LUND UNIVERSITY
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China and the Great Doubling

A race to the top or bottom for world labour standards?

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Abstract: Through economic openness, increased capital mobility and the resulting competition to innovate, the globalisation of capitalism ought to increase the wealth and living standards of all involved. However, in order for all to be involved, they must be of value to that economy. That the world lives largely in poverty means that the more the economy incorporates cheap labour, the lower the returns to labour will be, as oversupply diminishes its value. Richard Freeman termed this process the Great Doubling, as with the merging of Russia, China and India into the global economy, the world's labour force will more or less be doubled, upsetting the current capital to labour ratio in favour of capital. This research focuses on China's role and examines the extent of its reserve labour supply and its regional impact in order to gauge the implications of China's arrival on the world stage for the capital to labour ratio.

Key words: China, globalisation, labour

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Dedicated to Katie

I hereby certify that this material, which I submit for assessment on the programme of study leading to the award of MSc in International Economics with a Focus on China, is entirely my own work and has not been taken from the work of others, save as and to the extent that, such work has been cited and acknowledged within the text of my work.

Signed Edward Whitfield

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CONTENTS

LIST OF ABBREVIATIONS

EU	European Union
FDI	Foreign Direct Investment
G1	Japan, South Korea, Singapore, Taiwan and Hong Kong
G2	Malaysia, Indonesia, Thailand and Philippines
GDP	Gross Domestic Product
IMF	The International Monetary Fund
MNC	Multinational Corporation
PENN	University of Pennsylvania
PhD	Doctorate in Philosophy
R&D	Research and Development
US	United States of America
WTO	The World Trade Organisation

1 INTRODUCTION

The aim of this research is to test the validity of two competing theories: that of free-market, free-trade globalisation as outlined in Thomas Friedman's (2005) book 'A Flat World'; and of the Great Doubling, the fear that due to the large amounts of cheap labour merging economies will present to the global labour market, the current capital to labour ratio will tip in favour of capital thus causing a race to the bottom in terms of labour standards, as opposed to a race to the top as argued by globalisation theory. This research seeks to test these theories by examining the nature of China's reserve labour surplus and the implications it might hold for the global economy. It is split into three sections, all dealing with distinct topics surrounding the debate. The first two deal with internal factors relating to China's reserve labour surplus. They examine whether or not China has reached its Lewis turning point, and if increasing wages and reported labour shortages really signify that it has. Despite these occurrences, a closer examination of China's internal factors reveals that the economy is still host to a large reserve labour surplus, and that increasing wages signify not the depletion of such, but increasing inequality.

The third section, itself split into two, deals with the regional impact China has, and might possibly have due to this large reserve labour surplus. It does so by first exploring the scope that China has in crowding out its neighbours. Due to the nature of China's reserve labour surplus it has the capacity not only to upgrade its comparative advantage from low-skill to high-skill production while maintaining low prices, it also may have the capacity to maintain its position in exporting those low-skill products, thus challenging both low- and high-income economies at the two ends of the skill-production ladder. It is found that despite China's growing share of global exports, it is possible that, by exporting *through* China, neighbouring economies can benefit from this development. However it appears to be the case that for the weaker economies in the region, exports to China are yet to increase significantly in importance, while at the same time imports from China are increasing, meaning that there is a danger that without entry into complementing niche production, they may be left behind by the globalisation process. The second part of the third section deals with the idea more directly associated with the existence of undercutting competitive practices in labour standards and the pursuit of FDI. This section finds evidence in existing and recent literature that supports the claim that MNCs do pursue lower production costs in

countries with fewer labour regulations, and that countries do compete for FDI by lowering those regulations.

These sections represent four hypotheses that this research aims to test: *Hypothesis 1*: China has not reached its Lewis turning point; *Hypothesis 2*: Rising incomes do not signify the depletion of China's reserve labour surplus; *Hypothesis 3.1*: China's increasing share of world exports implies a crowding out effect among other regional economies; *Hypothesis 3.2*: MNCs pursue cheaper production costs; Countries compete in terms of these costs, and; Countries with high labour standards fail to attract FDI. Each section conducts a treatment of the literature, constructing an argument with the use of key concepts, issues and data analysis that seek to test the corresponding hypothesis. In addition to the literature, fresh data is also used to test the hypotheses. A land to labour ratio is looked at in an attempt to predict when China might reach its Lewis turning point. Consumption share of GDP and inequality trends are used to illustrate that rising wages do not indicate the depletion of China's reserve labour surplus. Finally trade flows and global share of exports help identify whether China is displacing other regional economies, or if exports merely being redirected.

Throughout the literature on this topic, there has been no attempt to draw the factors herein under one body of work in order to gauge the impact China will have on the global labour market. The literature is extensive but is largely specific to one of the aspects regarded in this research. The literature used to construct the arguments for each section of the debate is of course only a small sample, but each paper is representative of key points taken from the debate. The theoretical debate itself is composed of Thomas Friedman's (2005) globalisation theory and proposes a positive outcome and a win-win for both capital and labour in the increasingly open global economy, and of Richard Freeman's (2005, 2006) Great Doubling thesis that proposes a negative outcome to globalisation as a great influx of cheap labour will diminish its value, causing a win only for capital. In dealing with China's Lewis turning point, those that argue that it has been reached are represented by both Paul Krugman (2013) and Fang Cai (2008) who point to rising wages and labour shortages as indicative of the depletion of China's reserve labour force. The rest of the literature in this section deals with a deeper analysis of the situation, as it is made complicated by the segmentation of China's labour market due to the *hukou* household registration system that licences residents between urban and rural areas (Das and N'Diaye 2013). It outlines the extensive underemployment in China's primary sector (Wang and Wan 2014), and a more appropriate criteria for analysis of this situation by use of a Lewis turning *period* instead of point (Wang and Weaver 2013).

In returning to the issue of rising wages (Roberts 2006), the literature in the second section outlines the theoretical criteria for a deeper analysis once more, but by looking at consumption share of GDP (The Economist 2007), and then at the state of China's labour standards (Chan 2003) and labour's diminishing share of growth (Dollar and Jones 2013), and the shift from extensive growth and poverty alleviation, to intensive growth and increasing inequality (Yang *et al*. 2010). The third section, dealing with the final two hypothesis, leaves China's internal factors to examine the impact it has and may have on regional economies. While China's traditional comparative advantage lies in labour-intensive production (Rasiah 2002), its capacity to innovate and upgrade its comparative advantage is increasing the more open it becomes in dealing with the global economy (Xing 2008). The criteria for examining China's crowding out effect is outlined by See (2008) and examines trade flows, finding that it is a case of redirection rather than displacement. While China doe pose a challenge in this respect to the global economy, its future is not predetermined and it is possible for others to grow with this burgeoning giant (Altenburg *et al.* 2008). The final hypothesis is dealt with quickly. Daniel Drezner (2006) outlines the criteria for testing the hypothesis, and William Olney (2013) and Ronald Davies and Krishna Chaitanya Vadlamannati (2013) provide empirical evidence that makes it difficult to refute too hastily that MNCs are not attracted by countries with low labour standards, and that countries compete for FDI by lowering those standards. In all, the research outlines an extensive theoretical and conceptual body in the construction of the argument aimed at testing these hypotheses, as well as the use of fresh data analysis, and it finds that China maintains a large reserve labour surplus, while threatens to cause a race to the bottom in terms of labour standards.

The research is organised as follows. Section two outlines the methodology employed, as well as stating the research question and elaborating the hypotheses. Section three begins with an introduction to the body of work and outline of the theoretical debate between globalisation theory and the Great Doubling theory. It is followed by the subsections: China's Lewis turning point; China's income levels, and Regional impact. These sections are further and more specific treatments of the literature, the construction of the argument, and are each followed by the addition of fresh data analysis, in order to test the corresponding hypothesis. Section four outlines the findings while the final section concludes with a discussion of the findings in conjunction with the debate.

