamental cause, as identified during colonial times, is the excessive land fragmentation. Pham, MacAulay and Marsh (2007, p. 209) showed the negative relation between land fragmentation and yields (crop productivity), increased family labour use and increased expenses in the North. Based on the 1998 World Bank report (p. 10) farms in the Red River Delta comprised, on average, eight or nine non-contiguous plots often no larger than 200 to 500 square meters each. Chung (1994) (in Marsh and MacAulay, 2006, p. 4), who states that households held three to ten plots of farm land scattered in different locations. The work of Duong and Izumida (2002) showed an even more alarming situation; in Ninh Binh province, an average of 0.22 ha of farmland were spread over 6.2 parcels. They observed a slight tendency to a reduction of farm size from 1996 to 1999. This was probably due to farm separation (partition of land to children).

MacAulay and Marsh (2006, p. 6) claimed that this excessive fragmentation, and its negative effect on production, "… resulted from 'equitable' allocation of land". The fundamental cause might not be the allocation per se, but the excessive population pressure that the North of Vietnam and some parts of central Vietnam still suffer. Indeed, the 1988 reform and how it was carried out did not alter the fragmentation, but it was not the fundamental cause. This fragmentation was not altered by the collectivization process either, as will be discussed below. Instead, there is a significant and long lasting effect of factor endowments.

The probable result of increased population pressure and land partition is a limited surplus capacity of the farming households. Rice remains the dominant crop to guarantee subsistence, along with the small vegetable gardens and ponds (to supplement the diet). Surplus can only be obtained via processes of labour intensification, which reduces the opportunity cost of labour. This chapter suggests that, under other conditions (in relation to provision of public goods, allocation of labour, for instance of children), large parts of the delta remain at HLET, and probably experience involutionary processes.

6.1.1.2 Mekong River Delta: The Transformative Delta?

Population pressure has also increased in the South. The man-land ratio in the Mekong River Delta (MRD) declined from 0.6 ha/worker in the mid-1980s to about 0.45 ha/worker in 2004. As already discussed, rice output during this period increased. In the Mekong Delta, rice is planted on 2.1 million ha, contributing more than 50 per cent of the rice production and 80 per cent of rice export of the country (Nguyen and Tran, 2008).

This land intensification has been facilitated by the introduction of new technologies; for instance, the application of commercial fertilizers in non-rice production increased annually by 34.1 per cent in the South, and by 10 per cent per annum for rice during in both regions the 1990s (Benjamin and Brandt, 2004, p. 21)[43]. The effect was that agricultural worker productivity grew at 4 per cent per year from 1995-2004 (Nguyen and Tran, 2008). This transformation is quite extraordinary. These authors' empirical base is taken from four villages with triple rice cropping. This means an unprecedented intensification of land use. They also observed that the labour input per hectare was reduced from 90 person days to 70 person days during the period 1995-2004. Based on another empirical work on the delta, Pham Sy Tan et al (2004, p. 198) found that "in our sample, no farmer transplants rice anymore. However, compared to mechanized direct seeding in areas such as Central Thailand, the total labour input remains relatively high at an average of about 70 8-hour person-days ha in the DS [dry season] or 90 8 hour person-days ha in the WS [wet season]. Labour inputs varied widely, however, from 21 to 213 hour person days ha. About 60% of this is manual family labor, mainly for harvest". If compared with the North, the contrast in number of hours per hectare and crop is significant. The combination of new technologies, which allows avoiding nurseries, saves labour and land. It is plausible that the capital per hectare is growing much faster in the South than in the North. Their findings also highlighted that there was potential for greater improvements.

In relation to the North, multi-cropping is levelling out, and yields (that traditionally were higher in the North) are also equalizing. These authors state that in the MRD the dry crop rice (the winter-spring crop) remains the fundamental crop, but unlike in previous times, the yields can reach 6.5 t/ha (an

[43] The figure for the North is 18.3 annually for non-rice.

average of 6 t/ha). The yields in the other two crops oscillate from 3.5 to less than 5 ha (Pham Sy Tan, 2004).

Unlike previous export booms, this export capacity was probably not a result of a surplus added to subsistence. As discussed for the Vent for Surplus regimen, farmers did not specialize. They remained subsistence farmers, but added surplus production. Benjamin and Brandt (2004) claimed that processes of specialization were taking place during the 1990s. In the South, rice was sold and more was purchased in rural areas. They added "the most dramatic change is in the Mekong River Delta, where the household surplus goes from 3011 to 5200 (thousand *dong*), despite an increase in rice consumption of almost 500 (thousand *dong*). It appears that at the household level, more households are relying on the market for the rice, while at the national level more regions are becoming "rice importers", with the Mekong River Delta producing a growing share of the national rice output" (Benjamin and Brandt, 2004, p. 26).

This significant transformation is taking place as a combination of the introduction of land and labour saving technologies. These labour-saving technologies have been introduced so as to keep the balance between increasing costs of hired labour and the demand for intensive cropping systems. These technologies are on "land preparation, water pumping and threshing and recently more on mechanized harvester" (Nguyen and Tran, 2008, p. 9).

A strong indicator that the Mekong River Delta (MRD) was structurally changing its agriculture occurred in 2001, when a new policy allowed diversification of rice land into other crops. Nguyen and Tran show that, from this date until 2006, the rice area remained constant while production kept increasing (Nguyen and Tran, 2008, p. 4). The shift of rice land was to aquaculture and coffee. At macro level, the percentage of farming declined by 10 per cent during the period 1995-2004, but the total production increased by 6 per cent for the period 1993-2002. The shares of industries and services in the rural economy have risen, 6 per cent and 4 per cent respectively (Nguyen and Tran, 2008, p.5). The rural economy of this region has become more than a rice surplus economy.

If one is to take the South and its performance in a vacuum, one could argue that it was the liberalization of the economy that drove this dramatic transformation. Nonetheless, as already argued, the reform was nationwide, and the outcomes in the Red River Delta are quite distinct from the Mekong's. This suggests that there should be specific pre-conditions in this region that facilitated the response of southerners to the new incentives, as argued by several authors (Ravallion and van de Walle, 2008; Heltberg, 2002, etc). It is not

sufficient as an explanation, though. The early reforms in the 1980s were probably a response to already existing transformations. For instance, though illegal, land was already traded in the South before the 1988 reform, while the reform and legalizing a land market have not led to significant land transactions in the North (Deininger and Songqing, 2003).

In sum, from the mid-1980s and especially the 1990s, both deltas have experienced a sustained period of growth. Both economies, through investments in irrigation and new technologies, have increased their land productivity. The difference however is that while the South has done it via increases in labour productivity, the North seems to still rely on large labour inputs. It is consequently plausible that the North has reached the frontier again, whereas the South has moved to a more advanced cultivation. This transformation, especially for the South, cannot be explained by the outcomes of the colonial period. The next challenge is to explain this transformation.

6.2 From Extractive to Inclusive? A Framework

According to Adelman (1986, p. 54): "[H]ow the poor fare during the course of economic development depends on how the distribution of assets, the institutions for asset accumulation, and the institutions for access to markets by the poor all interact with the development strategies chosen […] The effects of economic change on the poor are critically dependent on land tenure conditions and the size distribution of landholdings"[44]. This quote might be understood as a way to first establish, in broad terms, three parameters for inclusive growth (i.e. asset distribution, institutions for accumulation and market access), and then to stress the importance of land as a fundamental asset for the rural majority (besides their labour). Adelman adds that when new commercial

[44] Adelman (1986) suggests that two of the main assets of the poor were education and land. The importance of education for agricultural transformation has been stressed by numerous authors (Hayami and Ruttan, 1985; Schultz, 1944). Schultz (1944) even said that it is a precondition for transformation. This is without doubt a complex issue with multiple dimensions (i.e. provision, access, innovation, quality of education). It is clearly associated with technological progress and adaptation. Nonetheless, this chapter focuses exclusively on land, and considers, especially for the later period, that technology existed and was available for farmers in both deltas (thus, it is treated as an exogenous variable).

and/or technological opportunities arise for populations with unequal possibilities of responding to them, inequalities widen (Adelman, 1986, p. 55). This is representative of the long-term evolution of the rice bowls of Vietnam (the growing differences), and it is equally significant for the understanding of the transformation for each region.

If we relate back to the findings of chapter 5, the unequal possibilities of responding in North and South are probably more due to the degree of extraction (measured by the extraction ratio) than the economic inequalities per se (measured by a Gini coefficient). This may, in broad terms, help us understand the constraints of the North versus the South. The surplus capacity of the economy is a function of the factor endowments and relative prices; as households reach the limits of their own assets, surplus becomes constrained at micro level. The situation of the South rapidly deteriorated after the Great Depression (as shown by Bassino, 2000), and especially the 1940s: inequalities seemed to increase (as a result of polarization) and the economic regime (vent-for-surplus) seemed to reach the limit of its potential. Changes ought to have happened to facilitate the transformation that was to take place in the 1980s. The outcomes of the 1940s did not meet the pre-conditions for an inclusive transformation á la Adelman.

Considering that the farmers in the South seem to have recently fared relatively much better than their Northern counterparts, we use Adelman's conceptualization to structure the analysis. More specifically, the rest of the chapter focuses on land, and discusses: first, the changes in size and tenure during the division of the country into two, and second, the probable effect in determining the initial conditions of the farmers in the 1980s. While there were other important factors that affected the living standards of farmers in the North and South, focusing on land should be well motivated. Land has been considered the most politically controversial and contested resource in Vietnam during the past century (see for instance Fall, 1966; Jacoby, 1961; Kerkvliet, 2000; Long, 1974; Prosterman, 1970; Wiegersma, 1988). While land was to become more of a political issue (and a source of division and conflict within the South) during the decades that followed colonialism, its economic dimension should not be understated in the North. Land remained a scarce factor in a heavily populated area; a region that could not rely anymore on the surplus capacity of the South.

Still, the greatest challenge is to explain how the outcomes of colonialism in the 1940s resulted in the more recent developments. For the case of the North, this study has argued that the Red River Delta was in a HLET. The key

aspect is to show that this appears to have persisted despite the communist takeover and the Doi Moi reforms. Besides, while changes in tenure might have removed the worst form of extraction by landlords, the land constraints on the cultivation system remained. For the South, however, Myint's (1958) vent-for-surplus is a useful theory to understand how Cochinchina could grow without transformation. It has been suggested that this regimen has implicit mechanics linked to the formation of inequalities. These inequalities were becoming a hindrance in themselves. Conflicts started to take place in the mid-1930s in the South, and eventually resulted in rice deficiencies and loss of human lives. In order for the transformation to take place (á la Adelman), tenure institutions ought to change, given a *reasonable* man to land ratio (that is, so that farmers could have surplus capacity). This institutional argument is, however, different from the *current* factor endowment-institutional persistence. Acemoglu, Johnson, and Robinson (AJR, 2001) insist that once extractive institutions are established, there is institutional persistence. This study postulates that this post-colonial period was decisive for decreasing the inequalities that characterized the end of the colonial period; the question is how that was achieved.

In order to discuss these changes, we will first present a synthesized account of the major institutional changes that happened in South Vietnam. The aspects have been selected with the framework of this study in mind, and with the objective of introducing a historical overview of this region that might facilitate the analysis later.

