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Optimising Stability

An Analysis of Agricultural Risk-Decisions and Aspirations in the Context of Chilean Campesinos

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Abstract

This study discusses the risk-decisions of peasant economy. It draws examples from campesinos in Chile and suggests how these decisions may impact the future of campesinos as a distinct cultural group. Utilising a theoretical discussion, illustrated with empirical field data, some of the risks as perceived by campesinos across a region of Chile's Central Valley are highlighted. The study first analyses how risk-decisions are made, using Lipton's Theory of the Optimising Peasant as a framework, by drawing on risk-decision and aspiration studies from economics and psychology. It then assesses the impact that risks and risk-decisions, with particular regard to modernisation practices, may have on the future of campesinos and whether they will become depeasantised or remain as a culturally unique group. The research finds that aspirations are often defined by social-group averages, that this may influence risk-decisions among campesinos, and that campesinos are likely to be stability, rather than optimisation seeking. Further, it suggests that a linear illustration of campesino cultural survival or loss in the market economy can be expanded. A theoretical model is proposed which incorporates modernisation decisions to explain the complex relationship between perceived risks and decisions which will influence the future trajectory of campesinos.

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Contents

Abstract.....	2
Acknowledgements.....	5
List of Abbreviations	6
Introduction.....	7
Objectives of the Research.....	8
Background.....	10
Study Site	10
Chilean Agriculture	10
From Haciendas to the Market	10
Government	12
Geographical Issues.....	13
Guiding Concepts.....	13
Campesinos and farmers.....	13
Medium - Large-scale farmers	14
Poverty.....	14
Methodology.....	15
Research Design.....	15
Evaluation Criteria.....	15
Data Collection and Analysis.....	17
Secondary Data.....	17
Primary Data.....	17
Observations	17
Site of Study.....	18
Map of study area and subject’s farm locations.	18
Interview sites and participant selection	18
Zone 1- Andes Cordillera (A).....	19
Zone 2 – Central Valley Plain (V).....	19
Zone 3-Dry Costal (C).....	19
Interview Process.....	19
Interpreters.....	20
Ethical Considerations.....	21

Coding of respondents:	21
Gender	22
Discussion methodology.....	22
Theoretical Framework	23
Agricultural Risk	23
The Theory of the Optimising Peasant.....	24
The Peasant Economy Continuum	25
Campesinistas and Decampmesinistas	25
Campesinistas	26
Decampmesinistas	27
Neo-Structuralism.....	28
Modernisation	28
Summary	28
Discussion	29
Hypothesis 1	29
Risk Theory	29
Aspirations and Risks	31
Hypothesis 2a	33
Price Uncertainties.....	33
Risky Risk Minimisation	35
Production Uncertainties	36
Hypothesis 2b.....	37
Optimising or Stabilising?.....	38
Hypothesis 3.....	40
Modernisation.....	41
Land Re-concentration?.....	42
Campesino Optimum Modernisation Model	45
Aspirations in the Model	47
An Example of Mixed Farmerisation	48
Conclusions.....	48
References.....	50
Appendix 1	61
Appendix 2	64

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List of Abbreviations

CET – Centro de Educación y Tecnología – The Centre for Education and Technology

CONAF - Corporación Nacional Forestal – The National Forest Corporation

ESNO – El Niño Southern Oscillation

EU – Expected Utility (Theory)

FAO – Food and Agriculture Organisation

INDAP – El Instituto de Desarrollo Agropecuario - The Institute of Agricultural Development

OP Theory – Theory of the Optimising Peasant

PRODESAL – Programa de Desarrollo Local - Programme for local Development

PT – Prospect Theory

Introduction

There is much debate surrounding the future of peasant agriculture in an increasingly globalised world. For many, this is a world of liberalised markets and internationally exported goods. In the peasant economy, where auto-consumption¹ and income-diversity often play a key role (Chayanov, 1966; Escobar, 1995; Hayami, 1996; Kay, 1997; 2002;) this brings both risks and opportunities. Peasant households must decide their level of interaction with the market. The debate of peasant economy revolves heavily around interaction, competition and survival in the market, exemplified by Chayanov (1966²), Shultz (1964), Lipton (1968), Hayami (1996) and in Latin America specifically by Kay (1971; 1997a; 2002) and more recently Murray (1997, 2006).

Chile often serves as an example of the neo-liberal market system of much of Latin America. The World Bank describes it as an upper middle income county, though its rural poverty rate is still 11%, the burden being disproportionately shared by its campesinos (World Bank, 2013; Kay, 1997a), the traditional peasant class of Latin America; auto-consuming small-holders who may have other on or off-farm sources of income generation (Kay 1997a; Bauer 1971; 1975). Chile's agriculture accounts for around 7.5% (USD\$6bn) of total exports (FAOSTAT 2013; World Bank 2013), despite a recent and rapid growth in the mining sector which masks some of its value.

As Chilean agriculture has re-oriented itself towards market-based exports questions abound over whether campesinos will compete, withdraw or be overcome by land-purchase, perhaps turning to a *proletarianised* system of predominantly temporary labour (Murray, 1994; 2006; Kay, 1997a; Korovkin, 1997). Much of the agricultural land (61%) is owned and operated by large-scale farmers, forming 74% of agricultural output employing 64% of the rural labour. However, a large minority, 39%, is still owned by campesinos, producing around 26% of total output. (Kay, 2002:482-483). Many Chilean campesino households engage in the wider market handling market price uncertainties alongside production uncertainties caused by Chile's highly variable climate. Campesinos are important to Chilean agriculture, hence understanding their future trajectory is important, too.

¹ The process of growing food for household consumption, being nutritionally self-sufficient

² This reference is to the translation of Chayanov's 1925 work, *The Theory of Peasant Economy*

Debunking the myth that peasant agriculturalists are irrational and irresponsible to incentive, development economist Theodore Shultz published his “Efficient-but-Poor” hypothesis in 1964. It claimed that peasants maximise their marginal productivity within their means, but lack the capital to invest in modernisations to increase production (Shultz 1944; Lipton 1968). Lipton (1968) theorised this further; in his work *The Theory of the Optimising Peasant* he claims that peasants are productivity optimisers (rather than maximisers), reducing productivity in order to moderate risks and secure a minimum income. Lipton’s theory assumes that decision-makers will make rational choices to optimise their production, though the decision-making process is complex, owing to a myriad of unknowns and also individual aspirations.

How decisions such as the level of market interaction are made involves a complex decision process based largely on economical perceived risks (Friedman and Savage, 1948; Kahneman and Tversky, 1979) and socially constructed aspirations (Festinger, 1942; 1954; Quagila and Cobb, 1996). Clarke (1980:287) summarises the interaction between these two factors by describing risk as “the perceived inability to cope satisfactorily with the world around us”.

This study investigates Lipton’s theory in the context of campesinos in the Chilean capitalist market economy, where there is debate into the future prospects for campesinos. A dichotomous theoretical contention is set out by Murray (2006:648) between *Decampesinistas* – those who believe campesinos are being re-converted back in an impoverished proletariat by large-scale agricultural capitalism; and *Campesinistas* – those who believe that the demise of campesino culture is not a necessary outcome of capitalist production. Murray (2006) places these dichotomies at either end of a linear *Peasant Economy Continuum*. Whether or not campesinos will remain, and how they will do so is unclear. This study takes the views that the risk decisions made at the household level will have a large impact on the future of campesinos in Chile and hence a deeper understanding of the process in context is necessary.

Objectives of the Research

This study seeks to enlighten the discussion of the relationship between campesinos and their agricultural risk decision – analysing how decisions are made and what aspirations these are in pursuit of. This is placed in the context of the market economy of Chile.

This study first provides background details to clarify the context of the primary data. This is accompanied by some guiding concepts which are used throughout the study, though most of the theoretical presentation occurs together with the analysis.

The research draws both on risk-decision and aspiration theories to explore Lipton's Theory of the Optimising Peasant (OP Theory) with examples from primary data. It then considers the impact of this decision making process on the debate surrounding the prospects for campesinos in capitalist Chile. It draws on examples from primary interview data collected through semi-structured interviews in Chile's Central Valley to illustrate the wider theoretical discussion the future of campesinos as a cultural group of independent agricultural producers.

Subsequently an analysis of The Peasant Economy Continuum, outlined by Murray (2006), is conducted. A discussion of the competing campesinista-decampesinista theories will be placed in the context of OP Theory and risk-decisions with primary data examples from research conducted with Chilean campesinos.

The purpose of this study is to critically analyse relevant theories of campesino agriculture in the context of risk-decision and perceptions of risk. Through this, it is hoped that a better understanding of the potential future of campesino agriculture particularly in global markets can be forged. As such the following questions are posed:

- **How can The Theory of The Optimising Peasant be applied to the comprehension of risk-decisions of campesinos in the Central Valley?**
- **How can the discussion of the Peasant Economy Continuum Theory be informed by the discussion surrounding The Theory of the Optimising Peasant?**

These research questions are analysed through three constructed hypotheses, which aim to provide a framework for interpretation of the theoretical data illustrated by primary empirical data from the field.

Hypothesis 1: Theories of risk decision will apply to the Theory of the Optimising Peasant.

Hypothesis 2: Evidence from data collected will support the Theory of the Optimising Peasant and will highlight areas in which individual campesinos are vulnerable to risk by demonstrating that:

- a. Campesinos engage in risk averse behaviour due to perceptions of productivity and price uncertainties
- b. Aspirations are based in meeting minimum requirements due to the risk of reduced standard of living from risky ventures which do not pay off under certain circumstances.

Hypothesis 3: Risk decisions within optimisation strategies are insufficient make interpretations for or against the onset of depeasantisation in Chile's market economy, as described by Murray (2006).

Background

Study Site

Chile has a population of around 17 million, of this 11% live in rural area with equating to around 250,000 campesinos farm units³ (Kay, 2002; World Bank 2013). Campesinos are a peasant farming class with ties to the land (see below). The data for the study brings examples from farmers and campesinos located in the Central Valley, Chile's agricultural heartland. Geographically it has a temperate climate, with seasonal precipitation and a growing season which complements the Northern Hemisphere's off season. Since Chile's re-orientation towards exportable produce it has become the leading exporter of off-season fruit to Europe and the USA (Echeverría et al. 2009, Murray 2006, FAOSTAT 2013), though it also produces its own staple crops such as maize, wheat and potatoes. Of this 25% of all Chile's fruit and vegetables come from the Bío-Bío region (region VIII), where this study takes place (Ministry of Agriculture, 2013). The study focusses on three regions surrounding the city of Chillán (36°36' S, 72°06' W), which is positioned at the centre of the Central Valley.

Chilean Agriculture

From Haciendas to the Market

Up until the 1960s Chile's agricultural landscape, like many Latin American countries was still based on the *Hacienda* system. This was a semi-feudal land-holding system generating

³ A unit of measure for the entire household, rather than individuals

low levels of land and labour productivity Gwynne and Kay (1997:3), Kay (1997a:12, 1997b), with land-owners - *hacendados* - and small-holders – *campesinos*⁴ – who produced on sections of the hacienda, typically retaining control over production decisions (Pilotti (1979: 526).

Bellisario (2007:7) describes the *hacienda* system as a major source of political power. The subsequent removal of the hacienda system was intended to empower campesinos and give them more equal standing in society. However, many argue that the new economic system developed throughout the Pinochet era, but still continuing today, has imposed similar levels of control and a lack of empowerment (Kay, 1997a, b; Bellisario 2007).