2 METHODOLOGY

This research seeks to outline a theoretical discourse found within the literature on the topic of globalisation and whether or not it presents a race to the bottom in terms of labour standards around the world. It does so by first subdividing the topic into three general branches that are found within the literature. They concern: China's reserve labour surplus and the reaching of the Lewis turning point; rising wages and the signalling of China achieving its Lewis turning point, and; the regional impact of China in terms of both displacing neighbouring economies' exports and causing a domino-like competition to cut standards for the benefit of FDI. Each section is a treatment of the literature regarding key arguments relevant to its specific topic. Arguments are presented and countered with the aid of evidence as provided by the literature. Each treatment is then followed by fresh evidence before the findings are made and discussed.

The theoretical discourse concerns the debate between free-market, free-trade globalisation theory, as embodied in Thomas Friedman's book 'The World is Flat' (2005), and fears that it will result in a far lower global equilibrium in terms of labour standards and returns to labour as embodied by Richard Freeman's (2005, 2006) theory, the Great Doubling. Taking the later as the standard to be tested, Freeman's Great Doubling rests upon some key factors. Essentially the theory is concerned with the extent to which merging economies, such as China, India and Russia, presents to the global economy an enormous and poor labour force. Such an influx of cheap labour will upset the balance in the capital to labour ratio in capital's favour. This is essentially the oversupply of labour and the scarcity of capital, resulting in a far lower value on labour in the global economy - a disaster for the majority of the world's population whose livelihoods depend on returns to labour. This research focuses specifically on China and its role in this new equilibrium.

The questions is thus posed: Does China present to the global economy a reserve labour supply large to the extent that it will upset the current capital to labour ratio, resulting in a new and lower equilibrium in terms of returns to labour?

In order to test this question, hypotheses are outlined according to the subsections outlined above:

> *Hypothesis 1*: China has not reached its Lewis turning point
>
> *Hypothesis 2*: Rising incomes do not signify the depletion of China's reserve labour surplus
>
> *Hypothesis 3.1*: China's increasing share of world exports implies a crowding out effect among other regional economies
>
> *Hypothesis 3.2*: MNCs pursue cheaper production costs; Countries compete in terms of these costs, and; Countries with high labour standards fail to attract FDI

The theoretical framework employed to test these hypotheses are as follows: H_1, China has not reached its Lewis turning point. The literature locates the variables in terms of rising wages and labour shortages as signifying the depletion of China's reserve labour surplus. While H_2 deals with these factors more explicitly, this section necessarily counters such a claim by way of introducing the notion of market segmentation. China is unique in its application of a household registration system known as *hukou*. This system is a central regulatory mechanism controlling the labour market, allocating labour to the urban/industrial sector as is deemed necessary. Due to *hukou* it is difficult to tell simply by looking at rising wages and labour shortages the extent of China's reserve labour surplus. Instead the concept of a Lewis turning *period* is employed, and the recognition of both an absolute and a relative reserve labour surplus. In order to test the hypothesis a land to labour ratio is examined. This ratio illustrates China's relative but significant underemployment in the primary sector. Taking average ratios from other economy sets, it is possible to predict when it might be that China eventually exhausts its relative reserve labour surplus and exits its Lewis turning period. This research finds, holding all else constant, that this will not be until after 2030, thus signifying the extent of China's reserve labour surplus.

H_2, Rising incomes do not signify the depletion of China's reserve labour surplus. Due to *hukou* it is not so simple to test this hypothesis by observing wage trends and labour supply. In the literature anecdotal evidence is provided that counters the common sense of these two reported cases. While wages have risen and millions have been taken out of poverty by China's market reforms since 1978, inequality is rising, and conditions for millions caught between *hukou* are pitiful. In order to empirically investigate the evidence of rising wages, a

labour share ratio is employed that measures the share of consumption to GDP. That the share of consumption is decreasing, this could be that labour is saving. However through the literature it is found that China's high rates of savings are maintained by government revenue and company profits. This suggests that decreasing consumption to GDP is indicative of decreasing labour share of growth.

$H_{3.1}$, China's increasing share of world exports implies a crowding out effect among other regional economies, concerns international factors, rather than internal ones, and regards the implication of there being a large Chinese reserve labour force, rather than testing whether one remains. As China is considered to be a middle-income economy, its reserve labour supply holds implications for both high- and low-income economies. In terms of implications for high-income economies, the literature concerns China's comparative advantage, and while this has traditionally been in labour-intensive production, it would seem that it is undergoing a process of upgrading, meaning that it could compete with developed economies in the production of high-value capital-intensive goods but, due to its reserve labour supply, at a cheaper cost. In terms of implications for low-income economies, China poses the threat of displacing their exports as, with enough cheap labour, and while competing in high-value production, the economy can maintain competitively low production costs in low-value manufactures also. In order to examine this more in-depth global export and import shares are looked at in order to map shifts between China, the West, and its neighbours, both more and less developed. This examination suggests a redirection of exports, rather than a displacement, though it is less the case for the weaker economies in South East Asia, suggesting an element of displacement by China, as its exports increase to those economies.

The testable hypotheses for $H_{3.2}$, MNCs pursue cheaper production costs; Countries compete in terms of these costs, and; Countries with high labour standards fail to attract FDI, are set out by Daniel Drezner (2006), though are worded differently. 1) Countries more open to trade and investment will have fewer regulations that affect the cost of production. This question is tackled by William Olney (2013) by OLS regression and it is found that evidence exists in support, that there is a positive correlation between openness (higher presence of FDI/MNCs) and relatively less regulations that affect the cost of production. 2) There should be a domino effect whereby the lack of rigour to this effect will see other countries follow suit. This again is dealt with in Olney (2013) by OLS regression, and once again it is found that the evidence supports the assumption, countries do compete by lowering those regulations that affect the cost of production. 3) There should be a strong negative correlation between inward capital

flows and the rigour of country regulatory standards. While Drezner claims that there is no evidence to support these claims, on this account again, and by way of recent OLS findings, Davies and Krishna Chaitanya Vadlamannati (2013) provide empirical evidence highlighting that while countries compete less in the instituting of such regulations, they do so in enforcement, or a lack of rigour.

Other than the extensive use of literature on the topics in the construction and treatment of three general arguments to test the hypotheses, primary data is used in order to support findings. It is used where available and is as recent as was found. In testing the land to labour ratio for H_1 primary sector employment figures for the period 1978 to 2008 from the All China Data Center were used in conjunction with arable land (ha) from the same source in order to construct and illustrate the land to labour ratio across this period. Taking recent figures for arable land and assuming them as constant, primary sector employment figures were added up to 2013 in order to chart an estimated decline in the sector's employment, based on its decrease for the decade beginning in 2003. In order to extend the Economist's consumption share of GDP figures for H_2, data from the PENN World Tables was utilised to illustrate the decline in consumption share of GDP for the period 1992 to 2010. Percentage share of income or consumption figures from the World Bank was then taken in order to construct the *per quintile* distribution of Chinese wealth, illustrating the growing inequality between 1990 and 2009. Extensive use of data from the WTO Trade Profiles, 2006-2013, was made in addressing $H_{3.1}$ in the construction of time series data that was utilised for graphs 3.1 to 4.4, and the examination of global export and import shares for regions and countries. The data used was for merchandise trade and it is pertinent to note that the Trade Profiles for each country showed only the top five important export destinations and import origins. Finally for $H_{3.2}$ the recent OLS regression tests in the literature (Olney 2013, Davies and Vadlamannati 2013) were thought sufficient to address the hypothesis.