6.2.1 Brief History from 1945 up to Doi Moi

On August 19, 1945, after having defeated the Japanese, the Communist's coup d'état in Hanoi against the French government set in motion a conflict that divided the country and its people in more than one way. This is known as the First Indochinese War, which lasted until the Geneva Agreements of 1954, whereupon the country was divided into two by parallel 17. The Indochinese Union was dissolved, and Annam was split into two. The Northern part joined Tonkin and became the Democratic Republic of Vietnam (North Vietnam). It was ruled by the communist Viet Minh, which was later on succeeded by the Lien Viet or Vietnamese National Popular Front under Ho Chi Minh. The Southern part of Annam joined Cochinchina and constituted the Republic of Vietnam (South Vietnam). It was initially ruled by President Ngo Dinh Diem. The capital had already been moved from Hue to Saigon, and remained so until

Reunification in 1975. In 1963, President Diem and his brother Ngo Dinh Nhu were assassinated after a military coup d'état. From 1963-1965, there were numerous coups and short-lived governments (as short as one month). In 1964 Nguyen Van Thieu took control and remained in power until 1975.

The Viet Minh had controlled parts of the countryside of South Vietnam during the First Indochina War, and became known as the Viet Cong after 1954. The political branch of the Viet Cong was the National Liberation Front (NLF), which was active, to varying degrees, during the whole period.

There are no clear data of how much land was under the control of the Viet Minh in the South during the period 1945-54. Prosterman (1970, p. 754) reports that from 60 to 90 per cent of what was to become South Vietnam had been under the control of the Viet Minh until 1954. There were attempts to collectivize in many of these regions, and most of the French-owned lands were given back to the tenants.

The end of the First Indochinese War left some 400,000 dead civilians (Dommen, 2002, p. 252), 600,000 to 800,000 ha uncultivated, and a rice deficient economy. Many had migrated to urban centres. During the post-colonial period, there were two major land reforms orchestrated by the Government, namely those taken under President Diem, and the Land to Tiller in 1970. There was one extra agreement with the French government, by which they would buy some 670,000 ha of French-owned land (though only 276,000 had been redistributed by 1968 (Bredo, 1970, p. 742)

After 1954, the Diem Administration had three economic priorities: i) to restore the Trans-Indochina Railroad (in the South), ii) land development, and iii) land reform (Dommen, 2002, p. 300). In relation to the last two, the first attempt was to resettle thousands of people and provide them with land to make a living (Dommen, 2002). These areas were in the Central Highlands (Phuoc Luong near Cambodia) and the Mekong Delta. In relation to land reform, during 1955-56, measures were promulgated to try to improve the conditions of the farmers (and deprive the Viet Cong of a political weapon). Ordinances 2 and 7 were approved in 1955 to reduce rents, establish security of tenure, and put 1.3 million ha of cultivated land back into production (Dommen, 2002, p. 301). The most referred to reform is Ordinance 57 (1956), by which landownership was topped at 100 ha of rice land. Land in excess of that was to be first sold to the tenants and agricultural workers who had cultivated the land for two years. Veterans, refugees, and the unemployed were next in priority. "The amount of land involved totalled 245,000 ha owned by 2,033 landowners. In addition, there were 245,000 ha owned by 430 landowners of French

citizenship" (Dommen, 2002, p. 301). The latter was part of the agreement with the French Government to purchase land previously owned by French citizens. This reform was aided by the US Mission to Vietnam.

In the 1960s, the conflict increased and eventually the US renewed its commitment to South Vietnam (President Johnson's Administration). The first attempts were to carry out Diem's reform and introduce new technologies. This led to the introduction of modern fertilizers, pesticides, and the IR-8 rice (the so called Miracle Rice). This was followed by the Land to the Tiller Reform, which came into force in 1970. It was acclaimed as "probably the most ambitious and progressive non-Communist land reform of the 20th Century" (the New York Times April 9, 1970 in Prosterman, 1970).

The main characteristics of the reforms were: i) to reduce the maximum limit to 15 ha (and 5 of ancestral worship); ii) all rice land should be distributed, including communal lands; iii) land could not be resold for 15 years; iv) no fee payment by the tenant; v) recipients were to receive land free of charge to a maximum of three ha per family in the South (and one in Central); vi) no state mediation in the transfer. The landlords were to be compensated at the rate equal to 2.5 times the average annual paddy yield of their land (average over the last 5 years). Payments in cash amounted to 20 per cent and the rest in government bonds bearing 10 per cent interest and amortized over eight years (see more in Callison, 1974, pp. 81-82).

The outcome of land distribution, which will be discussed below, is indeed significant. When the land reform was passed to grant titles to the cultivators of the South in 1988, the decision was that it should be based on the pre-1975 distribution. That is, those that were cultivating the land prior to Reunification would be the rightful owners of the land. Land records were practically inexistent in many cases. A way to overcome the lack of records, and to avoid absentee landlords making claims to land, the decision of each allocation had to be taken by vote within the village. That is, the rest of cultivators had to ensure that the person (see household) claiming was the one cultivating previously (Hayami, 1994a).

The question is whether these reforms were the fundamental causes of the transformation. They, without a doubt, responded to significant grievances, hence they were part and parcel of the transformation. Land and tenure conditions had been the motive for riots during the previous decades, and were voiced in the first surveys by the US sponsored research groups in the mid-1950s (Stroup, 1965). After the reoccupation of lands taken back from the Japanese in the 1940s, the Viet Minh, and later on the Viet Cong, carried out

their own land policies, and became more sympathetic to the middle-scale farmers when they redistributed the French and Vietnamese large holdings (Callison, 1974, p. 80). While terror tactics are normally referred to as the source of power, the existing grievances and perception of social injustices within the economy were a strong political tool that gained much support. This situation should also be understood in the context of changing factor proportions. On the one hand, there was population growth, while on the other, the land frontier was practically closed; due to insecurities, constraints to labour movements and land allocation were significant.

6.2.2 Breaking Down the Landed Elites

The importance of the distribution of land, more than income, as an initial condition for long-term economic growth has been investigated by numerous authors (for example Barro, 2000; Birdsall and Londono, 1997; Deininger and Squire 1996, 1998; Easterly 2002, 2006). These authors have stressed different mechanisms, for instance, the effect of initial land inequality on the efficiency of economic growth in reducing poverty and inequality. Carter (2000) points out that the problem could be greater, as it may lead to a worsening of inequalities in the long run.

The mechanisms are partly due to the negative correlation between unequal access to land and difficulties of accumulating assets, such as acquisition of technologies, credit, and education. These have a clear impact on the security of investments and increased transaction costs. As has repeatedly been stated (North, 1990), what matters is not only the rights, but also the enforcement of those rights.

At the onset of Doi Moi, land inequality in the Mekong (measured by a Gini coefficient) was 0.53. This was high in relation to the Red River Delta, with a Gini coefficient of 0.34 to 0.37 (Deininger and Jin, 2003, p. 12). In a monocausal approach to the recent transformation of Vietnam, it is possible to reject the hypothesis that land inequality is negative to economic growth. After all, the Red River Delta had a more egalitarian distribution. This finding, however, should be contextualized.

First, the process of titling had been slightly more cumbersome in some provinces in the South. Despite this, the Gini coefficient, after a decade of growth, decreased slightly to 0.51 in 1998 (Deininger and Jin, 2003).

Second, the comparison should not be made to the Red River Delta (due to the factor proportions), but to other economies that had such unequal structures in the form of land distribution. According to FAO statistics (2008), based on a median of eight Latin American countries, the land Gini coefficients were approximately 0.8 in 1990. A land Gini of 0.5 is only slightly higher than other East Asian economies, but far from countries with very uneven land inequalities (like the Caribbean and Latin America). Second, this land Gini is significantly lower than the one presented in the 1950s for MRD. This means that inequalities in land decreased.

6.2.2.1 Steps towards Unimodalism?

Kilby and Johnson (1975) discuss the distribution of land in terms of the extent of unimodalism, as opposed to bimodalism. In the South, two major land reforms aimed at altering the extremely unequal distribution of land ownership (bimodalism) were undertaken. However, as discussed in the previous chapter, the land abundance relative to labour kept bimodalism lower than in the North. That is, even though they were tenants, they had access to a sufficient landholding to pay rent and their subsistence (this was not a minifundia-latifundia relation). Previous chapters showed that some might have been capable of accumulation, especially during the boom years of the 1920s, resulting in a middle-class of farmers. There is also the scarcely recorded period when the Viet Minh took over rural areas in Cochinchina and redistributed land to the tillers. No deeds were ever issued and, as areas became secured, some of these tenancy contracts were re-established (Fall, 1966). During this period, right after independence, "Americans … having "secured" a village and moved on, were followed by the landlords riding in on the jeeps with "ARNV" (the South Vietnamese Army) to reassert control over their former lands" (Prosterman, 1970, p. 755).

The first land reform came as a response to a worsening situation in the countryside of South Vietnam. Infrastructures had been destroyed as a result of conflict during the period 1945-1954, and 600,000 to 800,000 ha were abandoned. Insecurity made many migrate to urban centres (Salter, 1970, p. 726). Exports ceased and at some point rice had to be imported.

The Diem administration approved a series of ordinances in 1956, aiming at first distributing (French) land and second formalizing landlord and tenant relationships (that is, this was not land under the tiller reform). Diem was seeking to bring land under cultivation as quickly as possible. In this respect, it does seem that a small recovery took place. The "rice area cultivated in the Delta

rose from 1,572,000 ha in 1954 to 1,810,000 in 1959, and Cochinchinese rice exports, after falling to zero in 1956, reached 246,000 metric tons in 1959" (Callison, 1974, p. 51).

Nonetheless, the reform was extensively criticised for failing to curb the power of the wealthy landed elites in Saigon, to reduce rents (de facto), and to redistribute land to the cultivators (Callison, 1974 p. 46). The result of Diem's programme was that only one of ten tenant families had benefited by 1961 (Prosterman, 1970, p. 755). The retention limit was set at 100 ha (which in reality became 115 ha with the worship lands). This was still much higher than in any of the other countries where land reforms had recently been carried out (see Taiwan, South Korea, Japan), partly because of the relatively abundant land to man ratios, and because it was mainly driven by the vested and strong interests in Saigon. On this last point, Gittinger's *Agrarian Reform in Vietnam – A planning paper* (NARA, MTV, RG 469, p. 2) wrote "[A]grarian reform is much more than a program of physical accomplishment. To be in favour of increased production per hectare or to be in favour of installing irrigation pumps has the appeal of being against sin. In the field of agrarian reform much more complex human factors must be reckoned with. However great the need from a social standpoint and however fair the plan is prospect, landlords may be expected to exert their influence to stop the program. Even though they may not be the loosers, even immediately, the natural conservatism of landowners and their of any change freom the status quo operate against effective agrarian reform action".

Based on the 1960-61 Agricultural Census of South Vietnam, Prosterman (1970, p. 753) reported that " […] only 257,000 out of 1,175,000 --23% of the Mekong Delta's farming families- owned all the land they worked. Their average holding was four and one-half acres [less than 2 ha]. Another 334,000 families (28.5% of the total) tilled six acres, four of which were rented, while 521,000 families (roughly 44%) farmed an acreage of three and one-half acres of land that was *totally* rented. Thus, in the Delta, more than seven farming families out of 10 were substantially dependent on tenant farming".

This means that many farming household had to pay rents. Prosterman calculated that one hectare of South Vietnamese rice land "produced 2.1 tonnes of paddy rice, which yielded about 1,365 kg of milled rice, but if rents went up above 1/5th of the crop, the land did not produce enough rice to keep the average household at recommended minimum sustenance levels" (Prosterman, 1970, footnote 14, p. 753). Rents are estimated to have been higher than that.