Much of the reform occurred in the latter half of the 20th Century, under Presidents Frei and Allende, beginning in 1964, with the expropriation of over 5,800 estates, covering nearly 60% of the agricultural landscape. This continued under the military government of Pinochet, but with “partial counter-reform” which reallocated around 41% of recently expropriated land (over half the agricultural land in Chile) to campesinos and the remainder to competitive commercial farms and agribusinesses to boost agricultural exports. (Bellisario, 2007; Kay, 1971; 1997a, b; Robles-Ortiz 2009)

The new export market-oriented approach brought export revenues to Chile. However, many campesinos saw their new lands divided or confiscated due to supposed “illegal” expropriation by the previous government, forcing them to join the labour market (Bellisario, 2007:20-25). Today, much of the most productive land is owned by large-scale farmers, as the land distributed to campesinos, particularly under the Pinochet regime, was often marginal land in the hills on either side of the more fertile plains. (Kay, 1971; 1997a)

Under Pinochet land was also allocated to campesinos on a loan-repayment basis, and auctioned off to the highest bidder when loans were not repaid. This was the beginning of the re-concentration of land ownership heralded by authors such as Cristóbal Kay and Warwick Murray which, in addition to powerlessness against large agribusinesses, appears to be creating a new generation of land-less campesinos who increasingly rely on poorly-paid and seasonal labour to substitute their income (Kay, 1971; 1997a; Murray 1994; 2006). The Government of Chile increasingly plays a more active role in campesino agriculture and has

⁴ Casual labourers were also present, in addition to campesinos. They did not produce on a specific area of land, but subsisted on wages (often low wages) paid by the land-owner (Pilotti, 1979; Robles-Ortiz, 2009)

developed a series of agencies to assist all producers but also, specifically those with the smallest lands.

Government

Two government agencies, under the Ministry of Agriculture, are influential within the current framework of development in campesino agriculture. INDAP (El Instituto de Desarrollo Agropecuario, The Institute of Agricultural Development) is the national government agency for agricultural development. Its local-level subdivision, PRODESAL (Programa de Desarrollo Local, Programme for local Development), has a specific mandate to assist campesinos at the local level. They must have less than 5ha of basic irrigated land and no more than 20ha in total. (INDAP 2013)

PRODESAL

“[To]...improve agricultural production and livestock smallholder farmers, through the delivery of technical assistance and investment funds.” – Mission statement of PRODESAL (PRODESAL: 2013).

PRODESAL works throughout Chile at the local-government level, offering advice, grants, training and other extension services to small-scale farmers. Grants are given through a competition style development-funding programme in which eligible campesinos may submit a proposal for a development⁵ project on their farm. Winners are selected based on the funding availability and potential benefit of the projects. Funding (supplied by INDAP) is then granted up to a value of 95%, with the remainder being paid by the successful farmer.

Three productive groups are targeted by PRODESAL. The first are producers who are mainly engaged in subsistence farming, with little surplus for sale. The second are those who are “overcoming the stage of subsistence and livelihood agriculture”⁶ and who have higher surpluses to take to market. The final group are those who engage as a small business in formal markets. The underlying purpose of PRODESAL is to move people from subsistence agriculture towards these markets⁷. (PRODESAL, 2013)

⁵ Development is defined in this thesis as a change of positive value for the intended recipient.

⁶ Noting the wording of the second group, taken from the PRODESAL website, the view of campesino agriculture is explicitly negative, as something to be overcome.

⁷ The market being formal national and international markets

Geographical Issues

Climate variability, particularly precipitation variability is risk factor of the agricultural cycle of the Central Valley (Montecinos and Aceituno, 2002). Precipitation in the Bío-Bío region over the previous thirty years has ranged from 1800mm (1982) to 421mm (1998), averaging 1050mm (Meteorological Agency, 2012) caused by the El Niño Southern Oscillation (ESNO) (Montecinos and Aceituno, 2002:282; Muñoz et al., 2007; Muñoz, Arumí and Rivera, 2013:8; Rutllant and Fuenzalida, 1991). Precipitation is highly seasonal and in the summer months rainfall is rare. Likewise the snowpack depth of the Bío-Bío Andes which supplies much of the irrigation to the study area is variable coinciding with ESNO events, with a maximum snow-water-equivalent of over 2000mm in 1982 compared to less than 250mm in 1998 (Masiokas et al. 2006:6341). This water, in addition to supplying irrigation canals, also helps recharge ground water reserves (Muñoz, Arumí and Rivera, 2013).

Chile has a tradable Water Rights system with which users can feely buy, sell and own access to water (Bauer, 2004; Budds, 2004).

Guiding Concepts

Campesinos and farmers

Campesinos⁸ are primarily subsistence agriculturalists who may engage in the market and who are culturally tied to the land, whereas farmers can be seen as market-oriented non-subsistence agriculturalists, who usually own larger plots through which they gain income. There is also a degree of blurring between farmers and campesinos. It is recognised that many campesinos also engage (increasingly) in the market system and may have larger plots than average. According to INDAP and their sub-division PRODESAL, small-scale farms are

⁸ There is debate surrounding the correct term for campesinos or peasants in Latin American agriculture (Kearney 1996, Loker 1996). Loker (1996: 71) summarises that the translation of ‘campesino’ to ‘person of the land’ and subsequently “peasant” in English, hides numerous cultural factors and engagements in a variety of economic activities. He states that: “They often engage in diversified agriculture on relatively small farms.” Social characteristics caused by asset and income poverty include “dependence on household labour⁸...diverse production strategies...producing food crops for cash sale and home consumption...market-oriented cash crops...[and]...diverse income generating strategies on- and off-farm,” Loker (1996: 71-72). In contrast, the term peasant in English defines only that the person is a worker of the land and may or may not own a smallholding and does not denote any cultural associations. For these reasons I will utilise the term campesino.

farms with less than 20ha (hectares) of land and less than 5ha of irrigated land (INDAP 2013). Campesinos cannot be categorised by land size, but for this study all campesinos except one fall into this definition. Hence campesinos in this study will be denoted as those who have come from a tradition of subsistence agriculture, who engage in subsistence agriculture today (regardless of whether they produce for the market), and who have less than 20ha of land (see below). Those outside these definitions will be termed farmers, though where there are overlapping features this will become part of the discussion.

Medium - Large-scale farmers

According to a Food and Agriculture Organisation (FAO) Report (1996), Chilean agriculture is defined as 12ha for small scale farming, 13-199ha for medium and 200ha above classed as large scale. Due to the importance of government institutions in this study only farms above 20ha in size will be considered medium-scale, as defined by the Chilean government (INDAP 2013) 20ha (see above). As the definition of medium and large-scale farms is less critical to the study, the FAO (1996) report serves to define the latter. As none of the medium or large-scale farmers interviewed were borderline cases this was deemed a practical definition.

Poverty

Throughout this paper the term campesino will be used. Through his description that campesinos have asset and income poverty Loker (1996:71) accepts that most campesinos would fall within Chambers and Jiggins' (1987) definition of "Resource poor farmers". This term is used by Chambers and Jiggins to define the aspects which make campesinos poor. They include a lack of cash income, land, capital, access to resources such as credit, healthcare, education and other resources (Chambers and Jiggins, 1987; Loker, 1996:71). Poverty is not a clearly defined phenomenon, nor do I seek to provide a definitive insight into poverty, only that many of the campesinos interviewed do lack access to at least some resources and therefore literature surrounding these lacks in resources is applicable.

Methodology

Research Design

This research brings into discussion some of the aspects related to the complex area of risk-decision in peasant agriculture. It is illustrated using primary data from campesinos and farmers in the Central Valley of the Bío-Bío region of Chile. Theoretical analysis is conducted through literature, which guides the understanding of perceptions related to risk and production.

As such this research is qualitative in nature. It brings an abductive approach in that it attempts to produce redescriptions and understandings of the motives of the participants, through which the theoretical concepts may be explored (Buchanan and Bryman, 2009:439). It follows an iterative process whereby primary data was collected before theoretical study, to ensure a broad, open-minded approach to the perceptions of risk among participants. Subsequently, ideas formed through this process were engaged with theoretical discussion. The theoretical frames drawn out are thus applied to the empirical data collected to forge a deeper understanding of the research questions. This occurs through a series of three hypotheses, developed from the literature, which frame the analysis and the interplay between theory and primary data.

A social constructivist standpoint is applied to the analysis of primary data, outlined by Bryman (2008) and Burr (2003) who states that “social constructivism regards as the proper focus of our enquiry as the social practices engaged in by people, and their interactions with each other” (Burr, 2003:9). In this way it attempts not to uncover ‘truth’ but to seek to understand the diverse ways in which the social world is constructed according to different actors. This study is based in my comprehension of social constructs, as actor of comprehension in the research. The comprehension I shape will be influenced by my role as a non-native researcher with limited cultural and linguistic understanding, as outlined below.

Evaluation Criteria

Given the qualitative nature of this study it is important to recognise that data from respondents is subjective to their situation and also to my interpretation. Validating these results externally – that is to say generalising the findings across the social setting (LeCompte and Goetz in Bryman, 2008:376) – is not possible given the small number of participants in

the study, and will not be attempted. To improve internal validation of the empirical data attempts are made to triangulate the data through preliminary interviews and also through regular discussions with co-workers at the university (Bryman, 2008). All of these researchers are involved in agriculture and have strong links to farmers and campesinos in the region. In addition I use personal observations from interview locations, on transect walks and notes taken during the interview process.

I am aware that my personal social role within the interviews, as an 'educated' yet non-Spanish-speaking European male may distort the responses to my interviews through misunderstandings and mistrust of my intentions, among other unknowns. Participants may, for example, be unwilling to engage in certain topics with a perceived outsider. Having considered this situation attempts are made to improve the reliability of my interpretations through internally corroborated discussions with my native interpreters. This occurred after each interview, notes were taken to clarify our combined opinions and thus understandings. This is particularly important to clarify any mistranslations which may have misguided my perceptions.

Unit of Analysis:

Risk-decisions are taken as the unit of analysis. Risk decisions have both an individual value and purpose, though these values and purposes are subjective. Primarily this has been taken from theoretical literature surrounding risk decision, with a focus on peasant farming, but will include the risk-decisions of campesinos and farmers also.

Subjects of analysis:

Campesino and farmer household units are the subjects of analysis. Although each campesino or farmer is an individual, decisions are deemed to be placed in the context of the family, ecosystem and geographical context. The aspirations held and decisions taken thus may not be solely by the individual; they must be seen in the context of other family members who may be dependents or joint decision makers. As the participants of the primary data collection phase they are interviewed in private, where possible, using an interview guide (see appendix 1). Theoretical data from literature is illustrated by the primary data from subjects of analysis.

Data Collection and Analysis

Both secondary data in the form of theoretical literature, and primary data, in the form of interviews to illustrate the secondary data, were used to in the process of this study.

Secondary Data

As a theoretical discussion, the basis for the hypotheses is found in theories relating to secondary data sources in previous studies. Applicable data was located using a sifting process of relevant searches of academic literature and government documents. Government sources were used to establish background data such as climatic or government intervention strategies and statistical data. Triangulation of data was completed also using information gathered from agricultural researchers at the University of Concepción, my host university for the study.

Primary Data

Data was collected in the form of semi-structured interviews, outlined below, with participants chosen via a process of purposive sampling, as outlined by Bryman (2008:458). This sampling method was employed for two reasons: 1) due to the difficulty of obtaining farmers for interview, which lead to 2) the need to ensure that there was a good correspondence between the research question and the data (Bryman 2008).