3 TESTING GLOBALISATION THEORY

Does China represent to the global economy a race to the top or to the bottom in terms of labour standards?

Globalisation theory states that technological upgrading through continuous innovation prompted by competition pushes up labour standards: as middle-income economies experience diminishing returns to production they are prompted to attain more sophisticated and profitable production through more advanced technology (Friedman 2007, Lin 2011). As incomes rise, companies producing lesser sophisticated products seek cheaper sources of labour, thus increasing productivity and incomes in low-income economies. As the middle-income economies' incomes rise and their technological sophistication increases, their production begins to compete with high-income economies, who are in turn prompted to innovate in the pursuit of greater returns to production, while their traditional production companies go elsewhere in pursuit of cheaper labour, thus returning to import those traditional products but at a cheaper price, increasing incomes even more (Krugman 1994, Bremmer *et al.* 2006). As long as innovation occurs at the cutting-edge of technological production, the process may continue, eventually incorporating all in a global economy, as incomes increase everywhere.

However there exists a counter theory to this that claims globalisation is prompting a race to the bottom. While globalisation theory is logical enough, it fails to incorporate an important factor. That is, with the emergence of large low- to middle-income countries such as China, India and Russia, who lack capital but have large numbers of low-skilled, cheap labour, the global economy's capital to labour ratio will come to be skewed very much in favour of capital (Freeman 2005). This means that the demand for labour by capital is greatly decreased, thus lowering the value, and the leverage, of labour. Suddenly, the process as outlined by globalisation theory runs into problems at both ends of production surrounding middle-income economies.

First: the mechanism that prompts high-income economies to innovate toward higher return to production. For this to occur the high-income economy must function effectively on capital investment. That is, the economy's comparative advantage is maintained by its predominance in the technological/production hierarchy. It can afford to take risks as its society is generally financially secure and most are so, not through labour, but through capital investment

(Bremmer *et al.* 2006). However, in the transition, as pressure from middle-income economies increases, if those middle-income economies achieve comparable levels of technological production without raising incomes, then high-income production fails to make a gain on the pressure and instead is faced with that production being undercut with direct but cheaper competition. The comparative advantage is lost in this direct competition as instead of pressure to innovate, it encounters a vacuum that hollows out the foundations upon which to advance from (Freeman 2006). Essentially its security is jeopardised as the system achieves a new equilibrium where general income comes to rest at a lower level.

Second: the opportunities open to low-income economies when middle-incomes rise. These opportunities occur when incomes rise in middle-income economies as production and skill levels rise. Eventually the labour market becomes too expensive for low-income, low-skill production and it seeks to relocate in order to find cheaper labour markets. It is thought that the African continent could avail of such opportunities as those Asian economies begin to move up the production ladder, freeing that low-skill labour-intensive manufacturing of items such as apparel and textiles (Lin 2011). However, if it is the case that China's labour surplus has not yet been exhausted, that its Lewis turning point is yet to be achieved, then low-income production will remain there, soaking up the cheap labour from the rural areas of the country and maintaining relatively low incomes throughout the economy so that China, due to its enormous population and little relative capital, will come to encapsulate the entire production ladder, thus stunting the mechanisms assumed by globalisation theory. The Great Doubling, as Richard Freeman (2005) put it, of the global labour force, without the necessary capital increase in the global economy, will cause low-skilled production to remain in China, forfeiting Africa's opportunity, while also causing Chinese incomes not to rise (as for it to do so there cannot be a significant labour surplus) which, as higher-skilled production is achieved, means high-income economies face direct competition at undercutting prices.

If it were the case that the great doubling was to jeopardise the outlined globalisation process, this would impact profoundly on high-income economies who, as it is, have experienced decades of income stagnation (Freeman 2005, Milanovic 2013), as well as the recent recessions. Indeed, financial crashes, austerity measures, capital flight and labour off-shoring, being touted as necessary but temporary aspects of globalisation, and required adjustments for a return to growth, both in the long term, may well be symptoms of those economies moving toward the new and lower global equilibrium. As middle-income economies such as China begin to produce what high-income economies traditionally produce but at lower costs,

in order to compete, or to stay afloat, those high-income economies are prompted to ask big questions of themselves. Can they innovate and maintain the income levels as have come to be traditionally relative? Or, must they allow living and labour standards lower to a point in line with the new capital to labour ratio equilibrium? And if so, how far lower will be politically reconcilable considering that for the top-end of such economies, there has virtually been no recession (Freeman 2005, Krugman 2014)?

Of course, these questions are only valid within the globalisation paradigm. Other questions may ask of that theory itself. Has the freeing of capital internationally provided a sound global economy? Has it provided, or can it provide the development it has been touted to? If, without the necessary relative increase in available capital, the global labour force doubles, what alternative processes might we need in order to maintain high-income economies' standards of living and the future development of low-income economies? Is it the case that due to the large amount of cheap labour the world possesses, and the scant amount of capital, we must face the realities of a difficult economic future together globally, where high-income economies will face ever more drastic levels of austerity, and low-income economies remain facing impassable entry-barriers to the global export markets?

In order to examine the validity of one or the other theory, globalisation or the great doubling, it is necessary to take a closer look at the factors that China presents to the global economy. If it is the case that China presents a large labour surplus that skews the capital to labour ratio in excessive favour of capital then it may be necessary to reconsider economic policies so that labour is not left behind by the development of the global economy. These factors include China's labour surplus, the nature of Chinese real income levels, and the impact these factors have thus far had on regional economic partners and competitors. Determining these factors, however, is not so straight forward.

3.1 CHINA'S LEWIS TURNING POINT

In 2003 Richard Freeman wrote a paper understating the controversial debate regarding globalising free trade and its effect on labour. He outlined the argument regarding the effect that the increasing global nature of capital flows, whether globalisation would be positive in terms of the economic development that would ensue, or negative in respect to the race to the bottom, and the general destruction of jobs and livelihoods. The argument according to Freeman was essentially over the nature of the globalisation, whether it be the free trade brand, or a more managed affair with a greater concern for labour, the environment, and ensuring equality and the redistribution of wealth. On the one side labour standards were ominous in their propensity to keeping national barriers shut to international trade, while the other feared those labour standards would diminish alarmingly as barriers to trade were lowered. And surprisingly, in respect to the argument Freeman concluded that the debate was somewhat misplaced, that trade policy has merely 'modest impacts on labour markets and economic outcomes beyond trade flows', that labour 'standards do not threaten the comparative advantage of developing countries, nor do poor labour standards create a "race to the bottom". Globalisation and standards are complementary rather than competing activities' (Freeman 2003).

In 2005 Freeman released a paper with an altogether more alarmed tone. He called the core concept of his new revelation, the Great Doubling, as it was that, in looking at the low-skilled and cheap labour forces the new emerging economies of India, China and Russia, Freeman discovered that the capital to labour ratio would be cut by between 55% and 60%. According to Freeman the global workforce at 2000 was at around 1.46 billion. The reforms that have since seen the opening up of the ex-Soviet bloc, India and China have flooded that global labour force with another 1.47 billion workers, and hence, doubling the labour stock, and almost halving the capital to labour ratio. Freeman elaborates what this might mean. Far from the calm nature of his earlier claims, that globalisation and labour standards are complementary, suddenly the abundance of labour in relation to capital meant that the balance of power would swing unhealthily toward capital. This would result in the plummeting of returns to labour due to the increase of supply and competition for work. Freeman uses this new relationship to argue that developing countries who had counted on competing in the world markets with labour-intensive, low skilled products for export, would

have to find new sectors as they would not be able to compete with manufacturing from China due to their low wages (Freeman 2005).