Ten years after the promulgation of the law, rents remained as high (Callison, 1974, p. 47). The Stanford Research Institute (SRI) surveys found that they were higher than the 25 per cent maximum rent established by Ordinance 57. They were up to 35 per cent (Bredo, 1970, p. 741). And the provisions of leniency in the event of partial or total crop loss were not complied with by the landlord (Bredo, 1970). These rents, however, varied significantly from and within the three regions that were surveyed. The highest rents were paid in former South Annam (Central Vietnam) and were lower, in relative terms, in the southern parts. The Rural Income and Economic Survey (RIES) 1964 reports on this aspect: "… many of them [commercial growers] rent the land and consume or pay to the landlord a large part of the paddy grown. The proportion of paddy which is paid to the landlord is also high. The proportion ranges from 19 percent in South Vietnam West to well over 50 percent in Central Vietnam. Undoubtedly, it is the landlords who are the paddy sellers and they do not reside in the hamlets surveyed in the RIES" (Stroup, 1965, p. 39). Its collection was also a function of security. Since there has been no survey on urban incomes, at least as far as we know, we cannot estimate how much the landlords actually collected.

By 1968, under both Ordinance 57 and the French land purchase programme together, only 132,208 farmers had received title to their land or could expect it someday. This was about 10 per cent of the number of tenants in the country. About 12 per cent of the French lands (approximately 245,000 ha) had been distributed by September 1968 (Bredo, 1970, p. 742). The problem gained a new dimension as Bredo writes: "about half of the Vietnamese-owned rice land was expropriated and all the French land was retained by the government (until 1967-8) and rented out by local administrative officials to provide government review, instead of being redistributed as promised". This did not need to be disastrous if the local governments reinvested in public goods and/or different investments that could help all farmers. Considering however the deep grievances and conflicts that characterised this period, this was improbable.

One may think that keeping more land for village affairs was not necessary since that was the role of communal lands. There were 284,000 ha of communal lands in South Vietnam, of which 185,000 ha were rice lands. Most of these lands were located in the Central Lowlands. About 26 per cent of the old Annam state consisted of communally owned rice land, but in the Mekong Delta these lands constituted less than 2.5 per cent of the area. Bredo, based on preliminary survey data by SRI, claimed that there was "the possibility of grave

injustices being perpetrated by the village councils in the administration of communal lands –injustices possibly greater than those of the private landlords" (Bredo, 1970, p. 742).

This said, the data available shows an improvement in the distribution of land. The graph below shows land distribution (to tenants and owners) for the Republic of Vietnam (figure 6.2).

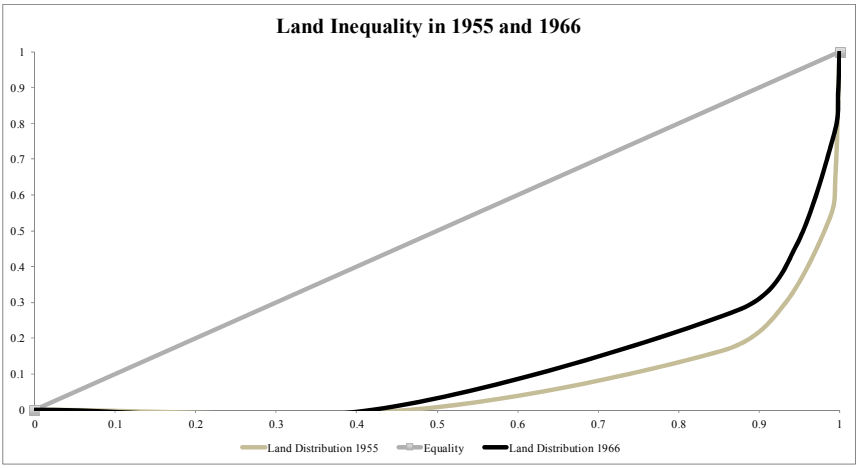

Figure 6.2. Lorentz Curves, 1955 and 1966, in South Vietnam

Source: Data for land owners taken from Bredo et al (1968), estimates of landless in Callison, (1974, table A-1 and table A-2, pp. 359-360).

The Lorentz curves do not start at zero because landless tenants were given zero as land. This is of course accurate as they did not own it, but it would be interesting to obtain a deeper understanding of their surplus capacity (and how they related to the lowest group of owners); for instance, exactly how much land was rented and whether there was variation throughout the years. Independently of that, it does seem that the numbers of farmers in tenancy was reduced by half (from an estimate of 222,110 in 1955 to 134,155). Based only on ownership, the Gini coefficient is 0.69 and 0.65 in 1966. This is a small reduction. However, when tenants are included, the Gini coefficient is 0.84 reducing to 0.80; a greater reduction, but pointing at great inequalities. These numbers seem to be accurate. The SRI survey of 1968 (limited to 440 operating farms) reported a Gini coefficient of 0.59 for land in ownership. (Callison, 1974, p. 361)

It does appear that changes were taking place partly as a result of the reforms. A consideration to bear in mind is that landlordism was more complex than French or absentee Vietnamese that could be eventually bought up. The roots of the inequalities that the South presented were more complex than that.

6.2.2.2 Landlordism: absentee versus in situ.

One of the implications of the mechanisms in Myint's vent-for-surplus is the probable tendency towards increased stratification and inequalities (see for instance: Gunnarsson, 1978); Hopkins, 1973). However, this is not exclusively represented in the form of absentee landlordism, and there should have been within-village inequalities as well. This could be partly, and especially in new settled areas, a result of market-led inequalities. Those farmers with better soil, access to markets, and large landholdings (even in tenancy) could have had greater chances to accumulate. Of course, luck would have been involved. The within-village inequality is usually an aspect that is not much discussed. This might be partly because of the lack information on land ownership at village level (with the exception of the village studies carried out by American scholars) and partly because the inequalities in ownership (with individuals owning more than 4,000 ha of rice lands) were significant enough to overshadow the discussion on inequalities at local levels.

Myint (1985) conceded that, due to inefficiencies in marketing and credit markets, there might have been inequalities amongst actors in the trade. The distribution became uneven and favoured export houses and foreign trade and moneylenders. This was based on his understanding of a homogenous peasant economy. As was mentioned in the previous chapter, the dimensions of inequalities were larger, and partly related to settlement of the frontier (absentee landlordism) and the within village stratification mentioned above. Those at the frontier had greater risks and higher costs than other farmers. While the outcome could have been positive, as the frontier closed, the possibilities of escaping debt would have become lower. The implication is that doing away with the French would not have been sufficient. In the previous chapters, we discussed these processes in theoretical or hypothetical terms for the colonial times, since we lack data on village distribution. For the post-colonial period, studies done by American scholars provide some evidence of such within village stratification.

The first reforms or the first lands to be confiscated were French (also by the Viet Minh), thanks to an agreement with the French Government. But, as shown in the previous two chapters, there was a significant Vietnamese landed

elite. The slight improvements that are shown above might not necessarily have been a direct result of the Diem reform. Callison (1974, p. 46) contends that the success of the Diem program is questionable, and that there was very little excess land to redistribute, "leaving the feudal landlord-tenant agricultural system basically unchanged, with all its social and political consequences, as well as from a lack of enforcement of rent controls" (Callison, 1974, p. 51). A qualification should be made however. It has already been suggested that the relation between landlord (especially absentee) and tenant was not 'feudal' in the South (Popkin, 1979).

Bredo (1970) and Salter (1970) provided an idea of the landlord of this period. According to Bredo "[…] while distant absenteeism was important, it was not predominant. The landlord in the village rented out an average of 2.63 ha and had about two tenants whereas the landlord outside the village rented out an average of 16 ha. The larger Saigon-Cholon landlords had an average of 24 tenants and were largely the class that was expropriated under Ordinance 57" (Bredo, 1970, p. 741). The tenancy problem was more complex than the idea of a vested and powerful landed elite in Saigon, distant from the tenant. The SRI survey discovered (Bredo, 1970) that "38% of the landlords of the secure areas surveyed lived in the tenant's village, 54% in the district and 70% in his province" (Bredo, 1970, p. 741). This could have had some bearing on and conditioned the success of the next reform, that is, on the possibilities of eradicating tenancy.

Salter (1970) reported that roughly 60 per cent of the rice land in South Vietnam was still cultivated by tenants. He wrote: "Typically, a tenant-farmer in the South cultivates 2.0 ha (5 acres) and pays a rent in secure areas of some 25% or more of this crop; in the Central Lowlands, he cultivates 1 hectare (2.5 acres) and practices metayage –i.e. sharecropping. The farmer, whether he owns or rents land, is a manager. The landlord does not normally participate in the production process, furnishing neither seed, credit, farm implements, nor marketing outlets. Out of approximately 2.2 million ha (5.5 million acres) of rice land, as much as 1.3 million ha (3.2 million acres) are estimated tenanted by over 600,000 farm families" (Salter, 1970, p. 724). Salter claimed that "the landowner today [1970] is characterised by his relatively small holdings --86% of the land holdings are in plots of 7.5 ha (18.5 acres) or less. There are very few landowners. A land reform program in the 1950's, plus insecurity and changing economic opportunities, have generally caused larger landowners to move to cities and towns" (Salter, 1970, p. 724).

6.2.3 The Lost Decade After Independence

The intensification of the conflict during the 1960s must have made the possibilities of collecting rents more limited. Callison (1974) maintains that the government did not collect the payments due from those tenants who became owners under Ordinance 57. This could have led to some improvement of the disposable income of the farmers, *ceteris paribus*. Also interesting, the SRI survey of 1968 indicates that absentee landlords who sold their land started to invest in commerce, industry and real estate development (Callison, 1974). During this period, the urbanization rate is estimated to have reached 14 per cent (compared to less than half for the North). This could explain why there was a degree of rural-urban inequality already prior to Doi Moi. It is also indicative of the limited private investments in agriculture of the time. Those that had the incentives were the tenants who remained under the burdens of insecurity and high rents.

It is conceivable that the turn of the decade and the early 1960s could have been decisive in turning the situation around. Bredo (1970) clearly expressed the complexities of different interests within each of the main actors at the time: the Government of the Republic of Vietnam (GVN), the US Mission to Vietnam, Civil Operations and Revolutionary Development Support (CORDS), AID in Washington, the State Department, and the White House (Bredo, 1970, p. 743). The fear of losing legitimacy by alienating the political and economic forces in Saigon, which were rooted in land, was seen as strong reason to postpone a land reform (Prosterman, 1970). The US advisors and administration were divided on the degree of intervention in other non-military aspects.

During the first half of the 1960s, insecurity and violence grew. Despite the call for land reforms from a number of (academic) advisors sent with the US Mission to Vietnam, there was no major push for land reform until late 1965 (Salter, 1970, p. 727). And even so, Salter points out that this first push was to complete the Diem's attempt, which the Americans had supported with four million dollars (almost 10 million dollars in local currency), and the second phase aimed at consolidating a small owner-operator peasantry.

But the first policy after 1965 was to provide, through technical assistance, fertilizers and pesticides, and introduce the IR-8 rice (the so called Miracle Rice). This, Bredo (1970) says, was an attempt to avoid a proper land reform, which was strongly opposed by vested interests in Saigon and by some American actors.