Campeños were the primary subjects of the research though a small number of medium and large-scale farmers were engaged to broaden the perspective of risks in the area and to allow a better understanding of which risks are shared by all agriculturalists and which by only certain sectors. It was also for the purpose of exploring divergent aspirations between groups.

Observations

Observations were carried out throughout my time in Chile and included observations made while interviewing farmers, their home-situation, surroundings and – where possible – transects walks of their farms. It also included the quality of the irrigation network and other factors such as the size and location of farms and farm buildings. Observations were also taken in local markets where many farmers sell their produce in the Dry-Coastal and Valley-Plains study locations.

Site of Study

The Primary data collection took place in the region surrounding Chillán City, in three geographically distinct zones across the valley. The interview location was not seen as critical to the research design. The zones, defined by INDAP (see above), were selected for their geographical distinctions which may impact risks. They are described below. Research sites within each study zone were selected through the availability of participants. With the exception of one, interviews were conducted in clustered areas with farmers and campesinos in close proximity to improve the interpretation of socially constructed realities. The selection method is outlined below.

Map of study area and subject's farm locations.

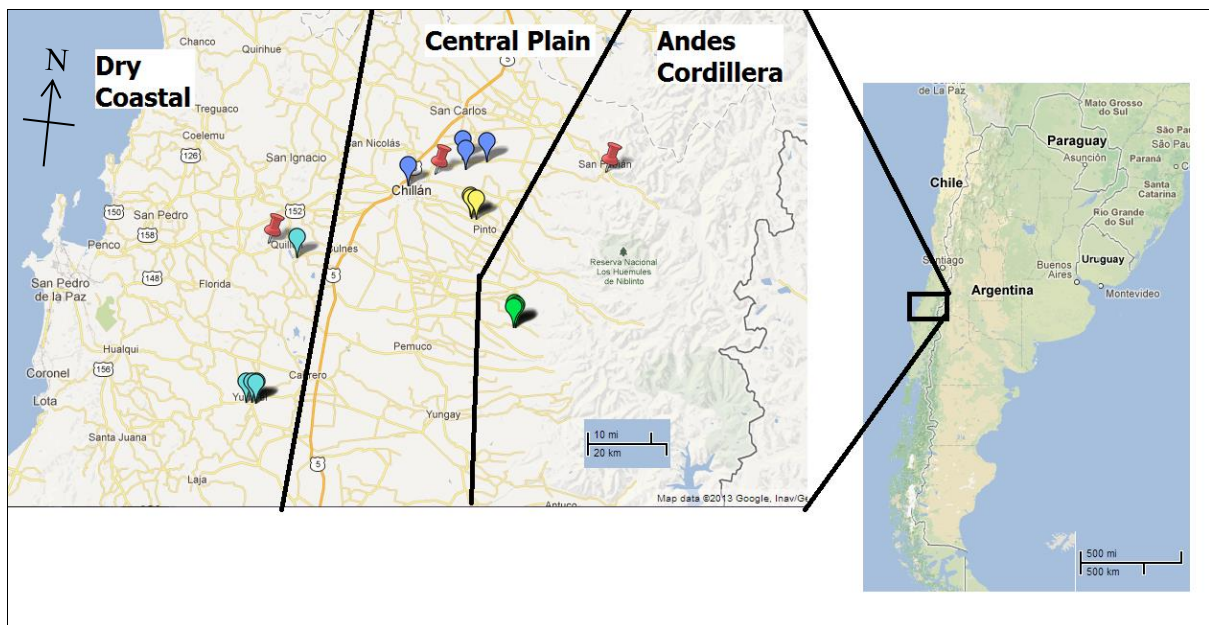


Figure 1: Map of interview locations and zones⁹. In the Central Plain the campesinos are denoted with three yellow pins, medium and large-scale farmers with blue pins. In the Andes Cordillera range both the campesinos and the farmers' lands are indicated with green pins. In the Dry Coastal zone three interviews with campesinos took place in the southern cluster of pale blue pins, the other pale blue pin denotes the medium scale farmer in the region. Black lines demark the approximate transition point between each microclimatic zone, outlined below. (Source: Google, 2013)

Interview sites and participant selection

Three zones were selected from INDAP (2013) who identify each as geographically distinct in terms of micro-climatic and topographic factors which may influence agriculture.

⁹ Where interviews did not occur on the farm itself the approximate location is shown, taken from the interview data.

Zone 1- Andes Cordillera (A)

Two campesinos and two farmers¹⁰ were interviewed. All participants were located in the same village. All contacts were made through a gate-keeper at the university and, subsequently through his contacts in the village. One further campesino declined the pre-arranged interview citing other business to attend to.

Zone 2 – Central Valley Plain (V)

Seven interviews were conducted, including one medium-scale and three large scale farmers, often on adjoining land and contacted through a consultant at a private agricultural company. Three campesinos were also interviewed, obtained through the local government PRODESAL office.

Zone 3-Dry Coastal (C)

Four campesinos were contacted though one was not present at the scheduled time and no other arrangements could be made. All three remaining participant campesinas¹¹ were female and were engaged in trade at the local market stalls, where two of the interviews took place. These interviews were obtained through organic farming Civil Society Organisation known as CET (Centro de Educación y Tecnología). A further medium-scale farmer participated, organised through a contact at the university.

In total fifteen interviews took place. Interviews were carried out between September and November 2012. Ideally the research would have included more than ten interviews with campesinos in each zone as this would have improved the generalisability of the data, though this was not possible due to time and contact limitations.

Interview Process

Preliminary Interviews

Two preliminary interviews were also conducted prior to the formal interview process with an organic farmer in the Valley Plains zone and a researcher from the University of Concepción. These interviews were designed to inform my future interview guide through acquisition of the correct terminology, local issues and other factors which were important to comprehend as a relative outsider to Chilean agriculture. Particular attention was focussed on

¹⁰ One farmer identified as a campesino, which will be discussed below

¹¹ Campesinas is the plural female form of campesinos (which denotes either a mixed or wholly male group).

structure of the market systems and cultural aspects relating to interviews. Both of these participants spoke English so a translator was not required.

Formal Interviews

Interviews were conducted with the help of an interpreter and recorded. Discussions were based on an interview guide. Each interview was to last approximately between 30 minutes and one hour. The interviews were conducted at a site convenient to the participant, which was usually their home or a field. This was due to the fact that to secure an interview with a campesinos and farmers was incredibly difficult during working hours. Interviews were thus conducted in a location both convenient and comfortable and chosen participants.

Interviews focussed on four aspects. Initial questions related to the type of agriculture employed, demographic and technical questions such as farm size, dependents and crops grown. The second group related to aspirations and were purposefully open to interpretation of the word 'aspirations' as this was thought to be indicative of the decision process entered by producers. The third group related to risks and the market, harvesting and other factors. The final group of questions related to the future investments planned. This was designed to round off the interview by bring aspirations back into focus in the new environment having discussed perceptions of risks and the farm. Questions generally followed the same order, but as the interviews were semi-structured there was a degree of flexibility as I attempted to follow participants thought paths (Bryman, 2008). All major points in interviews were transcribed with the help of interpreters. In one case the entire interview was transcribed using a separate interpreter as I was unsure of the quality of the interpretation given during the interview.

Interpreters

Four interpreters were used. Each was chosen primarily by availability and linguistic ability. Though one interpreter would have been beneficial to forge an understanding relationship with the research, it was not possible with the contacts available and the necessity of day-time research¹². Three of the interpreters were students and one a professor of the host university.

The first interpreter, an engineering student, took a relatively deductive standpoint to interpreting the questions. His method was to summarise responses rather than interpret the

¹² Interviews were not possible in the evening due to the difficulty of finding locations and arranging phone calls through gate-keepers, who I could only contact during the day. This is addition to the fact that participants generally arranged a time suitable for themselves, which was invariably during the day time.

speech. He was used for the first two interviews only as he failed to interpret important information relating to why a participant was upset.

Two of the interpreters were English-Teaching students. They were female and took a more inductive approach to the research questions, occasionally posing appropriate additions to elicit further response when they believed necessary. This helped make a smoother interview process. They were used for the majority of the interviews.

The final interpreter was a professor of the university and his approach was deductive in nature, his interpretations gave clear logic and reasoning to the responses elicited. He occasionally cut short responses, believing he had summarised the point well, though, as I understand some Spanish, I was able to pick up on important points and ask him to expand upon these points when necessary.

Ethical Considerations

When organising interviews I ensured that prospective participants were informed of the research purpose so participants were aware of the goals and areas of investigation. Before each interview, I again explained the research in more detail and asked if they had any questions. I did not start any interview if I felt there was doubt as to their understanding of my work. I made sure participants were aware that the interview was confidential and real names would not be used. They were aware that I was from a Swedish University, not affiliated with my host university, the Government of Chile or its departments. I became aware however that many of my contacts through PRODESAL could have inferred my affiliation to the organisation. This incorporates a number of issues of potential bias, as campesinos were likely to have been beneficiaries of PRODESAL's development projects and may feel obliged to promote them. Once aware of this issue I ensured that those who may affiliate me with government research were noted in my research diary.

Coding of respondents:

Farmers were coded to ensure confidentiality, but also to allow quick reference to their situation. For the purposes of easy recognition I have given each of the interviewees a pseudonym, reflecting their gender. This is followed by a two letter code, which denotes the zone and the size of the farm.

The first letter of participant code refers to the location: Andes Cordillera (A), Valley Plains (V) or Dry-coastal (C). The second letter corresponds to the size of the farm: Large (L) over 200ha, Medium (M) 21-199ha, Small (S) less than 20ha. (See definitions above)

Gender

Efforts were made to include both male and female farmers in the interview process. It was noted that in the dry-coastal zone, where majority of interviews were selected through one a contact who deals with PRODESAL, the farmers available for interview were all female and all took part in the PRODESAL-organised market stalls. Only one other participant, Maria, a large-scale farmer, was female. There is no specific gender focus of this research, though its relevance is not discounted. Through the host organisation and colleagues, I understood that there may be a cultural propensity to hide negative perceptions of oneself, especially among men¹³. This was widely purported to be part of the *machismo* culture notable in Chile. Being aware of this was important in interview process as it forms an important aspect of perceptions and which responses may require more detailed analysis.

Discussion methodology

The discussion is based in the analysis of hypotheses. These have been developed through the iterative approach taken; construction of the theoretical framework developed initially from empirical data collection in the field. They are proposed in order to guide analysis of how these frameworks can be understood in the context of Chilean campesinos, with illustration from the primary data.

The initial stage of the discussion will be to debate the merits of theoretical arguments of risk decision and campesino agriculture. The data provided from the interviews forms the second part of the research, where perceptions of risks and personal aspirations are analysed in relation to each other and also to the theoretical framework. This aspect of the research is brought to the discussion where relevant to provide a real-world situation to the debate. The hypotheses set out above will be analysed in relation to the theoretical frame and analysis of the data.

¹³ An important example of this was flagged while conducting other work for the host organisation, where two men responded to a multiple choice questionnaire reflecting their leadership abilities. Self-scoring from 1-7 (seven being 'most like me'). Though not all the questions posed a positive impression if one were to answer "7", both men marked nearly every category with this number, believing it represented them as strong. When I asked a colleague they responded "...it's not a good idea to directly ask a man an opinion about himself."

Interviews with large-scale farmers are used to illustrate differences and similarities in the risk-decision rational of farmers and their respective aspirations. This is particularly important to the discussion of the theory of risk adversity among campesinos as it may (or may not) highlight potential divergence of perceptions based on economic or cultural outlook. In addition similar decisions and aspirations may also highlight interesting and important aspects in the nature of risk-decision based on economic and cultural factors.