Also, the traditional division of labour between high-income and low- and middle-income countries, whereby the former deals in high-skill products, and the later low-skilled manufacturing, was to be offset by this new relationship and the increasing human capital in China and India, where wages are still very low. Increasing R&D, numbers of technical graduates and increases in technological know-how from greater international economic involvement are all causing a tremendous catch-up in China, and due to those low wages, the relocation there of high-skill production is an attractive prospect. From sitting on the fence between the Washington Consensus and anti-globalists in 2003, in 2005 Freeman concludes that the free-trade model must be abandoned . 'The world needs a new model of globalisation and new policies that put upfront the well-being of workers around the world' (*ibid.*).

However, the degree of impact China holds for the global work force is a point of contention. The key to determining the nature of this factor is the Lewis turning point. Before the advent of what we generally refer to nowadays as globalisation, Arthur Lewis (1954) described the problem of capital accumulation. If capital remains in a closed economy, the demand for labour increases (there is more capital and therefore more investment in both opportunities and the benefit of carrying out those opportunities) 'and the capitalist surplus is adversely affected' (Lewis 1954). In order to avoid this, capitalists could utilise surplus labour reserves of other countries, as long as it were an open economy. Lewis describes a dual economy (internationally, but the principle applies nationally): 'wages cannot rise in *A* until capital accumulation in *B* has wiped out *B*'s labour surplus' (*ibid.*). It is this simple principle that comes to the fore in the literature regarding the impact China may or may not have on the global labour market. It is described as the Lewis turning point, whereby an economy's industrial sector expands through capital investment, absorbing cheap labour from the traditional sector until that labour reserve is exhausted, demand for labour increases, and therefore wages go up.

In terms of the globalisation / race to the bottom debate, this is the positive process. However, if it is the case that China represents an 'unlimited' labour surplus, capital may continuously invest in China's industrial sector, while wages fail to increase. The adverse affects on both low- and high-income economies extend from this, and so in order to gauge the nature of the situation we must examine China's labour reserve. According to Paul Krugman (2013) this is

not an issue. Krugman argues that the signs one would expect from the turning of the Lewis point are evident in China's economy. He bases this claim on the observation that wages are finally rising. Somehow, in the investment-driven period of reform and phenomenal growth, China has seen continued returns from investment, and wages have stayed low despite the influx of capital into the country since it's opening up to the global economy. These two points suggest that up until recently, and the now-rising wages, China had not reached the Lewis turning point (Krugman 2013). Fang Cai (2008) corroborates Krugman's claims highlighting, as well as rising wages, recently reported labour shortages in certain parts of urban China. According to Cai, in 2003 such shortages were reported in the Pearl River Delta region, which then spread to the Yangtze River Delta region, two of China's most important industrial hubs. Citing previous work and collaborations Cai points to the nature of China's population structure. China's workforce is now ageing and the impact of the one-child policy on the positive effects of the demographic dividend and labour surplus is coming to an end (Cai 2008).

An IMF working paper by Mitali Das and Papa N'Diaye (2013) takes a more in-depth look at the nature of China's labour surplus. The paper states that wages are suppressed as labour moves from the traditional sector to the industrial sector, while expansion of the later is encouraged as investment increases productivity without the increasing overheads of rising labour costs. Once surplus labour is exhausted the returns to capital investment decrease as wages rise, and it will become less attractive for investment, and that this is the Lewis turning point (Das and N'Diaye 2013). The paper corroborates Cai's reports of labour shortages, and describes the large increases in migrant wages as anecdotal evidence. Das and N'Diaye also highlight the demographic changes, and the ageing of the workforce. However, they also propose an alternative reason behind both the rising wages and episodic labour shortages: labour market segmentation. As wage growth trails productivity gains, it does not seem to be the case that capitalist surplus is being adversely affected, and according to Das and N'Diaye, urban employers state scarcity of skill, rather than of labour itself, as causing the wage increases. Key to determining China's Lewis turning point is labour market segmentation, and the *hukou*, or, household registration system that determines whether an individual is a citizen of urban or rural China. This policy places a clear impediment to the classical nature of the labour market as envisioned by Lewis.

Das and N'Diaye claim that the wage increases do no suggest the exhaustion of labour surplus, though they do agree that the end of China's demographic dividends do hint at 'an

imminent transition to a labour-shortage economy' (*ibid.*). They argue, however, that reform of *hukou*, investment in human capital, and greater industrialisation of agriculture could greatly increase China's labour surplus, considering agriculture currently consists of around half the country's workforce, while the sector's value-added was only 20% of GDP in 2011 (*ibid.*). The paper concludes that despite the imminent demographic shift, there still exists a generous surplus in terms of underemployment in the traditional sector. Though while this is now around 150 million workers, by 2020 Das and N'Diaye estimate it will be 30 million, and that the Lewis turning point will be achieved soon after this point, between 2020 and 2025 (*ibid.*).

The emphasis on policy in Das and N'Diaye is enforced by Xiaolu Wang and Guanghua Wan (2014) who treat statistical discrepancies regarding population and employment to re-estimate urban, rural and migrational employment. Taking Chinese National Bureau of Statistics figures and those of the population census of 2010, Wang and Wan argue that while real wages grew more than GDP in 2012, to say that this signified China's reaching of its Lewis turning point would be inconsistent with other observations. The rural workforce is still very large at 396 million (2012), of which 258 million are employed in agriculture. In order to illustrate the degree of underemployment in these figures, Wang and Wan argue that China's land to labourer ratio is ten times that of other middle-income economies, which would suggest that a significant labour surplus remains. They then consider the nature of migratory labour, and through their re-estimation, up-scale the number of migrant workers from a conservative 68.8 million to 128.37 million. However, that Wang and Wan find that urban and rural employment had been under-reported also, suggests that the degree of rural to urban labour movement will be less than previously considered, though this does not mean that the surplus has been exhausted. Considering the land to labourer ratio, there still exists much potential for this transfer. Wang and Wan suggest that this transfer could consist of two thirds of the rural workforce before the sector would begin to lose productivity (Wang and Wan 2014). They also underplay the diminishing demographic dividends, stating that, as it is, the ageing workforce can still play its part for another decade or two.

Wang and Wan declare that the appearance of the Lewis turning point, despite these factors, is due to 'institutional bottlenecks' (*ibid.*). They claim that reform of the *hukou* system so that it encourages longer, permanent and future migration, as well as better social welfare, would help unlock the vastly underemployed labour surplus from the traditional sector, pushing China's Lewis turning point further into the future. Xiaobing Wang and Nick Weaver (2013)

attempt to highlight the complexities missed in the literature's treatment of this topic in arguing that Lewis' model describes less a point in time, and more a period, and that if seen in a number of stages, the issue becomes more clear. As in Das and N'Diaye, the idea that reported labour shortages equate simply with the reaching of China's Lewis turning point, conflicts with alternative observations. Yes, urban sector wages are rising, however, when the supply of labour is examined, that a surplus still exists poses a puzzle. Wang and Weaver's answer, consistent with Das and N'Diaye, and Wang and Wan, is the *hukou* system and its imposed limitations to migration.

However, Wang and Weaver do not aim to clarify a point, past, present or future. Their aim is to simply place texture to the issue in describing it as a period, where *hukou* is a central determining mechanism. They do this by contributing two key elements to the debate: the microeconomic foundations of Lewis turning points; and outlining the dynamics of two Lewis turning points. Wang and Weaver claim that Lewis' model was not detailed enough to describe clearly the case of China's labour surplus. Lewis' model describes three stages, rather than one hinge point. Wang and Weaver extend from these stages, two types of labour surplus: absolute and relative surplus. Absolute surplus labour is when the marginal productivity is lower than or equal to zero. Relative surplus labour is when the marginal productivity is greater than zero but still less than the real wage (Wang and Weaver 2013). The first stage consists of family units underemployed in agriculture. The second stage is achieved when enough labour leaves for the industrial sector so that work becomes productive, though productivity still remains below the subsistence it provides. The third stage is achieved when this relative surplus has left for the industrial sector and productivity comes to determine wages in the traditional sector. Here two Lewis turning points are described. Describing these stages in this way helps to clarify the importance of Wang and Wan's 'institutional bottlenecks' in determining the length of the period. As previously stated, and reflected in Wang and Weaver, reforms to *hukou* policy can unlock this relative surplus, thus doubling the migrant workforce of between 150 and 300 million (*ibid.*). Wang and Weaver predict, consistent with Das and N'Diaye, that it will be another ten years before the relative surplus labour is exhausted in China.