Logan (1971) mentions that, during this period, a dramatic change took place. In the winter of 1966/1967, the government raised the official price of rice in the cities. The outcome was that prices for farmers doubled. This decision was partly a response to a drop in area under cultivation, and farm production, at the beginning of the 1960s. Production of rice had declined from a peak of 5.3 million tonnes in 1963 to 4.3 million tonnes in 1966 (Logan, 1971, p. 322). Decisions were taken during this period to increase production again. Favourable exchanges rate facilitated the purchase of fertilizers, and 40,000 irrigation pumps were sold in 1967. After a devastating flood in 1967, the short growth rice IR-8 was introduced in the South. The first pilot projects affected 40,000 farmers and over 40,000 ha (Logan, 1971). One year after its introduction, land under cultivation had increased by a factor of five. In 1969, the production increased by 17 per cent and, in the winter of 1971, the total production was 5.6 million tonnes of rice. The introduction of these motorized pumps has been called the 'Silent Revolution' (in Biggs, 2012, p. 50). This transformation came together with increasing land intensification to 5.1 per cent all land (SRI, 1968, Vol 5, p. 30), and by 1975 300,000 ha of the cultivated land was being double cropped (USAID 1975, vol 1, p 15).

While the policies of the late 1960s would have spread new technologies and restored production, Sansom's (1970) fieldwork in the Delta suggests that changes in cultivation had already been taking place. The peaks of the seasonality were reduced, which helped to absorb labour. Labour became more expensive partly as a result of political changes (the Viet Cong pushed for a minimum wage) and shortage of labour, due to the military draft, insecurity of migrating, and human casualties. Sansom (1970) argued that, due to the costs of production and monitoring, there was an optimal size for landholding for the first time in the modern history of the South. He adds that 5 ha was the optimal size given input costs, family labour, and technology of the time. His analysis shows that the previous abundance of relatively cheap labour and land availability, which could be cultivated at low capitalization, did not constrain the preferred land size.

It is probable that during this period there were islands of land intensification. Due to war and its effect on land and labour, increased production had to be done by intensifying land use. The spread of new technologies in the late 1960s, along with increased rice prices and reconstruction of transport to Saigon after the Tet offensive in 1968, created new incentives.

Logan (1971) claims that farmers at the time called this new rice variety "Honda Rice", because of its surplus creation and incomes effect and that the key to solving the agrarian problem was prices. Despite the differences in factor endowments, we might identify similar processes of land intensification and transformation as those discussed by Ishikawa (1978) for the cases of Japan and Taiwan.

This said, the SRI survey (1967-1968) unambiguously reports that those farmers surveyed wanted land. They were ready to buy land at current prices, and would prefer buying land to any other mans of increasing output. Land was the solely most important asset for the farmers (Bredo, 1970). This was already voiced in the 1950s, when a similar survey was carried out. The result was that the social injustices (as perceived by the farmers) remained mainly intact. Rents remained high, the marketing system for the distribution of inputs was insufficient and costs were extremely high for the tenants (Bredo, 1970, p. 744). It was not until July 1970 that a Land to the Tiller Reform (LTT) was approved. It is possible that the Tet Offensive of 1968, when the Viet Cong (VC) took control of major cities, even Saigon, became a turning point in shifting the perspective in the conflict, and finally co-opted the landed elite to release the lands.

In 1971, a record high harvest was collected. Logan (1971) shows that this was the outcome of the Green Revolution and increased prices, while Prosterman (1970), amongst other authors, suggest that it is the effects of the Land to the Tiller Reform. This cannot be an either-or question, however. It is plausible that those large landholders who were in the villages could put land aside to try the new varieties, and had incentives to increase production in all their lands. Nonetheless the situation with absentee landlords (in district or provincial capitals or in Saigon) was a different scenario. It is not for a lack of incentives (as indicated by Griffin et al (2001), tenure contracts are necessarily the decisive factor), but the insecurity was greater for all parties involved. The tenant was reluctant to invest if land were to be reclaimed by the owner, and the landowner could not be certain whether the Viet Cong would confiscate the land. The war played its role in influencing the behaviour of farmers and landlords.

The fact is that there is not much evidence to assess how successful the reform was. Since there were barely any land records, the distribution of land had to be done using area maps. One has to bear in mind that the American troops were withdrawing from Vietnam at the same as the Viet Cong were going ahead with their own land reform. Nonetheless Callison's (1974) work, which

takes us to the same villages as Sansom (1970) and Hickey (1967), allows us to see a before and after the reform. The outcome seemed to be positive[45]. Hayami (1994a) provides anecdotal evidence that relatively larger landowners had to redistribute land before Reunification.

The outcome of the reform seemed to be towards the reduction of inequalities in land ownership. Wiegersma (1988) reveals that, in areas where landlords had a strong presence, the 1970 reform was carried out with greater bias. It is hard to be certain. After all, records were not kept, and many farmers were displaced during the war (villages were moved for security reasons to isolate the Viet Cong). The process of reallocation of land by approval of the village members should have restrained the possibilities of absentee landlords to claim land. And it likely did. Allocating land to old veterans or families who migrated could have been problematic and might have led to conflict (as indicated by Kolko, 1997)

Pingali and Xuan (1992) note that "LTT program enabled the redistribution of 1.3 million ha of agricultural land to over 1 million farmers, an average of 1.3 ha per farmer. This program, completed by the end of 1974, compares favourably with the land reform program in the North, where 810,000 ha were redistributed to 2.1 million farmers by the end of 1957, an average of 0.4 ha per farmer" (Pingali and Xuan, 1992, p. 703)

In sum, this was a period of great uncertainty, but we can identify two overall processes: a tendency to a reduction of inequalities in land distribution (due to the effect of the Viet Cong and the two major land reforms) and processes of land intensification as the factor proportion and relative prices changed (both land and labour were becoming scarce). The impossibilities for previous larger owners to claim their land after Reunification allowed former tenants to keep their access, and further reduced the inequalities in distribution. Needless to say, the displacement of people as a result of the war left many landless, but land seems to have remained abundant in relation to man for rice cultivation. This could have allowed a reallocation of labour and better pre-conditions in which to respond to the liberalization of the economy.

[45] Callison reported that the Gini coefficients improved in all the villages of his study (data form 1970 to 1972). See more in Callison (1974, pp. 387-374).

6.3 Collectivistic Involution

The Communist Party's early agrarian policy in the late 1940s in the North led to confiscation of land from the French and Vietnamese who supported the colonizer; in total almost 20,000 ha were confiscated and distributed to poor peasants for the cultivation of rice and similar crops under five year renewable terms (Moise, 1977, p. 156). The later reforms of the 1950s had three main objectives: i) "mass mobilization" to prepare for a second phase; ii) liquidation of the landlords and rice peasants and expropriation of large estates and lands; iii) redistribution of land to the landless (Fall, 1966). The outcome had to be revised and amended (see White, 1970, 1981). Ho Chi Minh, in a speech in 1956, accepted that errors had been committed and many had been mistakenly classified as landlords or rich peasants. They were released from jail and reinstated. By the end of 1955, almost 300.000 ha had been confiscated and redistributed to 2.5 million landless and small farmers, reaching a total of 700,000 ha in 1956 (Jacoby, 1961, p. 184).

A progressive move towards collectivisation took place during the 1950s, along with the extraction of rents through taxes on agricultural surplus to partly finance the war. By 1960 86 per cent of all the peasant households were in cooperatives.

The cultivation reality of the Northern delta has remained very much unaltered. As has been pointed out so far, population pressure in an extensively land-fragmented region constitutes an obstacle to transforming agriculture. During the post-colonial period, similarly to Huang's claim, for Cochinchina the rice economy of the RRD likely suffered from *collectivist involution*. Huang described this as "a continuation of the pattern of rural change of earlier centuries, despite socialist revolution" (Huang, 1991). The surplus was equally extracted, which kept the farmers at subsistence. Indeed, it is likely that the villages that had better lands, and surplus capacity, might have seen their living conditions improved (schooling and health care facilities improved during the period). But without any major technological change, cultivation remained labour and land intense. Land was intensively cultivated, surplus was extracted through central planning mechanisms, and incentives for increasing labour productivity were limited. The production remained close to the Production Possibility Frontier and probably experienced involution.

The collectivization of the land was a progressive process and did not affect all villages to the same extent. It does seem that there was a decline in

productivity when low rank cooperatives moved to high rank cooperatives (Fforde, 1988). This is because the payment shifted towards quantity more than quality of work. Pingali and Xuan (1992) point at the high costs of monitoring and conflict among team members as the reasons for a change towards a fixed point system based on number of work hours. They argued that "with the degeneration of the work point system to a fixed wage system, individual team members had an incentive to shirk on their assigned responsibilities; hence, productivity declined" (Pingali and Xuan, 1992, p. 702). It is probable that both land and labour productivity decreased.

The area under cultivation for rice reached its peak by 1964 at 2.4 million ha and declined to 2 million by 1973 (Nguyen, 1977, p. 118). The yields were estimated at 1.9 tonnes per hectare on average (Nguyen, 1977, p. 127). This data includes the whole of North Vietnam and not exclusively the RRD. Nguyen concluded that "with a fast-growing population (a rise of over 3 percent per annum), per-capita output appears to have declined steadily. Even taking the official data on paddy, estimated per-capita output shrank from 282 kilograms in 1961 to around 206 kilograms in 1968 and to 186 kilograms in 1973. Bad weather in 1975, which destroyed 70,000 ha of the tenth-month crop alone, obviously reduced the per-capita availability to a record low" (Nguyen, 1977, p. 128).

Multi-cropping remained a constant for the Northern farmer, but, based on estimates provided by Nguyen (1977, p. 127), the autumn crop (the 5th month crop) yielded 1/3 to ½ of the main crop. During the period 1960 to 1963, spring/summer rice (third moon rice) was cultivated, producing less than 135,000 tonnes of rice. This is representative of the degree of intensification of land use, but under vulnerable conditions (rice output fluctuated from year to year). Yields remained at similar levels to those during colonial times, and the fact that yields seemed to stagnate again after Doi Moi (except initially) was probably indicative of the Red River Delta being at a modern version of a HLET.

It is argued that as surplus was extracted, and conflicts occurred as a result of the shift in the incentives of cultivators, a long-lasting stagnation in production took place. There are reports that farmers resisted farming collective land and tried to survive on their small private lands before Reunification (Fforde, 1988). A shift from collectivized agriculture to family-based farming started to take place after Reunification (Hayami, 1994, p. 10). This smoothed the transition when the reforms aiming at a liberalisation and marketisation of the agriculture were introduced in 1988 (Griffin et al, 2001, p. 53). The actual

allocations of land actually differed between communes, and villages. Hayami (1994a, p. 10) reported "in some cases arable lands were allocated in proportion to family size (the number of household members). In other cases lands were allocated in proportion to family labor endowment (the number of work-age household members). Considerations of both the per-capita income and the difference in work capacity among households led, in some instances, to the use of a formula for converting family members into labor equivalents as the basis of land allocation, for example, counting as one labor unit three members less than twelve years old, two members between twelve and fifteen, one member between sixteen and fifty-nine, and two members sixty years old and more". Hayami, however, concludes that this led to land fragmentation (Hayami, 1994, p. 10). We however have argued that this was a pre-condition. In 1979, the average size of a cooperative was 202 ha, on which on average 378 households worked and survived (Que 1998 in Akram-Lodhi, 2005, p. 77). This means that on average, a household worked 0.5 ha. The plots of land were, however, scattered. The excessive fragmentation of plots to balance differences in soil fertility and a growing population pressure might have been greater problems than tenure for the farmer. A stylized fact is that the rural poverty is greatest when land is extensively fragmented and cultivation is done by either landless farmers or subsistent farming households (Adelman, 1986, pp. 54-55). This, as discussed so far, describes the Red River Delta over time.