The discussion will be able to bring specific examples to the discussion, but cannot, due to its scale, attempt generalisations about the nature of risk-decisions among campesinos in Chile. Instead it seeks to provide a credible set of examples through which the impact of aspirations on risks can be better understood. An outline of the analytical themes linking the Methodology to the Theoretical Framework can be found in appendix 2.

Theoretical Framework

This section is informed by themes and elements of the primary data collected in the field. It is constructed to form an analytical frame for discussion of perceptions of agricultural risk and the interpretive power it may have in debates surrounding the future of campesino agriculture.

Agricultural Risk

To understand some of the complexity of risk-decisions in agriculture it is important to define some the most important risk factors. Below are summarised extracts from Moschini and Hennesy (2001) to set out the broad terms which define uncertainty in agricultural production and will be referred to throughout this research:

Production Uncertainty – The amount of output from a given number of inputs is uncertain. It refers to uncontrollable factors impacting production such as the weather and biological processes.

Price Uncertainty – Production uncertainty and a lag between decision (planting) and known final price (after harvesting) cause price uncertainty. In addition, fluctuations in demand can cause price shocks, especially when dealing with the export market.

Technological Uncertainty – the appearance of technologies which serve to increase the competitiveness of producers is an unquantifiable and hence random knowledge development process.

Policy Uncertainty – Exchange rates, interest rates, taxes and regulations are examples leading to uncertainty in the agricultural sector. In addition, the direct interventions which many governments employ for a variety of reasons causes uncertainty as policies may change.

(Moschini and Hennesy 2001: 89-90)

Moschini and Hennesy (2001) describe risk and uncertainty as ubiquitous. For clarification, uncertainty can be seen as situation of not knowing an outcome; a risk has the added dimension that a decision must be made under uncertain conditions. Many of the above terms overlap and indeed some exist for the purpose of reducing risks from others. Government policies may, for example, try to influence price uncertainty through imposing taxes on imports. Likewise, technology is often utilised to reduce production uncertainties through irrigation, for example, which in turn will influence prices; thus creating the complex world of agricultural risks. Moschini and Hennesy (2001)

The Theory of the Optimising Peasant

Lipton's 1968 Theory of the Optimising Peasant issued a challenge to a contemporary theorist Theodore Shultz' "efficient-but-poor" hypothesis in *Transforming Traditional Agriculture* (1964). This was one of the earliest pieces of economic theory to claim that, far from being irrational and inefficient, peasant farmers¹⁴ were actually remarkably efficient, though they remained poor (Dhindsa and Sharma 2001:222, Shultz 1964, Lipton 1968).

Lipton does not deny this notion, but rejects the hypothesis on the grounds that Shultz work is based in the theory that each peasant farmer maximises his/her utility¹⁵ and therefore prevents inefficiency, known as employing the "Marginal Value-Product of Money Equation" (MVPE) (Lipton 1968:329). Lipton claims that achieving the up to the MVPE would be

¹⁴ Discussions in economic theory surround the issue of peasant farmers. This thesis accepts that, though culturally distinct, campesinos form a group off peasant farmers and thus discussion in relation to peasant farmers is applicable.

¹⁵ The value of production

impossible in reality because peasants have multiple uncertainties to contend with. Hence they must lower their marginal utility and concentrate on a “safety-first” approach of meeting a minimum. The following factors outlined by Lipton dismiss the principle of efficiency maximisation through marginal-production calculation as overly simplistic in the real world:

- Peasants may not be efficient but poor because they have to contend with production uncertainty such as rainfall variation. They have to contend with probabilities which will reduce their efficiency.
- To contend with uncertainty MVPE is possible, but not optimal (due to the risk of loss). Hence a “Risk Premium” is applied by farmers to mitigate risk of serious ill-effects such as malnutrition related to crop losses.
- Even without production uncertainty there will be price uncertainty in the market. Thus utility maximisation is nearly impossible as the final price of optional crops will not be known until harvest.
- Even under certainty of both production and price uncertainty there will be cultural factors which dictate crop choices, sowing patterns, labour supply and other factors.
- Different peasant farmers have learnt to utilise their own methods of production which fit their abilities, knowledge and skills. There is no single fixed MVPE.
- Other burdens such as debts are not taken into account, which may necessitate selling below the optimal price to service the debt.

(Lipton 1968:329-332)

Shultz’ theory is based on the economic principle of Perfect Competition, which in reality does not exist. Instead, Lipton claims that peasant farmers optimise their production based on their needs and their insecurities in order to ensure optimum production. They are likely to be risk averse against loss and base their production on a survival first policy (Lipton, 1968).

The Peasant Economy Continuum

Campesinistas and Decampmesinistas

The debate about the future of campesinos can be broadly split into two schools of thought – *Campesinistas* and *Decampmesinistas* (Murray 2006:648). In the former the view taken is that capitalism will not bring about the demise of the peasant economy and hence peasant livelihoods. This is exemplified by the early 20th Century works of Chayanov (Chayanov, 1966; Chayanov 1974 in Bernstein, 2009). Conversely, decampmesinistas suggest that the

spread and expansion of capitalism renders peasant agriculture uncompetitive, eroding the peasant economy and hence leaves peasants vulnerable to exploitation by large-scale agricultural farms (Murray 2006). This debate is particularly pertinent to the future of campesinos in Chile. With a history of neoliberal policies, Chilean campesinos have become an example for both sides of the debate. In the middle ground there are also theories of how to interpret the current situation of campesinos in the capitalist system. Some interpretations offer solutions to the perceived problem. The neo-structuralist approach, outlined below, is one of these solutions. Championed by some scholars (Kay, 2002; Kirkby, 2009; Sunkel, 1993), it typifies this balance and has become prevalent in Chilean Government policies in recent years. It has been criticised by authors such as Warwick Murray as perpetuating the export-oriented neoliberal paradigm which undermines the peasant economy (Murray 2006, Murray and Overton 2011).

Murray also proposes the theory of the Peasant Economy being on a linear *continuum*, placing these two dichotomies at either end of a linear scale, thus encapsulating the wide spectrum of realities within the current campesino system in Chile (Murray 2006:648). An explanation of the two dichotomies follows.

Campesinistas

Chayanov's development of Peasant Economy in 1924 is an example of the campesinista school of thought (Bernstein, 2009; Murray, 2006). His work, translated into English in 1966, is still taken as a founding principle of peasant economy and its differentiation from capitalist agricultural theory (Bernstein, 2009; Millar, 1970). Chayanov developed four principles of the peasant economy: 1) That they typically only employed family hence the term "family-labour farm", 2) that the intensity of workload was related to the ratio of working to non-working family members, 3) that farm size was corresponded to family size as families grew and shrank, not to economic success, and 4) that family labour farms could both survive and succeed against capitalist farms (Millar, 1970). He also took the view that peasants were not capitalists seeking profit but workers sustaining themselves, and that it was impossible to measure these profits as labour was auto-applied and profits (production) were mainly auto-consumed (Chayanov, 1966; Millar 1970). Peasants were distinct from capitalism, formed into unique family units of economic production (Chayanov, 1966). In this vein it is possible to view campesino agriculture as free from the capitalist system in Chile, surviving on family labour for economic autonomy. Authors such as Hayami (1996) describe how peasant

agriculture may also incorporate in capitalist system, stating that in every nation's agricultural export economy it is possible to find peasant farmers engaging and succeeding in the production. This is ostensibly due to the benefits of the "family-labour farm" described by Chayanov, reducing costs relative to capitalist farmers by self-exploitation (Chayanov, 1966; Hayami, 1996).

Decampmesinistas

In contrast, Murray (2006) points to the drive of capitalism to create economic growth, not to reduce inequality. He states that due to a myriad of factors peasants increasingly become servants to the capitalist system, and that a form of depeasantisation is occurring. In the case of Chile, in recent years (1990-2000) he points to the loss of land, described as "re-concentration", which has led to a marginalisation of campesinos. This had led to an increased reliance on employment on large-scale farms, which is often seasonal and genderised (where women are preferred for fruit picking (Kay, 2002)). This, he claims, has led to proletarianisation. In addition, those who retain their land are often controlled by large agribusinesses which control the supply chain of produce (Murray, 2006; Murray and Overton, 2011). These fears are echoed by Kay (2002) and are exemplifications of Lenin's principles for the transition of the Russian Peasantry in Marxist Russia, whereby Lenin hoped to turn a polymorphic peasantry into socialised large-scale farming sector (Bernstein, 2009). This was to be achieved through a capitalistic transition via the encouraging of rich capitalist peasants to dominate production, creating a proletarianised peasantry from the smaller, less competitive farms (Bernstein, 2009).

The Peasant Economy Continuum theory thus depends on the ability of (and extent to which) capitalist farmers and markets to dominate peasant agriculture. Given that decampmesinistas are concerned with proletarianisation through land control and or unstable labour markets, the continuum equally depends on the abilities of campesinos to retain their independence through risk management. Where a campesinos lies on this continuum thus depends on the level of independence he/she has from the capitalist market and hence their reliance upon it. This level of independence is likely to depend, in some cases, on the time of year, as off-farm income opportunities vary seasonally and by location (Bee and Vogel, 1997; Echeverría et al, 2009; Kay, 1997).

Neo-Structuralism

Neo-structuralism descends from the structuralist views held by international organisations such as the UN Economic commission for Latin America (CEPAL) throughout the 1950s and 60s (Kirby, 2009). The principles behind structuralism were policies of state control of economic systems such as trade and attempts to tackle inequality through industrialisation processes and international exports (Kirby, 2009; Love, 2005). In the wake of a new age neoliberalism encouraged by the World Bank, structuralism lost favour to market forces and trade liberalisation (Kirby, 2009). Today a new phase of neo-structuralism is taking shape. It is focussed again on state mediation in areas left behind by trade liberalisation (Love, 2005). The Campesinos are one such area. Neo-structuralism thus attempts to assist campesino agriculture through government policies, improving access to appropriate modern technologies and practices (Kay, 2002; Gwynne and Kay, 2000). This is known as Modernisation Theory.

Modernisation

Modernisation defines the act of transitioning to from the old, or traditional to the more modern and typically advanced. In a development context Modernisation Theory can refer to the 1950s and 60s rationale of economic and social development of what was then termed the Third-World (Ploeg et al., 2000). As with structuralism this too has undergone a transformation towards a more bottom-up approach (Kay, 2002; Ploeg et al., 2000). Scholars such as Kay (2002) still define the term within neo-structuralist agricultural development theory as government-led assistance to modernise peasant agriculture. As a caveat, however, Kay (2002) emphasises the need to use site-specific, sustainable tools and technologies in Chile, rather than the broad sweeping revolutions of post war Europe and the Green Revolution (Hardeman and Jochemsen, 2012; Horlings and Marsden, 2011; Ploeg et al., 2000).

Summary

This research seeks to analyse theories pertaining to campesino risk decisions in the wider and draw examples from detailed interviews in the study area. The research will draw on historical and cultural factors, which are viewed as important in influencing aspirations and motivations for risk-seeking or risk-aversion. It will also draw on major influences on risks in the region's agriculture – climate and the market.

Discussion

Hypothesis 1

Theories of risk decision will apply to the Theory of the Optimising Peasant

This section sets out a largely theoretical analysis relating to risk which will be illustrated with empirical study data throughout the proceeding sections.