The land to labour ratio

In terms of Wang and Weaver's Lewis turning *period* we can assume that China won't exhaust its reserve labour surplus until per capita productivity in the primary sector has

reached levels comparable to similarly placed economies (Wang and Weaver 2013, Wang and Wan 2014). Despite Wang and Wan's figures being relatively up to date, the figures regarding the land to labour ratio were made only briefly despite the importance this ratio has regarding the nature of China's reserve labour surplus. Wang and Wan state that the average acreage of nine high-income economies (the US, Canada, Australia, the UK, Germany, France, Italy, Japan and South Korea) that a labourer in the primary sector has to work is 42.5 ha, while for top middle-income economies (Brazil, South Africa, Mexico and Poland) the amount is 5.8 ha (*ibid.*). They state that the per capita arable land in China is 0.47 ha which is a clear indicator of underemployment in China's traditional sector.

Taking figures for cultivated land and employment in the primary sector from 1978 to 2008 for China from the National Statistics of the All China Data Center (All China Marketing Research 2014), the ratio was at 0.41 in 2008. Arable land had been increasing from the beginning of this period until 1996 where it remained constant for a decade before decreasing in 2007 and 2008 consecutively. It would be expected that due to pollution and urban expansion China's arable land will continue to decrease. Employment in the primary sector had been steadily increasing from the beginning of this period until 2002, with a large and sudden increase, and then a return to the previous rate of incline, between 1990 and 1996. From looking at China's reform periods this might be due to the phasing out of the dual track system whereby the state sector saw contraction, which may have led to a return of many labourers to work the land (Naughton 2006, p91-98). Due to the fierce rate of growth in China's private sector, this 'hump' would have been quickly reabsorbed, though the primary sector returned to increase despite this (see appendix 1.1).

Since 2003, however, employment in the primary sector has been gradually but steadily declining, which has increased the land to labour ratio correspondingly. Holding the amount of arable land steady from 2008, adding employment figures for 2009 to 2013 and assuming the rate of change in employment since it began to decrease, between 2003 and 2013, it is possible to predict continued, estimated decline in primary sector employment to forecast the land to labour ratio, and when this might reach varying points (see appendix 1.2). Taking the land-area as constant, China's land to labour ratio would reach 1.22 with 100 million labourers employed in the primary sector. The ratio would reach 4.87, closer to the higher middle-income economies', with a primary sector labour force of 25 million. Taking the rate of change in primary sector employment between 2003 and 2013, China would expect to reach this first ratio figure of 1.22 in 2024, and would not reach 4.87 until 2030.

Of course, further pollution and urban expansion will diminish arable land thus pushing these figures forward, meaning we would estimate the second Lewis turning point and the end to relative labour surplus sooner rather than later. However, economic slowdown and the prioritisation of tackling pollution over poverty might mean urban expansion slows and pollution recedes, causing the ratio to diminish or slow down at least. Technological advancements across the economy might alter this estimation as it would increase productivity, therefore incentivising greater departure from the primary sector twice over with rising industrial wages, and even less to do in agriculture. Reform of the *hukou* would also lend to the releasing of this labour force into the industrial sector and a far quicker rate of rural to urban absorption of the relative labour surplus (Das and N'Diaye 2013, Dollar and Jones 2013, Wang and Weaver 2013, Wang and Wan 2014).

3.2 CHINA'S INCOME LEVELS

Another key branch of literature treats more specifically the nature of China's wages, independent of discussions regarding the Lewis turning point (though the principle in doing so is a logical extension of this). As was outlined in the previous section, whether or not Chinese wages are rising signifies important trends, both in terms of China's national economy, and for the global economy. In the literature, as with the extent of China's labour surplus, there are varying accounts of the direction China's wages have gone since the reforms, and where they might be going to. Due to the complexity of these trends, an in depth examination of them is warranted. As in the previous section, it is not enough to simply state that wages are rising, and then conclude that this signifies the exhaustion of China's labour surplus. It is necessary to determine the trends of these wages set against other trends such as household share of national income and returns to capital investment and productivity, the foreign exchange rate and national growth as relative to other economies' GDPs.

Indeed, China has experienced phenomenal rates of annual growth since 1978 and the beginning of the reform period. It is unquestionably our history's most phenomenal case of development, as in a mere thirty year period this phenomenal growth transformed a poverty rate of 64% in 1978 to 10% by 2004 (Dollar 2007). This is real and extensive poverty alleviation for millions of people, a success story for high levels of GDP growth. This growth has been driven by China's gradual opening up from a centrally planned economy to an ever-

liberalising free-market economy. As is consistent with globalisation and free trade theory, as the economy grows, standards of living and incomes rise with its expansion. It seems a natural thing, in the decade since China's accession into the WTO, that wages should begin to rise. For Cai (2008) and Krugman (2013), China has simply hit the wall, and there is not much more to it. The economy, if it can rebalance growth's dependence away from its high levels of investment and toward greater consumption (easier said than done), is simply maturing, and perhaps shedding the remnants of its socialist trappings.

Dexter Roberts (2006) outlines as much and, in line with Cai and Krugman, declares that it is the reported labour shortages that are boosting wages by 40% (in 2005). According to Roberts, wages are booming and companies simply cannot find the amount of employees necessary for maximum productivity. These increased incomes have impacted the profit margin by 5% and for Roberts, this signals the end of China's surplus labour as its wages are finally closing the gap with other economies. The impact this will have will be worldwide inflation, thus placing pressure on China (and presumably elsewhere) to push up the production line (Roberts 2006). And so, the globalisation cycle continues, with low-skill production looking elsewhere for cheaper labour. According to Roberts, companies have begun to do this, leaving China's established industrial zones along the Yangtze and Pearl River deltas, and moving inland, soaking up the labour reserve.

However, prices will still rise as it isn’t simply a case of quantity, but quality of labour that is placing a pressure on production costs. There appears to be skill mismatches that account for these labour shortages, while low-skill production moves inland (*ibid.*). This at least is one detail beyond the surface of labour shortages, and it would seem, as was the case in the previous section regarding labour surplus, the case of rising wages is one of complex details. According to The Economist (2007), China has experienced a decline in the consumption to GDP ratio. This has been explained elsewhere by high savings but that China's saving level is declining, it is indicative of a sharp drop in household's share of national income. Households attain a share of the national income through increased wages, through central wealth redistribution, or through capital investment. As this share decreases, profits and government revenues are rising, indicating that the previously extensive economic growth that lifted millions out of poverty is becoming more intensive in the later era of reforms. Share of wages in GDP dropped from 53% to 41% between 1998 and 2005 (Economist 2007). The Economist attributes this to the large labour surplus. Not only is the surplus suppressing wages through over-supply of labour, but due to China's inadequate financial sector small

industry is expanding slowly, and failing to incorporate the low-skilled work force (*ibid.*). The picture this paints is of rising inequality in China, of intensive rather than extensive growth.