Indeed, these reforms and the removal of the top landed elites gave better tenure conditions, but as already mentioned, the cultivation and the high land productivity (given traditional technology) were possible thanks to large labour inputs. The possibilities of consolidating land would have required pushing labour out of agriculture, and that was not a viable political or economic solution during the communist period. The reform that was to come after Reunification was thus path dependent. The excessive fragmentation and population pressure of the RRD led to the titling process. The situation, though improved thanks to new technologies, has not yet managed to fully break free from the trap.

6.4 A Reinterpretation of the Initial Conditions and Processes

One may think that, in the Red River Delta, the only one of Adelman's pre-conditions (asset distribution, institutions for accumulation and access to markets) that had been granted, vis-á-vis Doi Moi, was secured rights over land. But land was too fragmented in highly densely populated villages. The outcome of the reform, in terms of being equitable, was merely a reflection of the factor proportions. Considering the small size of farmland, approximately 0.23 ha on average (Kerkvliet and Selden, 1998), the possibilities of surplus generation and accumulation were short-lived. Indeed, in the first years of the reform, incomes per capita did increase (partly as a result of higher prices), but crop production per capita stagnated. An indicator of such constraints can be found in the fact that inequalities in the Red River Delta were not driven by land size (McCaig et al, 2009). That is, there was no variation of land size amongst rural households in different quintiles of the income distribution. This was probably due to the extensive fragmentation of the land, which put a ceiling on the surplus capacity of each household. The differences in income, according to this source, resulted from off-farm opportunities. This phenomenon is unusual in such a large rice economy.

The Land reforms of 1988 and 1993 aimed at generating a land market, and one may think that the expectations were to have processes of land accumulation via market-mechanisms. Nonetheless, land transactions in the North were barely taking place (Deininger and Jin, 2003). Ravallion and van de Walle (2008) referred to studies that point at the resistance from local officials to selling-off land, while others indicate that banks did not accept the titles because of the impossibility of selling them. Ravallion and van de Walle take this more as anecdotal evidence, since no systematic study has been done to quantify these instances. The reality is, however, that land was not being traded (especially in relation to the South).

These mechanisms of resistance from local officials are equally expected and do not contradict our argument. In a closed community, which was correlated with high population pressure and characterized by greater self-reliance, the institutions were likely to be stronger than in the South, where villages were historically more open. But equally important is the fact that though land was a scarce factor (and hence more expensive vis-á-vis labour), the

excessive land fragmentation made the plot of land almost untradeable. This had already been a problem during colonial times, as discussed in chapter 4.

The outcome was that those farming households that could release labour would have kept land as collateral for survival. If households were forced to consolidate land, considering how scattered plots were, the transaction and political costs would have been high. The outcome of land accumulation may also have challenged the power structures of the village economy and politics, which probably led to resistance from local officials.

The South was certainly more complex. The initial conditions in the 1980s, with greater landlessness and land inequalities than the North, could have led to the interpretation that these aspects were not per se detrimental for growth. This chapter, however, has claimed that these values have to be contextualized with the onset of the war. By 1940 the land frontier had probably closed, and factor proportions had changed. Land use was intensified (processes of double-cropping had taken place) and new labour and land technologies were introduced during the 1960s. The surplus capacity of the South had increased since colonial times, as shown by the record high production of 1971. There are indicators that the average farm size was 1.1 ha (Kerkvliet and Selden, 1998), which was five times the average of the North, and that there was a relatively good distribution for small-scale wet rice cultivation. The households had enough land to take advantage of the reforms. However, as this chapter has made clear, that would not have been sufficient. Access to land was the most important issue for farmers during the period (besides survival), and was mentioned in all surveys conducted since the 1950s. Land was a political weapon for the Viet Cong and the combination of the demands, the reforms and pressure from the Viet Cong led to major Land Reforms during the period. A combination of these, along with the war, led to a redistribution of land. This is the important pre-condition discussed by Adelman, which she calls "redistribution before growth" (Adelman, 1986, p. 57). She suggests that this sequence had the following two-fold rationale: "first, a better distribution of the major asset whose productivity is about to be improved, together with more equal access to markets and to opportunities for improving the productivity of the major asset, will obviously diminish the adverse effects of unequal asset distribution on income distribution. Second, the redistributed asset is not as valuable before improvements in productivity as it is after" (Adelman, 1986, p. 59).

This chapter shows that, in the South, land inequalities in the 1990s, expressed as a Gini coefficient, went from 0.8 to 0.5 while the economy grew via

increases in factor productivity. Indeed, more detailed study is required to understand how land was initially distributed, but due to the complexity of the case with displaced populations. Even if we were to obtain a Gini coefficient for land distribution, it could be difficult to interpret it. Significant indicators that the process was more inclusive are: first, that land inequalities decreased during the 1990s (from 0.53 to 0.51); second, there are no indications of an emergence of large sized agricultural households. Third, incomes of the poor increased as income inequalities were reduced. Landlessness, though higher than in the North, did not have to be negative (for instance see Ravallion and van de Walle, 2006; or the analysis for An Giang province by Doung and Izumida, 2002). While some landless sold their land to shift towards services and crafts, other landless acquired land to become self-cultivators (Doung and Izumida, 2002, p. 33). The picture was thus more nuanced in the South than in the North.

The modern transformation of the South, with significant improvements in technology, specialization, and increased income per capita suggests that agriculture became a driving force of the further industrialization of the South, especially rural industrialization. Paraphrasing Timmer (2009, p. 41)[46], agriculture since the early 1980s not only has gotten moving, there are indications that it is a contributor to growth. This implies that the rural transformation had some resemblance to that of the other East Asian economies, the so-called Miracle economies (Japan, Taiwan, and South Korea). They are the empirical base of the model "growth with equity" (Adelman, 1975, 1984; Andersson and Gunnarsson, 2003; Booth, 1999). Indeed, the international conditions of Vietnam since the 1990s have differed substantially from those of the other economies, but the dynamics of transformation, with a more dynamic and inclusive agriculture, are illustrative. Something to explore further perhaps.

[46] For a larger contextualization at micro level of Timmer's model, see Timmer (2013)

7. Factor Endowments and Development Paths

Colonialism is back on the research agenda. The influential works of Engerman and Sokoloff (E&S) and Acemoglu, Johnson and Robinson (AJR) have set the focus specifically on the long-term effects of factor endowments and colonial impact. This implies that the emphasis is not on colonialism per se, but on the initial conditions that shaped the long-term effects of colonialism. This is achieved via institutional mechanisms; especially those that perpetuated colonially rooted inequalities, and have led to significant disparities in wealth and political power.

In relation to those two theories, this study considers some similarities and significant differences. It does share the data limitations, and the consequent difficulty of building realistic time series. This is indeed a significant hindrance, as we join these authors in claiming that the current economic performance and development paths that countries have followed have historical origins. The immediate consequence of this significant data limitation is that the contribution becomes one of seeking potential explanations of the different dynamics of transformation over time, and not one of presenting a historical account of a sequence of events. In other words, causality is discussed in theoretical terms, and partly in the form of conjectures (given the existing empirical evidence available).

To name one significant difference, the scope of this study is much more limited: both in the number of cases and in the choice of period. This has methodological implications, since it constrains the possibilities of generalizing from the cases, at the same as it allows for greater depth of discussion. Since this study is not a test of either theory, our findings neither reject nor prove either one. This said, our study relates to the two theories in three ways: first, it complements, as it discusses a case of late colonisation in Asia (only AJR partly includes this type of colonisation). Second, it qualifies the potential

mechanisms. And third, it presents a different understanding of development paths based on extraction.

The focus of this study is on two rice economies. In the past century and a half, they have belonged to changing political entities: Imperial Vietnam (Nam-Viet), Tonkin and Cochinchina, Democratic Republic of Vietnam and Republic of Vietnam, and Vietnam; but, by the time of colonialism, they presented clearly distinct factor endowments. Whereas the Red River Delta sustained a large population in a closed arable frontier, the South had an open land frontier. This provides a valid case(s) for discussing the interaction between factor endowments and colonialism, as well as possible long-term effects. We could therefore pose the following question: how helpful (or predictable) is the existing literature in understanding these two economies in the past and present?

One of the first claims proposed in this study is that land availability in relation to labour has greater analytical depth than population densities (AJR). This is more in line with E&S who have man to land ratios as the initial condition, and the fundamental role of institutions in restricting labour. In E&S, however, there is no factor variation. The commonality for all of the Americas was abundance of land, and other resources, relative to labour. The implication is that the development paths of the Americas (see North versus South) do not derive from such initial conditions per se. There are other aspects of factor endowments that determined the type of agrarian economies. These include the relation between soil fertility and climate that facilitated crop production in large plantations, which, in turn, benefited from economies of scale and slave labour. This provides a line of argument with which to differentiate within North America (E&S, 2012).

Our cases, however, have the commonality of wet rice cultivation but reveal different man to land ratios. This difference in initial conditions has led us to discuss the relationship between factor endowments and processes of land intensification, and the potential mechanisms for a long-term effect.

One of the major criticisms forwarded against E&S is that their profitable crops (sugar, coffee, etc.) do not seem to benefit from economies of scale to any greater extent than those crops cultivated (e.g. wheat) in the cases that have resulted in a different development path (Hayami, 1994). This is not necessarily a rejection of the E&S theory because they do not have a mono-causal understanding of the path. The colonial institutions (set up to restrict labour) were the fundamental cause of the resulting institutional formation (plantation economies with slave labour), and hence the inequalities in wealth distribution. The fact that the plantation owners then could benefit from economies of scale

provides an economic understanding of its persistence (as part of the explanation of slavery in the south of the USA). AJR also suggest that the decisive factor was the colonial institutions, which were either extractive or growth enhancing.

This study has argued that the institutional explanation is insufficient for three reasons: first, the role of economic mechanisms derived from factor endowments is only partly explored. Second, the importance of local institutions is neglected. And third, there is potential determinism in the theories.

7.1 Colonial Institutions: a sufficient condition?

One of the main arguments of our study is the importance of the effect of factor endowments in economic processes. This is the so-called factor endowment approach to the understanding of the processes of economic growth, or lack thereof, which took place during colonial times (see Lewis, 194; Myint, 1958; Austin, 2008, for Africa). In other words, the relative availability of land and labour, which were to be the most important pre-colonial factors, had a decisive influence on the type of agricultural transformation and processes of capital formation during colonial times.

This study has shown how scarcity of land in relation to labour, as in the case of Tonkin, puts constraints on the cultivation system, which in turn, and contrary to a standard (neo)classical economics model, does not lead to excess labour. The marginal returns to labour (measured not as inputs, but person-hour) tend toward zero and land becomes more fragmented. This fragmentation is an attempt to: first, accommodate increases in population and second, diversify cultivation risks by spreading plots over areas of different soil fertility and possibilities of intensification of land use. The probable outcome is a large economy in subsistence and subject to low opportunity costs of labour. This is in large degree due to the marked seasonality of an increasingly intensified cultivation of rice (in both land and labour). This interpretation does qualify, at least for rice cultivating economies, AJR's claim that (historical) population densities may be used as a proxy for higher income per capita. Furthermore, this points at a potential mechanism by which factor endowments constrain the surplus capacity of the economy, which in itself could have a long-term effect.