Lipton states that in contrast to the perfect competition modelled “Efficient-but-Poor” hypothesis postulated by Shultz (1964), producers also have to contend with production and price uncertainties. Under this uncertainty the Marginal Value of Productivity¹⁶ (MYPE) which reinforces Shultz’ argument is possible, but not optimal, due to the risk of loss (Lipton, 1968). A “Risk Premium” would be required, with the risk being formidable (crop losses, food shortages) if there is failure. A risk-decision is thus employed to *optimise* productivity, producing below the maximum, but doing so securely (Lipton, 1968; Moschini and Hennesy, 2001). Exploring how risk decisions are taken is important to understanding the optimisations strategy proposed.

Empirical research from a wide variety of disciplines has shown that humans have a complex relationship with risk-decision-making (Clarke, 1980; Dhindsa and Sharma, 2001; Diecidue and Van der Ven, 2008; Festinger, 1942; 1954; Friedman and Savage, 1948; Kuhl, 1978; Henrich and McElreath, 2002; Kahneman and Tversky, 1979). Many of the current and established theories point to the fact that humans are not entirely rational in behaviour as they must contend with multiple influences. People are often risk averse, especially in the face of poverty (Clarke, 1980; Diecidue and Van der Ven, 2008; Kahneman and Tversky, 1979; Lipton, 1968) and that risks-decisions are based highly, in addition to possibility of success, on aspirations (Festinger, 1942; 1954; Quagila and Cobb, 1996).

Risk Theory

Risk decision began to be formalised by Milton Friedman and Leonard J. Savage in 1948. Expected Utility (EU) Theory became the benchmark for studies surrounding risk decisions.

¹⁶ An economic principle which states that producers will maximise production until the marginal value of each extra product reaches the cost of production

It states that an individual will make a decision to receive the best possible outcome from a given number of options, according to their expected value, multiplied by the probability of it occurring (Friedman and Savage, 1948; Mongin, 1997). Mongin (1997) summarises many of the subsequent studies which outlined the need for subjective perceptions of probability and utility.

Prospect Theory (PT) attempts to categorise this, showing that some pervasive behavioural traits are not entirely rational. Kahneman and Tversky (1979) state that “...people underweight outcomes which are probable in comparison with outcomes which are obtained with certainty,” – implying that people are risk averse given the choice.

This offers empirical evidence to show that decision makers are likely to *overweight*¹⁷ the probability of a negative event occurring, that is, they perceive it as more likely to occur than in reality it would; this is particularly the case in situations of poverty¹⁸ (Diecidue and Van der Ven 2008, Henrich and McElreath 2002, Kahneman and Tversky 1979). This conforms to PT’s insurance against loss principles and hence both support OP Theory as a predictor of peasant strategies.

Conversely, individuals were found to *underweight* highly probable situations (Kahneman and Tversky 1979); thus not detracting from OP Theory which states that peasants will avoid risk based on uncertainty. However it adds that optimisation may be perceived at a level below the actual optimum level according to risk calculation alone. Thus perceptions of risk are as, if not more, important than the actual risk level when decision are made.

Kahneman and Tversky (1979) also show that individuals will underweight their chance of achieving the maximum and settle for less, but will overweight their chances of retaining their current situation. This appears to conflict with OP Theory as it supposes that peasants would be more likely to risk a loss than the same amount of gain. However, this depends on the relative value of loss and gain, hence context and perception is again important.

OP Theory suggests that peasant optimisers will be averse to risky decisions when given the alternative of lower risk, with lower utility but better chance. Risk theories support this, but suggest that it remains dependent upon the severity of loss to be made (Diecidue and Van der

¹⁷ *Weighting* refers to the perceived chance of the action occurring. Underweighting would show a reduced perceived chance of occurrence relative to the probability, overweighting shows the opposite

¹⁸ This does not suggest that campesinos are necessarily in poverty only that losses may lead to an economically impoverished situation.

Ven, 2008; Henrich and McElreath, 2002; Kahneman and Tversky, 1979). Hence it should be the case that campesinos will protect their absolute minimum level more than subsequent losses.

The utility of an outcome may change depending on a number of factors, notably its relative scarcity. Henrich and McElreath (2002:172) demonstrate *decreasing marginal utility*¹⁹ is influential in the decision making process of peasant farmers. This is more pronounced when farmers are concerned with meeting a minimum income with certainty, than achieving the maximum, stating that "...they give greater values to initial gains than subsequent gains." (Henrich and McElreath, 2002:172). This conforms to OP Theory, relating to risk and highlights the issue of aspiration, claiming that peasants aspire to a minimum level of production and that added production is decreasingly pursued. An example of this is that extra (marginal) production may involve shifting production patterns or increasing initial costs, hence involving more risk of loss. A campesino seeking to meet a minimum would thus be more inclined to remain risk-averse. In contrast, farmers – as profit maximising producers – are more likely to pursue marginal productivity in order to maximise yields. As non-auto-consumers they are likely to be more motivated by yield maximisation as they severity of the loss, described above, will hinge largely on their productivity.

Spears (2012) suggests that there is a link between poverty and risk decisions, showing evidence that the economically disadvantaged take riskier decisions on the basis of simplicity, rather than most advantageous outcome value, or utility. This is suggested to be due to the fact that more complex risk, despite reducing the chances of failure or maximising returns, represent "compound risks" – to which those already facing many compounding layers of poverty may be averse to (Spears, 2012). When applying this to campesinos through OP Theory, this will reduce the productivity of the farm and gives weight to the 'safety-first' principle of risk minimisation outlined by Lipton (1968).

Aspirations and Risks

"Aspirations are often the determining factor of risk decisions". Kahneman and Tversky (1979:273)

Aspirations are a key factor in determining risk choices (Henrich and McElreath, 2002; Diecidue and Van der Ven, 2008; and Kahneman and Tversky, 1979:273). Yet PT and EU

¹⁹ This is the principle that as you acquire more of something each additional item will be worth marginally less.

theories do not account for the complexity of aspiration, only for utility or value. Diecidue and Van der Ven (2008) suggest that where an aspiration may be lost, a risk-averse decision will be made in order to preserve it. However, as the following research shows, aspirations are partly a social construction and must be considered as such.

Clarke (1980) describes risks not as uncertainty of outcome, but as "...a perceived inability to cope satisfactorily with the world around us." He continues by stating that risks are "...a problem of identifying and carrying out the actions which will change the rules of the game so that the game becomes more to our liking" (Clarke 1980:287).

Level of aspirations can be defined as "the task-specific assessment of the degree to which an individual hopes to perform" (Quagila and Cobb, 1996:130). Hoppe (1976) explains that aspirations shift and change with achievement, they are not static. In addition, the theory of Social Comparison, developed by Festinger, describes the significant impact of social situation on aspirational level (Festinger, 1942; 1954). Under this theory individuals will feel success relatively to their peers (Festinger, 1942), where "members of a group will strive to do well, but only proximally better to the other members of the group," (Collier 1994 in Quagila and Cobb, 1996:130). This is an important factor. The question of who campesinos categorise as their "group" will, by this definition, determine aspiration levels and hence may influence their risk decisions.

We can thus see that aspirations may evolve through time and with achievement, but will remain influenced by social context, as will be discussed in the next section. This study accepts that aspirations are also influenced by factors such as the impact of previous successes and failures and personality traits (Festinger, 1942). It also asserts that a strong aspect of socially constructed non-static influences such as the performance of others will also impact aspiration level. OP Theory could therefore also be expanded to incorporate that risk decisions are based on aspirations and that aspirations are not purely economic – avoiding loss, seeking gain – but involve a range of social parameters.

Given that the Theory of Social Comparison suggests that individuals have aspirations based slightly above their group average then it is logical to assume that the inverse, they have aspirations to avoid losing relative social standing, is also true. This creates a decision paradox where there is aspiration to gain set against aspiration not to lose. Risk-decision could then be the solution to this conundrum.

As risk-decision theories state, decision-makers are nominally more risk averse against loss than towards gain. The result would thus be that aspirations of gain are more likely to be out-competed by loss-averse decisions. Thus, risk-aversion is reinforced within the group by a cycle of risk-averse behaviour which moderates aspirations towards the average. This is not to say that there will be a perpetual cycle of risk-aversion, but that high-stake risks are more likely to be avoided in favour of moderate gains, hence stabilising the group situation. This combines two assumptions: 1) that individuals are within a closed group with few outside influences, which of course is rarely, if ever, the case, 2) that the perceived risks are equal amongst all members of the group, which is also unlikely. Taking these situations away it is likely that outside influences might alter aspiration levels. Unequal risks and unequal situations are likely to be a driver of positive risk-decisions as group members aspire to keep to the social norm, but that this will be tempered once aspirations have been met. The proposal is thus that risk-aversion and aspiration work together to promote achievement of marginal gains, while reducing exposure to loss, hence stabilising the aspirations within a group. It is important to add, however that the risk of *catastrophic loss*²⁰ (Lipton, 1968) can be seen as the bottom line of risk aversion which must be avoided by all. This suggests that while Lipton's OP Theory is largely enlightening and relevant to this study in its hypothesis that peasants are risk optimisers, it may also be realistic to view campesinos as risk stabilisers.

Hypothesis 2a

Evidence from data collected will support the Theory of the Optimising Peasant and will highlight areas in which individual campesinos are vulnerable to risk by demonstrating that

- **Campesinos engage in risk-averse behaviour due to perceptions of production and price uncertainties**

In this section examples from the primary data will be brought to illustrate the theory through perceptions of risk.

Price Uncertainties

OP Theory states that campesinos will engage in risk-averse behaviour predominantly due to productive and price uncertainties (Lipton, 1968).

²⁰ Catastrophic loss involves the loss of a peasant's means of subsistence, for example – crops for household consumption

In the Valley Plain zone, campesinos have larger plots than those interviewed in other zones, at around 20ha each. They are also more engaged with the market, which exposes to greater price uncertainties. As OP Theory suggests, José-VS takes measures to limit risk by diversifying his crop. Diversification reduces José's maximum potential income as monoculturing would provide better economies of scale²¹ hence decreasing costs by increasing land efficiency (Marx in Binswanger and Elgin, 1998:319). He states explicitly that he diversifies because he has two children to provide for. “[Diversifying]...makes it [income] more stable as we don't know what the prices are going to be. The mill dictates the price of the wheat...What is expensive is reliance on pesticides,” (José-VS). That José was not explicitly asked about pesticides is also important. He equates price uncertainty and his response to it not only with crops prices but also with inputs. I believe both of these factors heightened José's risk-adversity and his aversion to maximise production, due to the perceived risk of not having enough for his family, a subject he referred to twice.

The three interviewed campesinos of the plain each referred more frequently to risks of price uncertainty than the other interviewed campesinos, their responses being more similar to the interviewed farmers. They appear to have similar preconditions for their risk perceptions. First, they all have water rights granting access to irrigation canals, which cost little except for maintenance, this reduces production uncertainties. Second, their greater land area provides them with a greater possibility to grow crops for the market. This appears to expose them to different risks than campesinos in the cordillera and coastal zones, and similar risks to their neighbouring farmers. Though, unlike the farmers, José's strategy was common amongst all campesinos, regardless of land area. José and the other valley campesinos appear to adopt regular farming techniques and the risks with them, but retain a number of traditional campesino techniques which limit their risk exposure such as auto-consumption and crop diversity, which they are all reluctant to give up. However, I believe their reluctance to stop diversifying is based nearly entirely in the need to minimise risk, not retain culture. As José-AS said “If you guaranteed me a price for wheat, I would just produce that every year.”