This inequality helps go toward clarifying the schism between reports of rising and of falling wages. Not only is China competing internally for capital, but internationally the rivalry for FDI in low-skilled production is fierce, and this is another factor behind what at a second glance appear not to be rising wages (Chan 2003). In fact the minimum wage of the US is twenty times higher than of the competing developing economies of the Asian region, and between those economies, China, with higher costs of living, is reported to have wage standards as low as Vietnam and Cambodia (*ibid.*). Beyond this external suppression of standards, it is reported that Chinese minimum wages tend merely to keep pace with inflation, meaning instead of in keeping with the official standard of rising within 40% and 60% of the average wage, they often fall below this 40% minimum (*ibid.*). Since the early 1990s, in order to attract FDI, the Chinese minimum wage levels have stagnated. Not only this but official minimum wages are merely that which is reported to have been paid, and due to the nature of the large migratory labour force, it is common that workers are either paid below this standard or are paid weekly rates rather than hourly, meaning that they could work anywhere up to 80 hour weeks for this rate (*ibid.*).

Anita Chan's account of China's minimum wage amounts to an internal race to the bottom. The factors outlined are: the large labour surplus; the decentralisation of minimum wage settings where local government turns a blind eye to exploitation; no autonomous labour union movement - such organisations are under the remit of the government; and the *hukou* system, as it allows for the fluctuation of the labour supply to run concurrent with demand, and maintain a tight control over labour. This account is furthered by David Dollar and Benjamin Jones (2013) who reflects also The Economist's claim that labour is experiencing a low share of national income. According to Dollar's figures, mean global labour share of income, from a broad international sample, is 0.66, with 72% of the sample lying between 0.6 and 0.8 (Dollar and Jones 2013). Between 1935 and 1985, the UK and US labour share of income lay between 0.6 and 0.75. China's, on the other hand, was 0.5 in 1993, placing it then in the bottom 10% in terms of labour share of income. In 2007 the share has reduced to 0.43, the lowest of this figure seen, and still in decline (*ibid.*). Dollar and Jones place emphasis, as those above have, on the *hukou* system. He outlines its history as originating in the Maoist era, and being a strict replica of a Soviet system to delineate those necessary for State

industry. However, due to the demand for labour since the reform period, the system has relaxed resulting in this migrating labour force. According to Dollar and Jones, the wages of migrating labourers is 45% of urban labourers (*ibid.*). Dollar and Jones outline a model that evidences the *hukou* system both maintains China's surplus labour and depresses labour's share of income. He claims that if *hukou* was relaxed further, labour would eventually return to the global average, but for now it is to remain.

Dennis Yang, Vivian Chen and Ryan Monarch (2010) wrote a paper that takes a deep look at the nature of China's real wage in order to compare them internationally and assess whether or not China has lost its labour advantage. The paper states that while real wages had indeed increased seven fold between 1978 and 2007, growth has been uneven. And despite the large interest due to such increases, the likely passing of the Lewis turning point in 2009 or 2010, and the decreasing attractiveness for FDI to invest in China's economy, documentation on the nature of China's wages is lacking. So while wages have been growing at a high pace, their income rates are only reaching levels comparable to developing Asian neighbours, and are between 7% and 20% of developed neighbours such as Japan and Hong Kong. The rates of wage increases had been moderate, between 3% and 5% since the beginning of reforms and 1997. In the decade that followed, however, and surrounding China's WTO membership, wages increased at an annual rate of 13.2%. The paper corroborates previous claims that the initial phases of reforms saw extensive growth, but equity has since disappeared and regional inequality is severe, with 30% to 40% wage discrepancies between coastal industrial zones and rural regions more inland (Yang *et al.* 2010). This regional inequality explains rising wages and labour shortages, while failing to dismiss labour surplus. By the late 1990s, regional inequality became apparent to the point that the government intervened to rebalance the growth away from those coastal industrial zones, and the rate of inequality had reversed by 2006-2007 (*ibid.*).

The other vector of inequality lies between skill levels. According to Yang *et al.* wages in skill-intensive sectors have rocketed since the early 1990s. In 1990 some labour-intensive, such as construction work, wages were 14% higher than skill-intensive jobs in industries like banking and insurance. By 2007 this rate was 260% in the reverse (*ibid.*). Returns to education in China are now 10% per year of education, where they had been 3% or 4% in the 1980s. The suppression of low-skilled, labour-intensive sector wages is due to the large migrant workforce of 130 to 200 million. High-skilled sector wage increases account for all of China's wage increase figures, exacerbating the inequality of China's late-reform growth.

And so, despite claims of rising wages in China, the reality is that manufacturing wages are still far below developed countries. It would seem that China's comparative advantage in large reserves of cheap labour has yet to diminish (*ibid*.).

The labour share

To return to the decline in consumption share of GDP as stated in The Economist (2007), that it has continued to do so since is reflected in the PENN World Tables (Heston *et al*. 2012). It has continued to drop, though at a less aggressive rate, to 2010 (see appendix 2.1). That it has done so at all is indicative of increasingly lowering household share of national income. In Dollar and Jones (2013) this appears to remain being the case as three out of four methods display a continual decline in terms of labour share at a high rate, while the fourth does so at a gradual one, all up to the 2010 period. That savings are increasing in China was found to be less due to households, and more thanks to government and firms, with rising revenues and profits (Kuijs 2005). Household savings ratio increased dramatically between the beginning of reform and the mid 1990s (Modigliani and Cao 2004). After 1994, however, this ratio saw a dramatic decline. If it is the case that this decline has remained consistent for the decade that followed, in conjunction with the declining consumption to GDP ratio, it would signal an ever decreasing labour share, or household share of national income, as reflected in Dollar and Jones (2013).

Table 2 The increasing disparity between the top and bottom tiers of Chinese society

	1990	1993	1996	1999	2002	2005	2009
Top	40.70%	43.20%	43.30%	46.10%	48.60%	47.9%	47.1%
60-80%	22.60%	22.30%	22.30%	22.20%	22.20%	22.2%	23.2%
40-60%	16.50%	15.80%	15.80%	15%	14.30%	15%	15.3%
20-40%	12.20%	11.30%	11.30%	10.30%	9.40%	9.9%	9.7%
Bottom	8%	7.40%	7.20%	6.40%	5.50%	5%	4.7%

Source: World Bank 2014
Note: Percentage share of income or consumption is the share that accrues to subgroups of population indicated by quintiles

Indeed the gap between the top and bottom of China's society has been increasing since the 1990s (see table 2). Given these trends, and that they suggest a development toward intensive

rather than extensive growth, it would appear that claims to the notion that China's wages are increasing, thus signalling the depletion of a surplus of labour, are contrary to the reality. Wages for many appear to be lowering and as has been argued throughout the literature, this is largely thanks to the impediment on the transfer of labour from rural to urban China (Chan 2003, Dollar and Jones 2013, Yang *et al*. 2010).

3.3 REGIONAL IMPACT

In the literature on globalisation and fear of a race to the bottom, two main sub-topics arise. There exists on one hand a fear that, due to the country's large surplus labour and increasing level of technological sophistication, China will *crowd out* their regional competitors in the export markets. This is feared to happen both in terms of both low- and middle-value goods and manufactures such as textiles, apparel and low-tech consumables, made at lower costs due to the large, unskilled and cheap labour force, but also in high-value, capital- and knowledge-intensive technologically sophisticated products with the high number of scientific and engineering PhD students China is graduating yearly. On the other hand, there is a fear that due to China's low wages and large labour force, its neighbours, in competing for FDI, will begin to suppress their wages, and lower labour standards as it is thought that in the pursuit to maximise profits, MNCs will relocate to the source of the cheapest labour force. Lowering regulations, minimum wage, labour and environmental standards, and taxes all lower the cost of production on the profit margin of companies, and it is possible that due to China's enormous work force, the balance that had existed will be tipped, and its smaller neighbours will drop these standards in order to appear more attractive to foreign companies and also to maintain what capital they already have from fleeing to China.