Cochinchina's transformation of its rice economy, on the other hand, accords with Myint's (1958) Vent-for-Surplus theory. Along with investments in infrastructures, and access to markets, new land was put under cultivation,

which resulted in increases in surplus production, and eventually an export boom, most remarkably in the 1920s. Land intensification was carried out by adding new land under cultivation as a result of labour intensification (a Boserupian process). This indicates that there were greater incentives to expand the frontier than to intensify existing rice lands. Still, this regime of growth does not lead to an agricultural transformation, as a sustained increase in surplus production can be achieved without technological progress.

The implicit logic of this growth pattern might hypothetically be reflected in increasing stratification over time within the rice economy. This outcome would be due partly to growing inequalities within villages and among farmers, and partly to a trade dominated by French and Chinese actors (see Gunnarsson (1978), and Hopkins (1973) for a discussion on Vent-for- Surplus in an African context). In the village economy it is probable that there were processes of increasing stratification as a result of household differences (number of labourers), land size and quality, indebtedness, and a degree of luck. Land availability, along with increasing access to markets and higher rice prices, set new incentives that conditioned the behaviour of all actors in the rice trade. The interests were not always aligned however. While larger landowners (absent or local) and local administrators sought to restrict labour movements (á la E&S), the administration had incentives to allow labour movements towards the frontier (settlement) in order to increase land production and export (which was a main source of revenue). This necessity of putting more land under cultivation also led to the formation of a landed elite, distant from the frontier lands (á la Domar). The combination of different actors, opportunities, and constraints led to conflicts, which became apparent in the aftermath of the Great Depression and especially after the 1940s (Scott, 1976). As outcomes, riots, land left uncultivated, political opposition, and eventually wars cannot be ignored.

The overall caveat towards the existing literature, especially AJR's, is that the same colonial power and initial policies did not lead to the same processes and outcomes at the local level. The importance of local institutions, which is highlighted by E&S in later works (2012), should regain theoretical and analytical importance in the discussion. For our cases, the significance of the village economy, in influencing economic institutions and their potential change, should be brought into the analytical framework.

7.1.1 Colonial versus Local Institutions

The importance of the village economy brings us to our second criticism. It is undeniable that colonial governments (in the colonies and the core countries) had an impact. Nonetheless, when the focus is on inequalities (seen as effects on a broad cross section of the population), the importance of other actors cannot be neglected. This is especially relevant in areas of high population densities. AJR argue that colonial powers could *reinforce* (or establish) extractive institutions. They allow for such a possibility despite their claim that colonialism was an exogenous shock. Needless to say, the acceptance of such a premise might compromise their general hypothesis that the 'Reversal of Fortunes' is due to an institutional reversal. Colonialism would not have been a necessary condition for the reversal if extractive institutions had already been in place.

For E&S' theory, since the focus is on the Americas, the long duration of colonisation dilutes the discussion of initial colonial agency. However, for the late colonisation of Africa and Asia, where indirect rule was more common, discussing agency becomes paramount, especially in relation to a potential long-term effect.

This study adheres to the common objective of assessing the extent of extraction during colonial times. It is suggested, though, that if extraction is to be understood as surplus extraction, two caveats should be made: i) surplus capacity of the economy, as already argued, is conditioned by the factor endowments and its relation to agricultural transformation; and ii) the analysis has to be disaggregated to the village economy and the farmers themselves. This study has maintained that the possibilities of extraction are also institutionally conditioned by factor endowments. The argument is that the distinct factor proportions of the Northern and Southern Deltas created different village structures and socioeconomic relations, which, in turn, influenced the opportunities and constraints of farmers. This might consequently have had an effect on their behaviour. In other words, the understanding lies in discussion of the open versus closed village economies, which is also embedded in the Moral Economy (Scott, 1976) versus Rational Peasant debate (Popkin, 1979).

The differentiation between these two camps of the controversial debate has very little to do with the rationality of the farmers; that is, that one was more rational than the other. The Northern farmer, as much as his Southern counterpart, behaved equally rationally. They were bounded differently, however. It is also misleading to assume that Scott's moral economy should be

attributable to all landlord-peasant relationships. Since tenancy was so remarkably widespread in the South, and the behaviour of actors did not comply with Scott's theory, we could reject it. The premises of the Moral Economy are clearly defined: a "traditional" rural village economy, with high population densities and strong social contracts and relations (e.g. Tonkin, and the Red River Delta in particular).

Tonkin, as presented in previous chapters, was closer to a rice version of a bimodality pattern of agriculture (latifundia-minifundia) than the land abundant areas with larger landholdings, where related large tenancy landholdings predominated (Cochinchina). The consequence is that the key to understanding extraction in the North may not lie in tenure conditions. On the contrary, it may be best understood first, in the difficulties for farming households to generate a surplus, and second, in the mechanisms that create relationships of dependency among farmers, and between the villages' landed elite and peasants. This is what Geertz (1973) called 'involution'. This study has argued that involution was probably present in the rice economy of the Red River Delta, but cannot be causally attributed to colonialism. These economic and institutional processes had probably made Tonkin fall into a High Level Equilibrium Trap.

7.2 Extractive Institutions and Path Dependence

This takes us to the understanding of how these processes that took place during colonial times could have a long-term impact. This study has added two extra nuances to the current literature; first, mainly in the differentiation between inequalities and extraction during colonial times, and, second, in the consequent long-term impact.

Extraction, in a Moral Economy context, is worst when it leaves the majority of the population at subsistence. This, unlike Scott's claim, exemplifies Tonkin more than Cochinchina (though it is a probably valid claim that the Cochinchinese farmers were more vulnerable to market mechanisms than their Tonkin counterparts).

In order to incorporate the importance of the distribution of income in the economy, and its relation to the capacity of generating a surplus, we apply the Milanovic et al (2007) concepts of Extraction Ratio and Inequality Possibility Frontier. This method allows us to include another dimension to the

understanding of inequalities, extraction, and extractive capacity. The evidence gathered for the colonial period indicates that inequalities in land distribution were probably greater in the South than in the North. This assertion is also supported by qualitative sources indicating stratification and probable polarization of the rice economy in the South. SRI Land reform report (1968, vol. I, part 2, B-19) reported that the concentration of landownership was one of the highest in the Far East or Southeast Asia. The outcome was, however, a lower extraction ratio than in the North. This is because, despite the unevenness in the distribution of land, the possibilities of accumulation were greater, and the South was consequently not a subsistence economy with the characteristics and extent of the North. The economic and institutional dynamics were different.

7.2.1 Post-colonial Transformation

Nonetheless, the outcome of colonial times does not explain how Vietnam, especially the South, could undertake a dynamic and rather inclusive agricultural transformation from the late 1980s onwards. This makes us question how the existing literature could shed light on understanding such a transformation. A relevant question is whether we can understand either of the two rice delta economies of Vietnam as outcomes of path dependence processes? This is a fundamental question for discussing whether and how history could matter for understanding today. But before we answer the latter question, it is necessary to discuss how the current literature links colonial past and present economic performance.

As already indicated, this study is not aimed at testing or rejecting either theory. The relevance of both works is not simply limited to the understanding of history per se, but clearly, as with AJR, the objective is to also have a say on the development paths of today.

In a way, as attempts to build theory, both works should have a component of explanation and prediction. This study does not expect either theory (especially due to the epistemological characteristics of E&S's work) to explain the case of Vietnam. Regardless, they should provide an understanding of how history matters for our understanding today of the development of countries that have been colonised. AJR's Reversal of Fortune thesis, due to the similar premises of analysis (differences in factor endowments), might inform our understanding of the cases.

The implications of the Reversal of Fortune thesis, and A&R's works, are twofold: on the one hand, they attempt to establish the long-term impact of colonialism. This means that the performance of economies today (see 1995 GDP per capita) cannot be fully explained if one does not include colonialism and the good or not so good extractive institutions. Consequently, colonialism and its institutions are a necessary condition for today's world distribution of income per capita (see world in relation to European colonialism). On the other hand, they have identified that the root of the failure of countries today lies in their political institutions (Acemoglu and Robinson, 2012). Institutions need to be changed for transformation to take place, and one may assume that it is via extending the "good" institutions, e.g. property rights, to a broad cross section of the population (AJR, 2001, p. 31).

For the case of Tonkin, with higher population densities, the theory predicts that the French would either reinforce or set extractive institutions, and this would lead to an institutional reversal and, hence, of fortunes. The relatively lower income per capita that the Red River Delta presents today (in relation to the South) could consequently be explained by the persistence of colonial extractive institutions.

Since AJR do not define what they mean by extractive institutions[47], but juxtapose them to the good ones, we could argue that what the French did was to reinforce the Moral Economy of the village. While one could consider this to be an empirically valid claim, it would also imply that it is the persistence of such institutions that hinders today's agricultural transformation. The only aspect of AJR's thesis that may be related to the Moral Economy is the lack of *de jure* property rights to land, since the relations (pre-colonial and colonial) were feudal. This, however, was partly altered during the collectivistic decades, and property rights have now become formally institutionalised via the land reforms of 1988 and 1993 (Hayami, 1994). Farmers have been granted land rights. Indeed, other more informal mechanisms, such as resistance by local authorities to allowing farmers to sell land (as some authors have argued) could have a minor resemblance to the institutional relations of a closed village community. This said, land rights and liberalization of markets have not led to increases in land transactions (Deininger & Jin, 2003). There is also evidence pointing at

[47] AJR list the following as examples of extractive institutions: taxation, slave trade, mining economies.

the difficulties of using land as collateral due to the extensive land fragmentation. This extensive land fragmentation, which hinders the surplus capacity of farmers and their possibilities of achieving sufficient economies of scale to make new technologies profitable, reduces the actual value of land. These processes are most probably the fundamental obstacle to the transformation. This is however neither an outcome of the current reform nor of colonial institutions.

This study has argued that the Red River Delta seems to fit the idea that there is path dependence, although it is not driven by institutional factors. It is the effect of factor proportions that seems to have been persistent in reducing the opportunity costs of labour, partly because by the extensive labour intensification of the land intensification processes (Boserup, 1965), and partly by increasing transaction costs. The overall implication of such a claim is that colonialism does not seem to have a causal role in today's obstacles to growth in the Red River Delta. It is more probable that the fragmentation of lands, to accommodate population pressure and land availability (increasing irrigated areas or lifting land to protect it from floods), created a pattern of agricultural transformation that left farmers with scattered and small plots. But a solution for the farmers was not to grant them property rights, as that did not alter the dynamics in a fundamental way. The coordination costs for initiating processes of land consolidation were likely very high. Needless to say, the political costs associated with an institutional intervention (such as the European enclosure movements) was probably even higher. For this case, both the explanatory and the predictive powers of AJR's theory are limited.

The South is the most puzzling. The expectation based on AJR is that French would have settled there. But they did not. If we accept the Vietnamese settlement as a small-scale household economy, the outcome should have been the "good" trajectory. This was not the outcome either. From the point of view of land inequalities, the colonial outcome of the South is better predicted by E&S. Nonetheless, given the significant differences of type of crop and the institutional impossibility of recurring of the worst forms of labour accumulation, inequalities were probably lower than in Latin America. The indications are however that land inequalities in Cochinchina were high, with a Gini coefficient around 0.8 (FAO statistics). The drawback is that those outcomes cannot explain the transformation that the South was to experience later on.