²¹ Economies of Scale refers to the decreasing cost of production per unit as production increases.

Risky Risk Minimisation

Tomás-VS (19.5ha) applied a different strategy to José. Growing three market-oriented crops: wheat, maize and alfalfa²², in addition to crops for home consumption and a herd of 15 cows with 3 working horses. His is the only income for his family of four.

Despite winning a PRODESAL project to subsidise 3ha of alfalfa the agency did not have the funds to complete the project. Tomás decided to fund the project himself with only their technical support. He does not say how much he invested in alfalfa to feed his animals through winter, though he says it is “substantial”. His decision to continue is risky by his own admission, though he has reduced the investment by half to 1.5ha. His decision was primarily due to price fluctuation of alfalfa (a concern shared by neighbour Nicolás-VS – who is also starting to grow alfalfa through PRODESAL, and has received the funding). In effect, though risky, it is more of a risk minimising decision, as is Nicolás’ decision to do the same, though Nicolás’ decision appears to be more risk averse due to his subsidy. These decisions highlighted to me that controlling risks were paramount for campesinos in the area. A high risk strategy such as Tomás infers an urgency to minimise risk, also backed up by José’s statement about monoculturing his land (above). Tomás rarely mentions his low production risks, concentrating on controlling price.

This decision shows a risk-taking tendency beyond that expected by OP Theory. “The investment costs were high, he says, but PRODESAL thought it would be a worthwhile project so I decided to go for it,” (Tomás-VS). His investment is indicative of Diecidue and Van der Ven (2008) who state that the closer all possible outcomes are to the aspiration desired, the less risk-averse a person becomes (Diecidue and Van der Ven, 2008: 684). His aspirations are based in his desire for a new house for his family on the farm. This would require the farm to first be secure, but also productive.

It is also perhaps indicative of Festinger (1942), as his aspiration to complete the project appears to have been influenced by his trusted associate in PRODESAL and, potentially by the fact that his neighbour was pursuing the same project, hence adding the influence of social comparison to the decision. Tomás-VS demonstrates risk-seeking behaviour in pursuit of an aspiration to reduce or stabilise his highest perceived risks (price-uncertainties) in the future.

²² Alfalfa is a crop primarily grown to use as fodder (feed) for animals.

Similarly, Carlos-AS describes the highly risky decision to establish a strawberry crop three years ago. Frustrated with low wage labouring he aspired to get a loan from INDAP to plant and irrigate strawberries in the cordillera zone. After two rejections he now has 0.5ha of strawberries. When asked if he wants more (he has 1ha in total), he says no. He wants just one hectare (he produces his subsistence crops on the other half) but he wants to invest in some facilities to store the fruit – an aspiration for increased security – which will secure income for his family (Carlos-AS). His risk-taking behaviour to grow a new export crop, with volatile prices in a zone with unpredictable frost is not characteristic of OP Theory. When asked why he took the risk he states that he was a labourer on a large farm, but the pay was low and the conditions were bad, describing the poverty and the low self-esteem he and his family endured.

He accepted one hectare of family land and attempted to secure “enough” income from strawberries (Carlos-AS). He explains that had nothing to lose, emphasising that “I never wake up and don’t want to work on my own land,” (Carlos-AS). Clearly his story is based in his aspiration to become de-proletarianised. It is clear that Carlos perceives his recent life as a success, but is less eager to discuss the debt to INDAP, which I believe is one of the driving factors of his risk-averse behaviour since he received the funding. Many of the campesinos briefly mentioned their debts, but were reluctant to discuss, this was also true for the farmers. Carlos shows a number of risk-averse tendencies. He engages with a simplified contract, after experimenting with two different complex ones, suggesting a form of compound-risk aversion described by Spears (2002). His aim, he says, is to achieve a stable, rather than increased income.

This stability seeking aspiration was typical of all the interviewed campesinos, but not of the farmers, despite their equal propensity for debt. His story showcases that aspirations have great importance within decisions, perhaps more than OP Theory accounts for. He also showcases that those who perceive that they have little to lose have everything to gain through high-risk strategies, whereas the same person, with something to lose, will minimise losses and have economically reduced aspirations.

Production Uncertainties

With regard to production uncertainties, particularly climate, the most notable concerns were in the Cordillera region, where campesinos were concerned with water storage and the impact

of frost damage. This concern was also shared by José-VS, who was concerned with planting late enough to avoid frost, but early enough to avoid drought. His solution was to plant his crops two weeks apart, so one crop was more at risk of frost and one more of drought (José-VS). This risk-aversion indeed optimised production, as he was more certain of getting at least 50% of his crop through this method, but could also achieve a full crop given the right conditions. It shows that diversification can also be within crops, not just between them.

Campesinos in the study appeared to pursue a mixture of risk reducing strategies, especially in relation to price uncertainties where water is less scarce and land is larger and to production uncertainty where water is scarcer. The most prevalent risk-reduction strategy, auto-production, was never explicitly viewed as such, but all campesinos engaged in it. It was regarded more of a way of life, something that couldn't be removed, something many campesinos actively enjoyed and were proud of, not because it was a risk-minimising measure. Some of the strategies involved high short-term risk with the prospect of reducing long term risk, an understandable phenomenon not outlined by OP Theory, but perhaps highlighting the perceived pressures of the market.

Hypothesis 2b

- **Aspirations are based in meeting minimum requirements due to the risk of reduced standard of living from risky ventures.**

Many of the campesinos interviewed showed OP Theory supporting aspirations relating to risk minimisation and optimising production to meet minimum requirements. Luís-AS (11ha) is an interesting example as he employs both an optimising strategy at planting time - he has a moderately diverse selection of tradition crops which he claims he never changes. But he continues to optimise at harvest time, when most campesinos and farmers would be expected to attempt to gain as much from the harvest as possible, Luís has refused to harvest entire crops depending on the market price. His detailed descriptions of labour and market price fluctuations leave me with impression that he is his motives are not just financial, but efficiency seeking. While he is indebted, he also only has his wife on the holding²³ and has other sources of income, allowing him to choose his decisions more freely. On-farm income, though important in his decisions, was not his only means of maintaining the household income. His optimisation of production appears to be based in his ability to withstand price shocks from the market through traditional means.

²³ His three children being adults living away from home

Optimising or Stabilising?

The three campesinas in the Dry-Coastal zone Javiera-CS (4ha), Camila-CS (11ha) and Brenda-CS (3ha) all exhibit similarly low perceptions of risks, exemplified by this short statement “I don’t have any real risks” (Camilla-VS). They each have relatively small plots and access to ground water. Only Camilla grew any cereals (oats and maize) in addition to vegetables. Javiera and Brenda only grew vegetables. All sold their vegetables on adjacent market stalls established by PRODESAL. They also share a level of stability which they are not willing to compromise.

Their shared primary aspirations were to maintain their situation, not to pursue further gains. When asked why, two of the three said that their aspirations were to keep their children in school; Brenda’s was to provide enough for her mother. Each also stated that this market stall had improved their income through better prices and sales. Both production (water) and price (market) uncertainties were low among all three. It appears that contrary to being risk averse to meeting aspirations, their aspirations had been met and they were averse to loss.

They each appeared satisfied with their situation, both in the wording and the positive tone of their responses. In this regard these three women were demonstrating a low-risk, but highly satisfying optimisation strategy. Their crops, primarily tomatoes, cabbages and lettuce, were, by their own admission, vulnerable to weather, but it did not concern any of them significantly. When asked what future investments they might make they all mentioned either a greenhouse or a pump to improve access to ground water – further reducing production uncertainty. Each of them mentioned that they would only contemplate such an investment if PRODESAL would fund the majority. Their responses to these questions were notable because of their similarity and also because of their much more relaxed approach to water availability.

However, none of them perceived that they were trading on a policy uncertainty. If PRODESAL’s funding was cut or re-allocated (as it had been with Tomás) they may have to find a new outlet for their produce. Camila was the only campesina whose household had another income. “The money that he [husband] makes by selling those things helps a lot for the family income,” (Camila-CS), making it clear that her income also made a substantial impact. This example highlighted to me that not all possible risks may be perceived by the decision-maker. It also brings the question of how they could diversify from their stalls and

perhaps also whether their lack of concern was partly due to the fact that they were also auto-consumers.

Though not conclusive, these three women express a level of social satisfaction linked to their aspirations. As Festinger (1942) suggests, aspirations are linked to social comparison. These women were concerned with meeting a minimum requirement, an aspect of OP Theory, but they were also satisfied by their aspirations to support family, produce quality and, perhaps meet socially constructed aspirations. I would suggest that their situation was of stabilisation and satisfaction rather than optimising production.

In addition to the aspirations in the coastal zone campesinas, every other interview case with campesinos showed decisions were taken not to maximise gains but to reduce vulnerability to productive uncertainty and price uncertainty. Tomás-VS has an alfalfa investment, Carlos-AS aspires for a storage facility, Nicolás and José have new or proposed barns, all examples of risk-reducing strategies. In particular, Luís' states "I always grow the same things, that way I know what I'm growing and if the price of one is low the price of another will make up for it" (Lewis-AS). All of these decisions are risk reducing strategies and all of them coincide with equal aspirations for stability rather than expansion, whether this was implicitly or explicitly expressed.

However, if we view aspirations as Social comparison: that levels of attainment are influenced by social group attainment (Festinger 1942, 1954), it is possible to view campesino aspirations as perhaps more economically modest than even Lipton's theoretical assumptions. It is also likely that campesinos, if they aspire to achieve slightly above their social average, will become satisfied with their position and wish to remain stable and at low risk of loss, rather than pursue further aims, as suggested in hypothesis one. This is showcased by Camila, Brenda and Javiera (CS). In the long term, this gradual process of advancement above the middle could lead to steady modernisation. This has been seen with all the campesinos interviewed, whether or not they have yet achieved this aim, they are planning (in the case of Carlos, Nicolás and Tomás) to secure their income.

The risk decisions made by the interviewed campesinos appear to lead them generally towards the optimising strategies of the Theory of the Optimising Peasant. However, the examples show other tendencies which are not necessarily linked to avoiding reduced standard of living, particularly with aspirations to maintain satisfaction with a situation (the

campesinas in the coastal zone). This could be argued that it shows adversity to loss. However, the disregard for other potential risk factors suggests that unlike some of the other campesinos, Luís-AS for example, they are even less concerned with ensuring against loss than they are about further aspirations. For Camila-CS this could be due to the security of her husband's income, but for the other two their only security was their auto-consumption. Conversely, campesinos in other areas were investing to secure future income in addition to optimisation strategising for current crops.

Hypothesis 3

Risk decisions within optimisation strategies are insufficient to make interpretations for or against the onset of depeasantisation in Chile's market economy, as described by Murray (2006).

To compete with risks campesinos have a range of choices between adapting their agriculture to the market, modernising (or not) and maximising the utility of family labour through highly incentivised and indivisible households. All options involve risk decisions, return different optimisation strategies and retain risks within themselves. Modernisers may risk debt, market orientation price uncertainties and contracts. Traditional actors in the market economy risk over-reliance on limited resources or a lack of capital to invest against productivity uncertainty. All risks come with positive utility. However, as will be outlined it is possible, indeed probable, to combine these factors, hence optimising results.

Murray (2006) explains that peasants operating the market system are vulnerable to depeasantisation because of three interconnected issues as a result of being out-competed: land take-over, proletarianisation and exploitative contracts. He claims that INDAP's attempts to modernise campesino small-holdings has been a leading cause of this through increasing exposure to the market (Murray, 2006). These attempts include forms of modernisation for campesinos including technology transfer programmes and credit access in addition to irrigation systems (INDAP, 2013; Murray, 2006), as evidenced by Carlos-CS.