China poses a very grave threat in this respect. Since their reforms they have become the chief exporter of labour intensive goods, and their accession to the WTO means they will develop an even greater presence in world markets (Rasiah 2002). The tariffs and quotas that were lowered by the WTO during the last decade has resulted in exposing China's neighbours' economies to cheaper imports and due to the nature of China's labour force, they then pose the largest threat to exporters. In 1999 the South East Asian economies had only 36.6% of China's 1,25 billion population, and only 71% of its GDP. This coupled with the fact that largely those Asian economies are not sufficiently advanced in technological

production, greater openness means that China's manufacturing capability will result in a *hollowing out* of those economies' industries (*ibid.*). There are four factors to consider in examining the threat from China to the region's economies: manufacturing value-added; exports; FDI; infrastructure.

In terms of value-added, China's rate in production increased at a greater rate than its neighbours throughout the 1990s as it integrated into export markets, and stood at 75.9% value-added in 1998 (*ibid.*). While gains were made elsewhere, due to China's size and the lowering of tariffs and quotas, China remained a more attractive location for the production of labour-intensive goods. As for exports, South East Asia region's exports was 6.4 times that of China's in 1978. By 1998 it was only 1.1 times China's share. Accession to the WTO will have decrease this ratio further (*ibid.*). The region's market share was three times China's in 1985 but by 1998 they had an equal share. China's expansion into the high-tech export market could mean it takes over places like Singapore while its low-tech exports would overwhelm Indonesia, Philippines, Cambodia, Laos, Myanmar and Vietnam. In respect to FDI, China has become the largest recipient of foreign capital flows among developing economies during the 1990s. In 1982 China attracted 6.5% of the share of FDI, but by 1999 their share increased to 69.7% (*ibid.*). After WTO membership and lowering of tariffs and quotas, this share will only have increased. And while China's comparative advantage is in labour-intensive industries, the build up of their R&D infrastructure is increasing their capacity to innovate.

The implications of these developments for regional employment are that due to China's labour force size, their WTO membership, and the low income levels, FDI inflows will be large, while outflows might not be that extensive. This means jobs will be taken from neighbouring low- and middle-income economies. While China has experienced a high rate of income level increases, productivity rates were even higher which maintains low labour costs and causing greater regional pressure. This increased pressure on labour demand leads to intensified competition for capital and in the South East Asian economies this means the likely weakening of labour union movements and lowering of wages. Unions in Indonesia, Malaysia, Philippines and Thailand have reported that MNCs have threatened to relocate to China if activity was not kept to a minimum (*ibid.*). While integration could lead to stronger industrial relations frameworks and a complementary development, existing power asymmetries will result in competition instead. Rising wages in China could mean that neighbours could benefit from expanding markets, but due to the scope of China's production, they may just be self-sufficient in this respect. Thanks to China's size, past investment and

R&D rates, and its science and engineering graduate rates, the South East Asian economies will need to work even harder to avoid engaging in a race to the bottom of labour standards (*ibid.*).

3.3.1 Crowding out

These developments largely deal with low- to middle-income economies. However, as mentioned briefly above, China possesses the capacity to increase its grasp on high-value production export markets. While the country's comparative advantage lay in labour-intensive industries and exporting such largely drove growth in the reform period, China's production capacity can be enhanced through technological progress, greater FDI inflows, and increased international trade (Xing 2008). Not only will this lead to increased competition from China, but it will effectively alter the economy's comparative advantage as its share in export of high-tech products increases. In 2002 these exports were worth US$67 billion. In only two years this figure had reached US$166 billion (*ibid.*). By 2004 China had become the world's number one exporter of information and communication technologies (ICTs), exporting more than Japan, the EU or the US (*ibid.*). The factor that has helped China in this respect is the increasing fragmentation of the global production line. Due to the previously stated factors, China has benefited the most from this development. And while the US import rate of such goods has increased, China's exports to the US has grown with that rate, while its neighbours' share has stagnated, suggesting that China has indeed managed to crowd out the South East Asian economies in this industry (*ibid*.).

While there appears to be evidence of this crowding out effect, there do exist alternative predictions in the literature. Geoffrey See (2008) argues that it is too simplistic a view to claim that due to China's large labour force and low wages that the South East Asian economies will be displaced in their exports to the EU or US, and that increased markets in the region will result in complementarity rather than competition. In terms of an increasing share of trade from China to the US, this may be more a case of redirection, rather than total displacement. China's exports contain a high import content with, according to See, only 15% value-added production. Therefore China's export gains do not come totally at the expense of its neighbours. The increase in apparent statistical evidence can be explained not by an increase in sole Chinese manufacturing and exporting, but in increasing importing to export, whereby its neighbours are still highly involved in the production chain, particularly if China's value-added only amounts to 15%. And as for China diverting FDI away from its

neighbours, See argues that: China is investing *in* its neighbours; that 30% to 40% of reported FDI to China is in the form of repatriated earnings; and in terms of relative economic size, the amount of FDI China receives is comparable to the regional economies, perhaps even less (See 2008).

However, See admits that FDI to China has doubled in the period between 1999 to 2008, while technological capabilities will increase further due to rising income levels in relevant industries, meaning that China could indeed displace neighbouring economies in those export sectors. The removal of quotas as stated by Rasiah (2002) and WTO accession for China, allowed them to take a share from economies in the textile export markets. China's share of US imports in these goods rose to 55.8% in 2005, while Asia in general fell by 7.71% (See 2008). The Asian share of the market fell by 3% between 2004 and 2005, except for China's share, who's share of EU imports was 40.87% while Asia's, as a whole, was only 13.37% (*ibid.*). Despite the gains being made by China in terms of export markets relative to its Asian neighbours, See argues that the region as a whole could benefit if they were to develop their industries in niche markets that complemented China's growing industries. When the value-added and production chain arguments are considered, the data overstates the idea that China is dominating the markets and crowding out neighbours. Instead it is the case that complementary arrangements, with limited competition are developing (*ibid.*).

Regardless of this argument, in terms of the global market it would appear that it is the Asian region as a whole that is driving economic change, with this shifting of the production chain form West to East. Key to future developments towards China's further impact on the global economy is its growing capacity to innovate, and what these shifting production chains might mean in this respect. According to Tilman Altenburg, Hubert Schmitz and Andreas Stamm (2008), the idea that China may only compete in low- to middle-value export products is diminishing as their capacity to innovate is closing with advanced economies. Currently the EU, US and Japan compete in the global markets on the basis of their power to innovate, as production and manufacturing has already experienced extensive off-shoring. If China, with its lower production costs, was able to innovate in cutting edge technologies, the 'bedrock of their prosperity [could] crumble' as it would be difficult for the West to upgrade in such a radical altering of the traditional division of labour (Altenburg *et al.* 2008). However, currently China's capabilities are not sufficient in mounting such a challenge, though they are increasing and it would be a mistake to think that the West had a monopoly on innovation (*ibid.*).

China's rate of increase in the field of innovation has been immense. It is helped on by highly skilled and motivated individuals who have returned from working in the West, encouraging global professional networks that increase China's capacity for innovation. This has been coupled with high rates of state investment in R&D infrastructure, their purchasing of technologies, and ability to hire the world's top talents, and also the bargaining leverage of access to future domestic markets for foreign investors has led to China's increasing capacity in sophisticated production (*ibid*.). However these capabilities still lag behind the West and China's comparative advantage still lies in low factor-cost production, though this is no longer simply labour intensive industries. For advanced countries this could mean one of three outcomes. Altenburg *et al*. outline these outcomes as ranging from worst to compromised, to best: The best case scenario sees Chinas developments as being stunted by some externality such as political or environmental upheaval. This will lower investment allowing advanced economies to consolidate their position in the top tier of tech production; The compromise would be that China's catch-up continues but the gap never closes due to an increase in productivity and further tech advancements made by the developed economies; The worst case scenario is that China fully catches up and successfully challenges the advanced economies in their core competences, therefore undercutting them and reducing their rents, allowing for extensive off-shoring in all sectors to drift toward cheaper sources of all round production (*ibid.*).