7.3 Determinism and History

For both E&S and AJR, institutions are persistent. Self-reinforcing mechanisms keep AJR's political extractive institutions and E&S's historically rooted inequalities influencing current performances. This resembles a path dependence argument.

The South story, however, was not one of path dependence. To validate such a claim, two potential counterarguments are first considered: empirical inaccuracy or a theoretical shortcoming. For the first counterargument, the claim is that the empirical evidence presents a negatively biased outcome of colonialism in South Vietnam. Simply, it was not as bad as has been put forward. This counterargument is unlikely since the conflicts and eventually the war could be considered as indicators of the seriousness of the grievances voiced by the peasants. Our findings, i.e. an economy with large land inequalities but not as extractive (measured by the Extraction Ratio) might theoretically denote that Cochinchina, and possibly other land abundance economies of the time, were hybrids of the two extreme cases presented by AJR or a modified version of E&S's path. One could argue that thanks to the period of colonisation and to the lower extent of extractive institutions (seen as the institutions to restrict labour and keep population at subsistence), there were better possibilities for economic stratification. In other words, inequalities probably increased but, as long as the extraction ratios did not increase faster, the path was not initially determined. In this understanding, two potential critical junctures came after the Great Depression, when the collapse in prices revealed the degree of indebtedness in the cultivation, and for many actors, such as milling companies, this meant bankruptcy. What if the French administration had actively reached out to the small farmers with credit, instead of to the larger landowners? Or carried out a reform to improve the land tenure conditions? Equally important to this institutional line of argumentation is the understanding that one of the greatest obstacles was the lack of economic specialization and hence lack of diversification of the economy. The Great Depression revealed more than a marketing and credit problem. It was a regime of economic growth without transformation. A second potential critical juncture was at the time of Independence and American intervention.

Second, this understanding could lead to an alternative reading of South Vietnam. There is path dependence, but the theory we have is not completely appropriate since it is based on extreme cases of extractive institutions (E&S).

What if the institutional changes derived from the land availability meant a change in farmers' opportunity cost of labour and behaviour (risk aversion and other social norms, less tighter social relationships of dependency)? This might be interpreted as a counterforce to the elites and hence a relatively more inclusive economic process. This proposition would be more in line with Popkin (1979), i.e. farmers behaved differently in the South thanks to the open village economy (also brought up by Rambo, 1973; Hickey, 1967). Such a hypothesis may *explain* the war and the resistance against collectivization. This is theoretically a possibility, but how is it possible to empirically validate such a claim? The effects of the frontier on the behaviour of the main actors and the regime of Vent-for-Surplus probably led to a path of increasing inequalities, and conflict. The overall implication is that there was a path of transformation different from the one followed in previous European colonisation or in areas with different factor proportions. This possibility will require further empirical research to include other economies with similar conditions to Cochinchina (e.g. Burma, Thailand, and some West African economies).

7.3.1 Is the South a case of 'Reversal of Fortune'?

AJR may suggest that there was no transformation in the South because "[E]arly industrialization may be such a process, since it requires both investments from a large number of people who were not previously part of the ruling elite and the emergence of new entrepreneurs" (AJR, 2001, p. 31). They add "whether a society has institutions of private property or extractive institutions may matter much more when new technologies require broad-based economic participation" (AJR, 2001, p. 31). It is not surprising that AJR treat (industrial) technologies as exogenous, though it is not completely unproblematic. There is an assumption that industrialization only takes place via a response to exogenous (industrial) opportunities. It is at that point in time (during the 19th century) when the possibilities of a broad cross section of population to have effective property rights mattered. The major implication of such a line of argumentation is that the societies they are discussing must be agrarian, but they do not explore the institutional effect on inequality. They state "[…] when the major investment opportunities are in agriculture, this [institutions of private property for a broad cross section of the society] may not matter too much, since the elite can invest in land and employ the rest of the population, and so will have relatively good incentives to increase output" (AJR, 2001, p. 31).

Indeed, the inequality within the system may not be an initial hindrance to economic growth (as argued by E&S, and discussed here for Cochinchina), but one may think that it is what matters most when returns to land decrease and new investment is made by cultivators. While it is intuitive to agree that, in an economy based extensively on slave labour, effective property rights for a broad cross section of the population were not present, it is not clear how those rights came to be within the agrarian preconditions of the "good" path of development. The obstacle seems to lie in their identification of institutions and institutional change.

The good institutions were an outcome of low population densities that enabled "Europeans to settle in large numbers and develop institutions encouraging investment by a broad cross section of the society" (AJR, 2001, p 2)[48]. This implies that the fundamental criterion was settlement and not low population densities or land availability. But then, what if they did not settle, as was the case in the South Vietnam? Would that mean that "good institutions" could not be set up? And what if they settled but that did not lead to a positive institutional path? After all, AJR state "moreover, when a large number of Europeans settled, the lower strata of the settlers demanded rights and protection similar to, or even better than, those in the home country" (AJR, 2001, p. 16). Their argument is then that what matters are the composition of European settlement and the willingness of the political elites to grant them those rights. This said, they do not seem to give much weight to the fact that it was Europeans per se who settled. Thus, for the case of Cochinchina, this theory predicts the emergence of a Government that would grant them secure property rights. After all, they settled in large numbers and demanded rights (as illustrated by decades of conflict). This did not seem to happen until much later.

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[48] This could indicate that the argument is that it was European settlement. However they argue against the hypothesis that "different paths of development reflect the direct influence of Europeans. Places where there are more Europeans have become richer, either because Europeans brought certain values conducive to development (e.g. Landes [1998], and Hall and Jones [1999]), or because having more Europeans confers certain benefits (e.g., through trade with Europe or because Europeans are more productive). In Acemoglu, Johnson, and Robinson [2001b] we presented evidence showing that the reversal and current income levels are not related to the current composition of the population or to proxies of whether the colonies were culturally or politically dominated by Europeans" (AJR footnote 14 p 1262). This may be interpreted as a counterargument to an intrinsic characteristic of Europeans, but that the reversal was done thanks to a State (political elite) that granted them rights.

AJR's path dependence initially seems to be more in line with Mahoney's definition[49]. Mahoney claims that "path dependence characterizes specifically those historical sequences in which contingent events set into motion institutional patterns or events chains that have deterministic properties" (Mahoney, 2000, p. 507). But these events cannot be explained on the basis of prior historical conditions. In other words, the path is ignited not from initial conditions, but events and chains that create a determinist path. This fits the argument that the institutions in place by the time of colonialism were not as determinant; they were initiated by colonial powers.

This said, AJR's path dependence story might not be understood in these terms. First, for AJR colonial institutions are a rational choice based on the high or low incomes per capita (see population densities) in the colonised countries. That is, they do not maintain (neither do E&S) that there were fundamental differences in institutions attributable to the colonisers, but that the colonial institutions were determined by the factor endowments. They do not contemplate a counterargument for either of their paths (whether there could have been alternative paths given the same initial conditions). Secondly, according to Mahoney "a system that exhibits path dependency is one in which outcomes are related stochastically to initial conditions" (Mahoney, 2000, p 511, also expressed by Goldstone, 1998). In AJR, part of the statistical exercise is to show that population densities in 1500 and GDP per capita in 1995 are (negatively) related; hence, the reversal of fortunes. The problem may lie in the impossibilities for any counterfactual analysis in AJR's theory, as no other contingent event could have altered the path once the Europeans set up one or the other type of institution. The path is determined by the initial conditions. Hopkins (1973, 2011) and Austin (2008a) call this the compression of history.

[49] The definition of path dependence, and its use, are too extensive to be discussed in this study. The selection has been based on the most relevant authors in economic history and recent colonial literature (such as Mahoney, 2010)

7.4 A Final Note on History, Path Dependence, and Change

In conclusion, what has the modern agrarian transformation of South Vietnam illustrated in this respect? Could the problem lie in attributing deterministic properties to institutional persistence and inertia? David's (1997) Economics of Qwerty is one of the most well known examples of path dependence. In his view, these processes are, and must be, stochastic sequential processes (David, 1997, p. 15). North argues along similar lines "if, however, the foregoing story [the evolution of land history in the US] sounds like an inevitable, foreordained account, it should not. At every step along the way there were choices –political and economic – that provided real alternatives. Path dependence is a way to narrow conceptually the choice set and link decision-making through time. It is not a story of inevitability in which the past neatly predicts the future" (North, 1990, p. 98-99).

Consequently this study contends that the South cannot be understood as a story of path dependence in a strict sense. The path that was derived from its factor endowments and institutional formation predicted (based on current theory) the *extractive* path and scant possibilities of transformation (seen as reduction of inequalities and increasing income per capita). Does that mean that history does not matter? The answer is no. History matters in more ways than path dependence; it matters in shaping the sequences of causally related events and processes, where institutional change is possible. Then, history matters not because it is following a deterministic path, but because there could be change. But understanding change, in the past or present, cannot be achieved without taking into consideration the choices available, conditions, actors, and the foregone opportunities. It matters because, otherwise, there would not be paths of development (as argued by North, 1990). In a world where the past did not play a role or could be altered by institutional reform (á la AJR), Northern and Southern Vietnam would have had similar paths of transformation after Doi Moi.

Still, the important thing is to understand which institutions matter for the "good" transformation. While property rights are important, Adelman (1986) has developed a more comprehensive framework for the understanding of how a broad cross-section of the population may benefit from change (institutional and technological). She provides with a set of parameters to assess how inclusive (seen as equalizing opportunity), a development strategy is. Access to markets

(such as the liberalization derived from Doi Moi) may not be sufficient; the possibilities of productivity improvements of the main assets of the majority of the population are more fundamental. In this study, the focus has been mainly on land. Land size and distribution/tenure interact in the processes of allowing farmers to invest and respond to new incentives. This way of understanding the two rice Delta economies in Vietnam has shed more light on the recent inclusiveness of agricultural transformation in the South versus some bottlenecks in the North (in a modern form of High Level Equilibrium Trap). The developmental (policy) implications are greater, since Adelman's framework includes the complexity in the relations between economic and institutional mechanisms. This study suggests that these are enlightened by the analysis of historical processes.