The evidence from the data suggests that campesinos are able to request a range of help from PRODESAL to improve their farm, though it is not always delivered. PRODESAL provides support with developing project proposals, but campesinos are able to propose any project they wish. Of the interviewed campesinos who had received assistance from INDAP or PRODESAL only one, Carlos-AS, had opted for a true market-oriented modernisation. The

others had received more security oriented assistance such as help with a barn, described below, or access to the local market via a stall, as in the coastal region. Hence, Murray's summary may not be entirely accurate and Kay's (2002) call for a site-specific neo-structuralist development programme appears to be underway.

Modernisation

There is then a question of what modernisation entails and what impact it will bring to campesinos. Much of the debate surrounding modernisation involves economic principles such as scale economies, whereby the unit cost of production falls relative to the additional input given. This is often attributed to modernisation through mechanisation, which is more difficult on smaller lands due to the relative cost of machinery to the size of the farm (Binswanger and Elgin, 1998). Like Chayanov and others, Binswanger and Elgin (1998:319-321) argue that modernisation and particularly mechanisation does not necessarily mean the end of small-scale agriculture. They point to the allocation of rented machinery to reduce the cost. In the study area all producers rented machinery such as tractors, including the largest scale farmers such as Mario-VL and Roberto-VL. This equal reliance on rented equipment reduces the perceived benefit of scale-economies on large farms. Binswanger and Elgin (1998: 320) state that machine rental markets reduce the impact of large-farm scale economies. This decreases the impact on campesino agriculture of scale economies.

The basic premise of Shultz (1964), on which Lipton's OP Theory is also built is that campesinos lack the capital to improve their agricultural practices and that they could indeed be competitive in the capitalist market (as Chayanov 1966 also suggests) if they had access to investment. Bonnen also argues that technological advancement alone is not sufficient for agricultural development, improvements in human capital are also needed to utilise these tools (Bonnen 1987: 267). This signifies that if campesinos are to utilise new technologies properly they must be capable of utilising them effectively, otherwise modernisations will become ineffective hence exacerbating the struggle to compete. I would argue the Shultzian angle that campesinos, being skilled and understanding the needs of their land, have a good understanding of which improvements make sense in their situation. This is the first stage in human capital development, understanding the benefits of a farm modernisation. The next stage is to understand how to effectively utilise any improvement. If campesinos can draw capital to invest in appropriate modernisations and utilise them effectively then there is strong case that this form of optimisations may be sufficient to compete.

In the study many campesinos had received subsidies for investment from PRODESAL. This was as a result of submitting potential farm improvement projects to the organisation. Many campesinos also mentioned that the advice of PRODESAL extension workers had helped them make decisions for improvements. What is most interesting though is that few of their projects had been of the market-oriented style described by Murray (2006). Instead, these investments, a barn (José-CS), alfalfa crops (Nicolás-VS) and a well (Tomás), all served to reduce either production or price uncertainties in the market.

In effect, these campesinos are utilising modernisations, though not necessarily technology to protect their agriculture, rather than improve their market position. This demonstration shows not only that campesinos have astute optimisation and stabilisation strategies when given access to credit and extension, but also that they can and do modernise. Hence they are able to reduce market impacts and production uncertainties which could directly and indirectly increase the risks of the capitalist system.

Land Re-concentration?

Murray suggests that Chilean campesinos are at risk of land take-over through both exploitative purchases and, more subtly, through contracts with large-scale farms and agribusinesses which in effect *proletarianise* campesinos through non-wage employment (Murray 2006). In contrast, Hayami (1996) emphasises the importance of small-farms to improve the managerial efficiency of production. Empirical evidence from the Marxist agricultural revolutions in Russia showed that large-scale, hired-labour farms were less productive than their small-scale family counterparts and this was because hired labour lacked both incentive and knowledge to fine-tune their production (Bernstein 2009, Chayanov 1966, Hayami 1996). In the case of Chilean agriculture the situation appears to be that agribusiness is attempting to utilise the managerial skills of campesinos to produce crops for them, which Murray labels as a new form of proletarianisation. This is a technique outlined by Hayami (1996) and gives reference to Binswanger and Elgin's (1998) principles of managerial abilities being as important as modernisation. Murray's concerns depend on the type of contract employed and the relative outcome of the venture to the campesino. Provided the campesino has reasonable possibility to withdraw from the contract or adapt it (i.e. it is

not a permanent contract) and the returns are reasonable for the investment made, then it would be difficult to categorise it as proletarianisation.

Some of the campesinos had experienced this type of contract. José-VS and Tomás-VS had both engaged in disadvantageous contracts in the past with large agribusinesses and had stopped the contracts due to the restrictions placed upon them. A similar situation occurred with Carlos-AS the strawberry grower. These contracts had not enforced a new level of proletarianisation on the growers as they were free to not renew the contract the following year, their reluctance to continue with contracts also showed a thread of desire to be independent, especially during Carlos-AS' interview. In reality, perhaps the hardest hit by contracts of all those interviewed was Andres-VM, a medium-scale farmer in the valley who had 60ha under traditional crops (maize, wheat, oats) and high value berries including blueberries and raspberries). His responses were perhaps the most revealing:

“I have contracts for the fruit, but I don't know how much I will get until I have sold the fruit. I sell it to the company then when it has been processed they tell me how much I will get.” (Andres-VM)

It is worthy of note that Andres perceives less ability to reject disadvantageous contracts than any of the interviewed campesinos involved in similar business. Campesinos appear to be buoyed by their relatively diverse crops and auto-consuming practices which restrict the influence of price uncertainty. It is also worthwhile discussing here the methods employed by farmers to limit agribusiness power. Mario-VL ensures he always has three low-minimum amount, no-fixed-price contracts for his produce. “I sell the largest share to the company offering the best price, and give the other two a small share to ensure the contract for the next year.” (Mario-VL). In another case a dairy and grain farmer stated her belligerence towards a large brewing company:

“... [T]hey called me from reception [at the brewery], saying that my barley was high in protein and they said they would take it, but at a lower price... I told the truck drivers to come back. I didn't give them anything. I gave it to the cows... I think that was the first time something like that happened to them,” (Maria-VL).

It is not just campesinos who run risks with the capitalist system. Contrary to Murray's suggestion, it appears that the campesinos interviewed do have effective strategies, in the same way as large-scale farmers, for dealing with agribusiness. However, the example of

Andres-VM showcases Murray's concerns for the future. If campesinos should become too market reliant they may face the concerns of Andres-VM.

In the above examples we can see the importance of managing modernisations and also of risk-managing interaction with the market as methods of campesinos preventing the proletarianisation outlined by Murray, but it doesn't necessarily imply that all campesinos are avidly retaining their culture. Rather it appears that many traditional cultures of campesinos are taken as a natural way of life, especially auto-consumption, which many do not see as part of the farm, but an aspect of life they enjoy and take pride in as Brenda-CS states "I enjoy producing food for my family." Aspects of life such as this are not seen as commodities to trade away or keep, or as strategies of risk reduction.

The illustration of a *continuum* (Murray 2006) allows us to place the situation of each campesino in a middle ground, where peasant agriculture may be adapting, rather than stagnating or imploding, to fit into a market economy. A view supported by research by Echeverría et al. (2009), Challies and Murray (2011) and Hayami (1996).

Through an analysis of various hypothetical and empirical analyses it has been shown that risks involving modernisation among campesinos does not necessarily place them at more risk of proletarianisation, neither does it necessarily follow that modernisations leading to a more capitalist approach is a precursor to depeasantisation. OP theory states that campesinos can compete with large-scale producers through effective optimising strategies which may include modernising, corresponding to Shultz (1964) and Hayami (1996). This pragmatic modernisation mixed with traditional practices has been noted in Ecuador with indigenous peoples and has helped conserve a traditional way of life (Bebbington, 1993:275).

Modernisations are common among the campesinos interviewed with the aspiration to preserve their way of life, living on and from the land. Provided the risks are modest, most campesinos interviewed had or were planning to adopt stability-increasing technologies. Most enlightening is that the campesinos interviewed viewed the export market as a risky venture and if they are involved they have put in place risk-reducing strategies to minimise the impact.

OP theory requires a much greater depth of understanding of how risk-decisions are made, including aspirations and social (as well as geographical) situations. In addition, the propensity of campesinos to take decisions based on these factors influences their future but

not in the linear fashion that the continuum stipulates. Rather decisions are made with the intention to maintain, change, - or even revert - production practices. To place these into context a new model is proposed, based on the theories above and the primary data collected. It accounts for the impact a decision may have on the future trajectory of a campesino household, accounting for the fact that depeasantisation is not necessarily negative, but depends on the aspirations and hence the decisions of the decision-makers.

Campesino Optimum Modernisation Model

It is proposed that modernisation and the market are neutrally linked to the Peasant Economy Continuum proposed by Murray (2006). They are engines of change, but may be utilised to retain campesino culture through greater security or, equally, could lead to lost cultural norms through untying links to the land, promoting casual labour or urban migration. Provided there is adequate support for campesinos, with incentives to invest and overcome risk-averse behaviour, the future of campesinos will lie in their choices and aspirations and the success of any modernisations they choose to make.

An attempt has been made to plot these trends as a theoretical graph, to aid understanding.

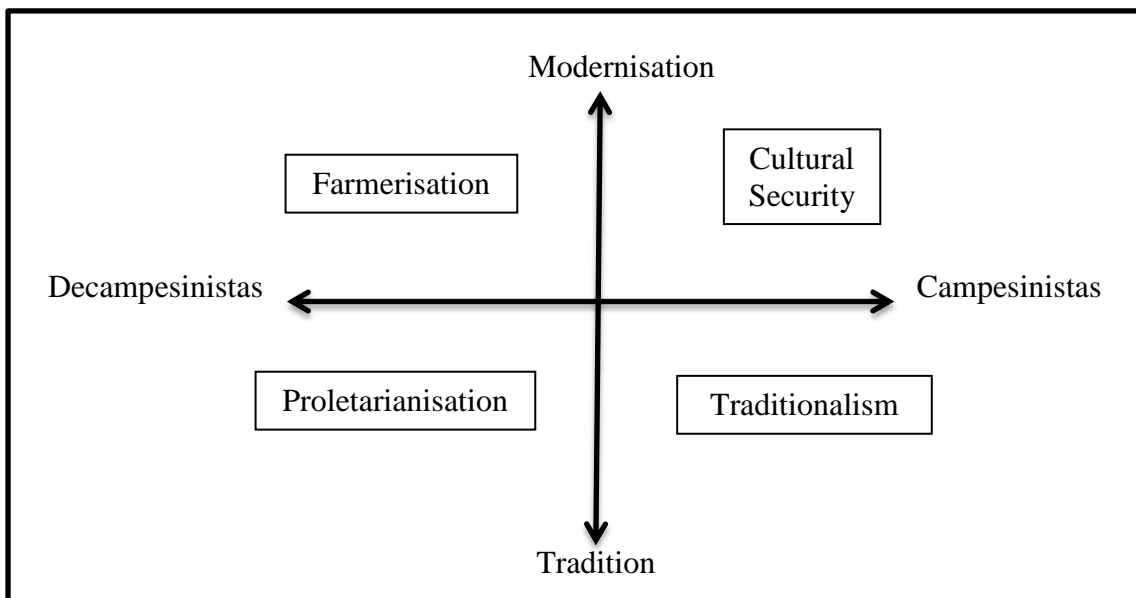


Figure 2: Proposed Optimum Modernisation Model

In this diagram it is possible for farmers to engage in decisions which lead to increments of all possible outcomes on the continuum through potential adaptive strategies involving modernisation of technology, practice, human capital, or any other modernisation tool, and

also through retention of traditional methods. As it is continuous, rather than discreet or binary, it can take account of the complexity of decisions and outcomes of campesino such as decisions to plant both export and auto-consumption crops.

Definitions

These terms are generalisation of the quadrant, not fixed definitions. The closer campesinos placed to the axes may have increasingly overlapping similarities with campesinos in adjacent quadrants.

- 1) **Farmerisation:** Campesinos modernise and become more market oriented. This is not necessarily a full loss of culture, but an adaptation. The position within the quadrant is determined by the level of modernisation, the level of market involvement and level of retention of cultural ties. Campesinos may seek greater income but risk market uncertainty, leading to income insecurity.
- 2) **Cultural Security:** A campesinos may modernise to secure income and security rather than promote profit, adapting their agriculture to secure cultural traditions important to them. Campesinos may seek security but risk not having the capital to ensure it.
- 3) **Proletarianisation:** A campesino decides to maintain the land or produce for market without modernising, may sell or lease some or all of the land or utilise increased off-farm employment (Kay, 1997:21). Campesinos may seek cost effective market involvement, but risk exploitation.
- 4) **Traditionalism:** Continuation of traditional producing and preservation traditional norms with minimal investment in new technology. Campesinos may seek a traditional life, without market price uncertainties, but risk increased production uncertainty.

Of course, a Campesino does not necessarily start in the middle and make a decision of one of the four quadrants. Rather, campesinos take decisions through time which lead their situation either decisively or indecisively, and in varying degrees, towards an area of the graph. It is possible to move within the model, positions are not fixed, nor pre-determined, with positions being determined by outcome rather than intention. A campesino may, for example, choose a variety of risk-minimising, market protection strategies which enables him/her to invest in a crop purely for the market. This would place them high on the modernisation scale, but slightly right of centre on the campesinista scale. The success of the market crop would cause a shift towards the left, horizontally towards farmerisation.

The model above indicates that campesinos may aspire to place themselves at any position within its boundaries, taking aspects of market economy with traditional practices secured through technology, as Carlos-AS demonstrates. His neighbour Jorge-AS, would demonstrate more capitalist leaning tendencies, whereby he has expanded his land and engages with the market but chooses to remain only a minor raspberry producer. Had his raspberries been more successful he may have opted to be further integrated into the market. Thus this is a model of adaptation, framed by the Theory of the Optimising Peasant. It demonstrates that modernisation is not a prerequisite of proletarianisation, but that excessive risky ventures towards “farmerisation” could lead there. It suggests that measures to secure income through modernisation and limited market interaction cause a shift directly away from potential proletarianisation, but of course this situation relies on either access to credit, either through loans, which are market-oriented, or neo-structuralist subsidies such as PRODESAL. It also argues that situations are not fixed as uncertainty of agriculture persists.

Aspirations in the Model

Consider the level of aspiration a campesino may have for a particular project. According to Festinger (1942; 1954) and Quagila and Cobb (1996) campesinos’ decisions to modernise will gravitate towards a slightly higher achievement than their social average. Under this situation campesinos are likely to move slowly into modernisation due to their aspirations and their risk-averse decisions based on optimising, rather than maximising, production and stability. It is thus likely that campesinos will move first towards modernisations securing income and then towards increasing market interaction. With each increment of market involvement it is likely campesinos, as risk optimisers will seek to secure their position, as shown by Carlos-CS’ desire to improve storage facilities. However, the ability to modernise depends on access to credit, which may require increased market interaction.

The level of market interaction may also be influenced by social factors as in Festinger (1942, 1954) and by location. Campesinos in the valley plain have much better access to markets and irrigation than those in sparsely populated cordillera and the dry-coastal regions, for example. Examples of this manoeuvre are apparent in the campesinos interviewed, with Brenda, Camila and Javiera (CS), Nicolás and Tomás moving towards securing their income in line with their contemporaries within the options accessible in their region.

An Example of Mixed Farmerisation

Jorge-AM is a traditional farmer from the Andes Cordillera. His family have a campesino heritage, yet his farm is now 60ha in size. By the definitions laid out in this paper he is not a campesino but a medium-sized farmer. This brings a paradox to the question of campesino agriculture, whether or not it should be determined by scale or culture. Talking to Jorge I was able to establish that he was not wealthy and suffered from the same risks as the other campesinos and farmers interviewed in his village, yet he demonstrated more advanced levels of *farmerisation* than his contemporaries. Jorge's case is interesting because, he has accumulated land and now employs ten labourers to pick his raspberries, though he has accumulated risks, too. He believes his investment in raspberries was a mistake owing to the labour cost rises and unstable prices. In many regards Jorge has become "*farmerised*", yet has retained many aspects of his ties to the land, hoping his family will continue to farm the land in the future and that one of his main aspirations was to stop the forestry companies from taking his land.

Conclusions

Much of the complexity of decision making that has been highlighted by the participants in this research can be explained using Lipton's Theory of the Optimising Peasant. However, there is a need to account for aspirations as part of decisions under risk. These aspirations are likely to be based on the household achieving above the mean social attainment level, rather than optimising productivity values. Though the theories of risks and optimisation support many of the decisions made by campesinos in the data, campesinos suggested a near-unanimous aspiration to achieve stability rather than optimise productivity, which appeared to be based in their aspirations to reduce perceived risks.

Meeting aspirations for stability accounts for a great deal of satisfaction among interviewed campesinos to the extent that it appeared to lower further economic aspirations. I propose that campesinos are optimisers of stability, rather than optimisers of production.

In addition, the research finds that while either Murray's (2006) or Chayanov's (1966 and in Millar, 1970) dichotomous decampesinistas and campesinistas views are possible outcomes of capitalist influences on campesino agriculture, they are unlikely (as Murray (2006) also

suggests). Campesinos can, do and will adapt through optimisation of various modernisation strategies in pursuit of their own aspirations. The likely situation is thus that campesinos will persist into the future through a variety of risk-minimisation strategies which support first stability seeking, then moderate market interaction. PRODESAL, as a neo-structuralist intervention, is enabling many of the interviewed campesinos to engage in their own aspirations for modernisation. Due to risk-aversion tendencies these modernisations appear to refute, rather than advance the depeasantisation patterns outlined by Murray (2006), both theoretically and through examples from the literature. In addition, neo-structuralist intervention appears to be supporting Chilean campesinos to achieve their own aspirations through access modernisation and is warmly welcomed by campesinos interviewed, though it is not comprehensive.

This research finds that the stability seeking caution of campesino optimisation strategies is an important factor in the survival of campesinos as a distinct cultural group in Chilean Agriculture. Of course, all risks cannot be eliminated, and agriculture will retain some risk for all actors in the system. Perhaps this is summed up best by Carlos-AS when I asked him about his risk factors. “In the end” he said “you just have to do it and hope for the best”.

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Appendix 1

Interview Questions

Questions are highlighted in bold are key questions which should be covered in the interview at some stage. Non-bold questions may be of some use to prompt interviewees.

What crops do you grow/livestock do you rear? Have you always grown these crops/livestock?

How much contact do you have with local farmers who grow the same crops?

How much land do you farm? Is it owned or is it rented?

How do you water your crops? Do you have water rights? How many? Is it enough?

Where do you sell your produce? How did you organise this? How stable is the price?

Formal education, family, age.

Questions about aspirations

Aspirations are about the future

- **What are you biggest expenditures on the farm?**
- **What are your most important expenditures? Which expenditures need protecting the most?**
- **How do you prioritise expenditure from your income? What is the order of priority? (use this to inform the following questions?)**
- **What do you consider your greatest aspiration to be?**
- **As a farmer what motivates you?**

- *This year, what is your primary goal for your income?*
- *Where do you see your farm in 5years? What changes do you hope to make? Why?*
- *And in 10-20 years? (change depending on age of the farmer)*
- *What do you hope to achieve with this farm?*

Farm Questions – climate etc.

- **How do you market your produce?**
- **How do you hire labour for harvest time?**
- **How do you water your fields?**
-
- **How much does climate impact your production?**
- **Do you notice any changes between years in climate, labour or water?**

Questions about risks

- **Thinking about your farm, how would you define a risk?**
- **What are your biggest risks with growing xxxx?**
- **In the long term what challenges do you face on your farm?**
- *How do you plan to combat these challenges?*
- *Except for the farm, what other issues you face? Day-to-day, and for the future.*

Investments

- **How do you think a farm cost is different from a farm investment?**
- **What is the biggest investment you have employed in your farm?**
- **What investments have you made to the farm over the past 5 years?**
- (What do they achieve?)
- (How did you fund the investment?)
- **How have your investments changed your farm?**
- *How has the farm changed since you were young/first started working at the farm?*
- *How has farming in general in Chile changed in the same period?*
- *Have you ever received help from government agencies to make investments?*

Questions of how these relate

- **How do you well do you think your investments match your aspirations?**
- **What investments would you like to make that would help you reach these goals?**
- **What do you need to make those investments?**

Questions of success

- **How do you measure success?**
- **Do you consider yourself a success now?**
- (When do you think you will? What do you have to achieve?)
- **How do you think success differs from happiness?**
- (*Would you generally consider yourself a happy person?*)
- (*Thinking as a farmer and also as a person (aside from being a farmer).*)

Appendix 2

Themes

The following is a tabled representation of the focal research themes (table 1) and their value to understanding the known factors which influence decisions among campesinos.

Table 1: Focal Research Themes

Theme	Sub-areas	Reason for inclusion	Explanatory Value
Aspirations success and motivation	Personal	Aspirations for success	Motivation for risk decisions, satisfaction with life and influencing factors.
	Farm-related	indicate the types of risks	
	Satisfaction	likely to be taken. Risk aversion or profit maximising	
Risk perceptions	Happiness		
	Major risks on the farm	Perceptions of major risks for production will influence decisions. Past experiences, concerns or worries may influence perceptions	Perceptions of risk may not be related to actual risks. They may be distorted based on experience (risk-aversion)

Table 2: Themes of understanding

Theme	Sub-areas	Reason for inclusion	Explanatory Value
Climatic issues	Precipitation	Major risk factors in agriculture. Decisions are often based around this issue according to theory.	What the farm-specific issues are perceived to be and hence one aspect of why which decisions are made
	Frost		
Irrigation	Water access	Lack of year-round rainfall makes access to water in dry-season vital. Sources of this water are important due to the reliability of the source and the distribution of shared resources	The extent to which farms are protected from drought, how water is supplied and the efficiency and cost of the system.
	Methods		
	Investments		
Crops and	Crop type	Crops are grown based upon	What is grown determines

land use	Previous crop types Reasons for changes/ choices	likely market value, tradition, knowledge of the crop and its ability to grow in the landscape Crop choice is a risk decision. Other factors may also play a role such as	what the risks will be as well as cultural and geographic ties.
markets	Methods of: -selling -Labour acquisition Knowledge of markets Farm inputs	Market access and market prices determine the price a farmers receives for their crops. However, the market price for farm inputs (fertilisers etc.), labour and seeds are also important risk factors.	Understanding how farmers view the markets and how they interact with them (or not) helps explain their impact and their importance. Government interventions are often market oriented, which may not be beneficial