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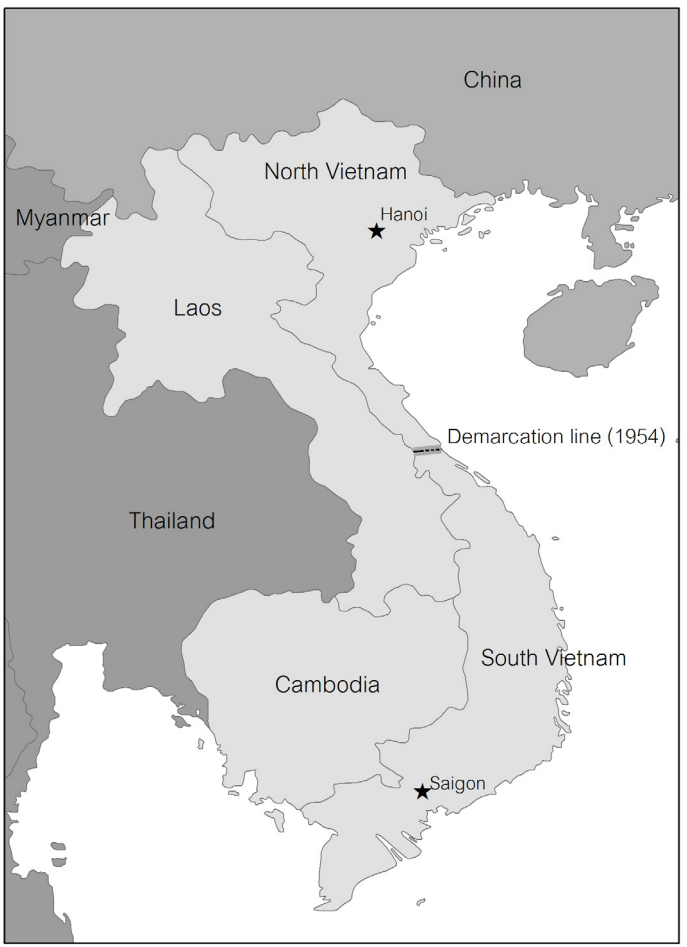
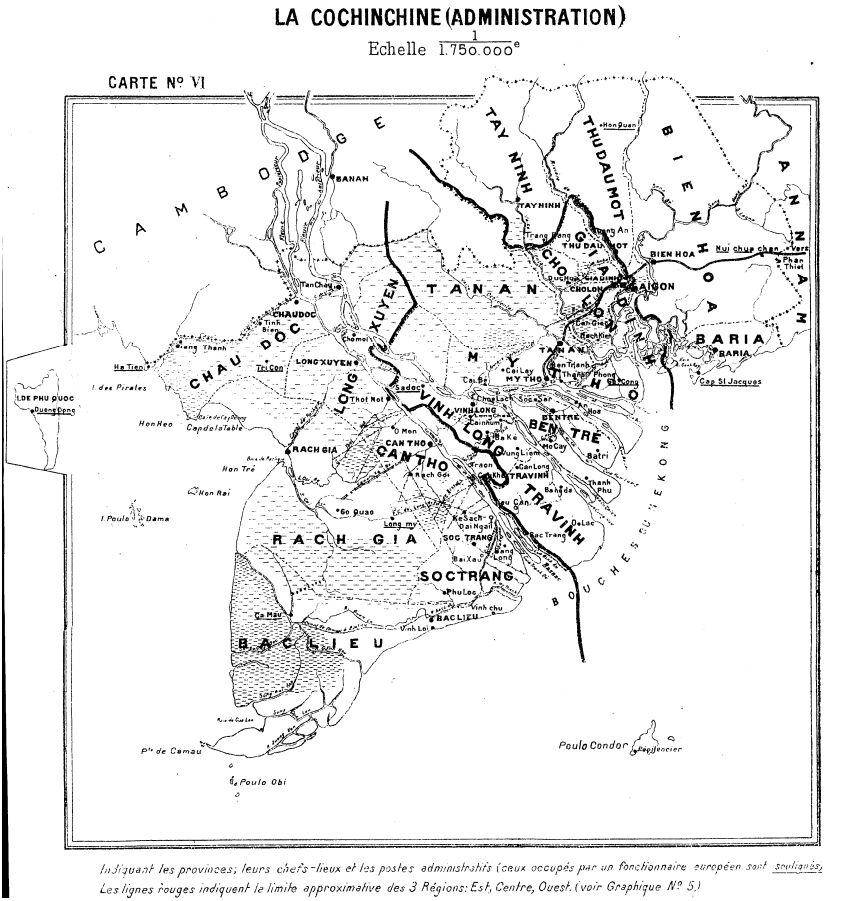
Maps



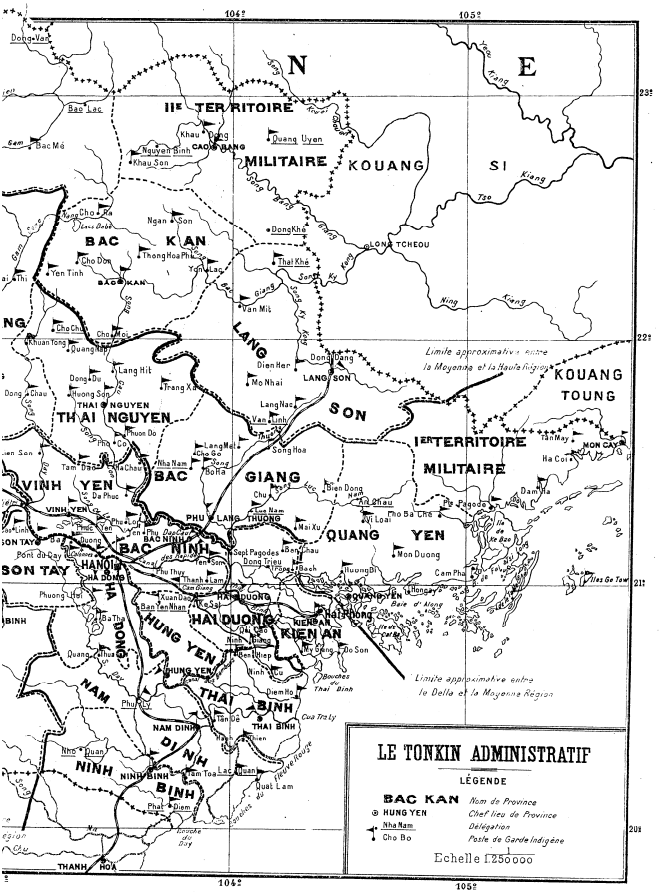
Map 2. Indochina Demarcation line in 1954



Indiquant les provinces, leurs chefs-lieux et les postes administratifs (ceux occupés par un fonctionnaire européen sont soulignés).
Les lignes rouges indiquent la limite approximative des 3 Régions: Est, Centre, Ouest. (voir Graphique Nº 5.)

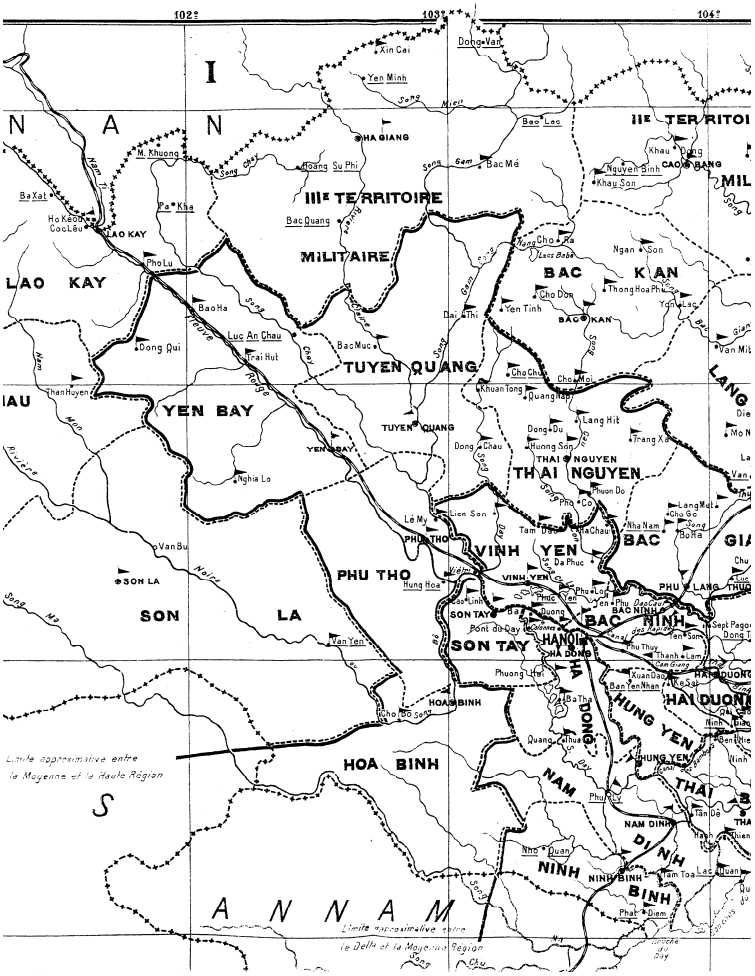
Map 3: Cochinchina

Source: Bassino et al (2000)



Map 4: Tonkin (Lower Delta)

Source: Bassino et al (2000)



Map 4: Tonkin (Upper Delta)

Source: Bassino et al (2000)

Appendix

Table: Appendix Population Figures

Province	1903-1904	1921	Late 1920s	1931	1936	1941	1943
Bac Giang	305823	212000	256000	255000	273000	231917	312000
Bac Ninh	359810	381000	418000	453000	486000	470828	543000
Ha Dong	571925	755000	940000	807000	904000	945000	964000
Hai Duong	745127	592000	707000	813000	752000	784343	844000
Ha Nam[i]	323310	404000	446000	438000	458000	498310	596000
Hung Yen	289102	383000	439000	360000	479000	503034	533000
Kien An	211551	257000	353000	354000	418000	403853	429000
Nam Dinh	716591	826000	1011000	1013000	1056000	1193414	1233000
Ninh Binh	256675	301000	360000	375000	387000	421627	406000
Phu Tho	NA	241000	263000	276000	296000	252408	352000
Phuc Yen	103906	145000	173000	166000	167000	159409	202000
Quang Yen	53404	73000	92000	100000	147000	53632	189000
Son Tay	331709	242000	270000	272000	288000	304544	211000
Thai Binh	853717	869000	927000	960000	1027000	1050499	1139000
Thai Nguyen	38113	70000	83000	83000	100000	117365	153000
Tuyen Quang	35677	40000	49000	51000	65000	NA	84000
Vinh Yen	231909	194000	215000	224000	244000	251193	296000
Yen Bay	25185	59000	72000	76000	87000	NA	108000
Tonkin	**5453534**	**6044000**	**7074000**	**7077931**	**7635936**	**7641376**	**8594000**
Tonkin Total	**6431470**	**6854000**	**8005000**	**8075000**	**8680000**	**7902153**	**9851000**

Source: Banens (2000) and Madrolle (1907) for the 1903-1934

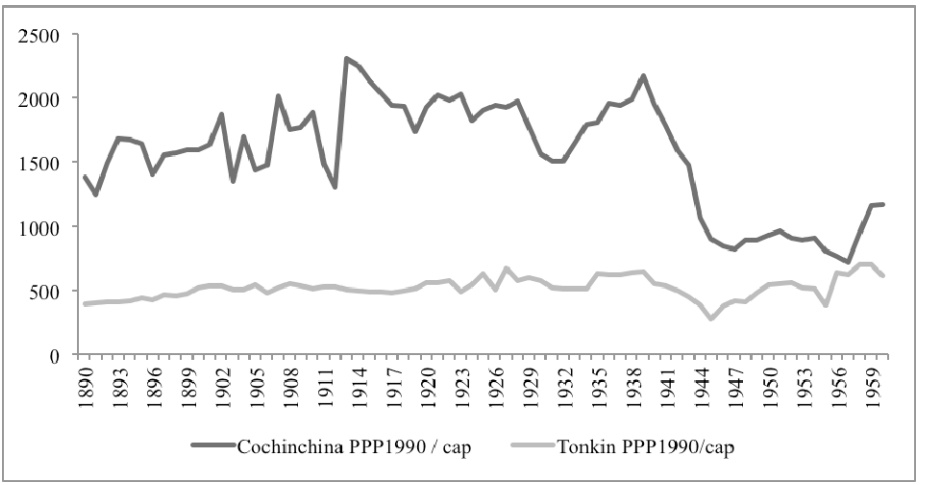


Figure Appendix GPD per Capita in Tonkin and Cochinchina

Source: Author's based on Bassino (2000b)

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