3.3.2 Labour standards

The race to the bottom theory assumes a pressure for convergence in standards from the increasingly international mobility of trade and capital flows, and that the size of such flows overwhelm the ability of the state to act contrary to market forces (Drezner 2006). Due to increases in capital mobility states seek to lower costs of production as capital seeks higher profits. If this is the case, according to Daniel Drezner, we should be able to observe three trends: Countries more open to trade and investment will have fewer regulations that affect the cost of production; there should be a strong negative correlation between inward capital flows and the rigour of country regulatory standards; and there should also be a domino effect whereby the lack of rigour to this effect will see other countries follow suit. However, Drezner argues that the evidence suggests that the assumptions underpinning this theory are wrong. The anecdotal cases in support of such assumptions can be countered by the same but from the alternative position, and while countries such as Pakistan, Bangladesh, Panama and Zimbabwe exempt their special industrial zones from labour regulations, it has not seemed to

place pressure on others as they have not done so also. For instance, Drezner continues, during the 1990s the Dominican Republic and Philippines instituted regulations in their special industrial zones (*ibid.*). Also there is no evidence that companies direct investment to countries with low labour standards and that 90% of FDI goes to advanced economies suggests that capital pursues high labour standards (*ibid.*). Drezner argues this claim by describing companies as now possessing more nuanced preferences in that: if they have to face regulations they would campaign that other regions would institute them also; as well as this, corporate culture has evolved to internalise public image and labour regulations now matter to brand reputation (*ibid.*).

But Drezner never really seems to fully address his three stated issues. And while there is not a huge amount of documentation testing these assumption, two recent papers have done so and reported empirical evidence through means of OLS tests that counter Drezner's assertions. William Olney (2013) addresses whether or not MNCs are attracted to low labour standards, and if, based on this, countries are engaged in the practice of undercutting their standards in order to attract MNCs, the domino effect, or race to the bottom. According to Olney when employment protection rules are less strict and the cost of production is lowered, this does attract FDI. When FDI is divided into two camps, vertical (footloose) and horizontal (necessary proximity to local markets), a significant and positive correlation is found between FDI inflows and low labour standards, and particularly in the case of vertical FDI (Olney 2013). Olney also finds that when competing countries lower standards, hosts of FDI do indeed follow suit, and that a significant and negative correlation exists between protection and FDI, which therefore suggests that FDI does respond to restriction on capital to labour. These findings, Olney claims, make it at least a little more difficult for pro-globalist theorists to dismiss the race to the bottom theory (*ibid.*).

Complementary to Olney's paper, Ronald Davies and Krishna Chaitanya Vadlamannati (2013) examines the third issue, that is, the rigour of countries' regulatory standards. Davies and Vadlamannati argue that while there may be limited evidence in terms of the instituting of labour laws and standards, there is more and open competition in labour standard practice and enforcement. Again through OLS tests, it is found that average labour rights, practices, and laws declined over the time series sample, suggesting a race to the bottom. The paper finds that OECD countries have higher and more stable standards, and competition here exists between laws (though being higher and stable, this competition would be limited) (Davies and Vladamannati 2013). However, between developing countries, and between

developing countries and developed countries, the competition seems to exist in practice and enforcement, and that there is a robust positive and significant spatial lag and an evident decline in labour rights indexes across time suggesting competition for FDI rather than complementarity in strategic practices and industrial relations (*ibid.*).

Redirection or displacement

Since 2006 the WTO has provided Trade Profiles for its members. Taking figures from 2005 to 2012 for Asian countries it is possible to map the varying and shifting shares of exports and imports for both the global, regional and bilateral pictures. In this period China's share of global exports, while being lower than the East Asian economies (Japan, South Korea, Singapore, Taiwan and Hong Kong, herein labelled G1) has steadily risen while G1's share has decreased slightly, though the period ended with an increase in share (see appendix 3.1). The South East Asian economies' (Malaysia, Indonesia, Thailand and Philippines, herein labelled G2) share of global exports has been considerably lower than China or G2's, but has increased slightly in this period. On closer inspection (appendices 3.2, 3.3), it would appear that for G1, discounting Taiwan, who experienced a slight decrease in its share, China's increased share of global exports came at the expense of Japan, while South Korea, Singapore and Hong Kong all ended the period with slightly higher shares. As for G2, both Thailand and Indonesia have slightly higher shares of global exports, while Malaysia and Philippines have slightly lower. From these trends, it would seem that Japan is the only real loser to China's significantly increasing share of global exports. Indeed if we look at US imports for this period, while China's share has risen from 15% to 19.1%, Japans has decreased from 8.2% to 6.4% (see appendix 3.4).

See (2008) claims that while China's share of global exports is increasing, and Asia's to the West is declining, this is less an act of displacement, and rather one of redirection. Exports from both the G1 and G2 economies to China are on the up, supporting the idea of redirection (see appendices 3.5, 3.6). Looking at the region as a whole (excluding China), it is evident that exporting to China is becoming of increasing importance in contrast with lowering exports to the West (see appendix 3.7). Considering these current shifts in trade flows it would appear that, while China is continuing to take a larger portion of the pie, it is providing a rerouting for neighbouring export economies, rather than simply stemming their individual flows. In terms of inter-regional trade, for all G1 economies, China is becoming a more important export destination than other G1 economies (see appendices 3.8, 3.9). However,

this trend is proving more gradual for G2 economies to emulate as G1 countries are still generally more important export destinations, while increases of China's shares have been slight (appendices 4.1, 4.2). This puts somewhat of a dampener on the idea that the lower-income economies in the region can latch onto China's growth into the global markets, though doesn't discount the possibility. In fact, while for the G1 economies, the shares of imports from China are remaining largely consistent, shares of imports from China to G2 economies are all on the rise (see appendices 4.3, 4.4). This puts another impediment on See's argument as it means that more imports to the weaker economies in the Asian region are coming from China. As long as China's production costs remain low, this will be a problem for the G2 economies as they will find it difficult to compete and secure their own industry base.

4 FINDINGS

In order to determine the validity of the race to the bottom theory's claims of universally lowering labour standards at the hand of ever-mobile capital and globalisation, three key issues have been examined. The first of these was China's Lewis turning point. In order to test the extent of Richard Freeman's Great Doubling thesis, it was necessary to examine the nature of China's reserve labour surplus, to see if it was large to the point that Freeman feared, and would tip the balance of the capital to labour ration in favour of capital. If it is the case that China's labour surplus is large to this extent, their economy could challenge low- to middle-income economies with its large reserve of low-skilled labour, but also high-income economies on account of the high number of technical graduates on relatively lower wages.

According to Krugman and Cai, the sight of wages rising at all, and that there have been reported labour shortages means that this simply is not the case. However, on further inspection, it would appear that segmentation of the labour force in the rural-urban divide due to the *hukou* system has resulted in rising wages and labour shortages despite the still existing labour surplus. That wages are rising is less of an effective issue in terms of signalling the turning of Chinas Lewis moment considering its rate is not as great as the rate of increasing productivity in the economy. Upon even further inspection and the concept of turning points and surplus labour in the conventional sense is put on hold as it comes to be that China's rural labour is hugely underemployed, and consisting of, beyond an absolute surplus, a relative labour surplus whose gradual and impeded absorption into the industrial sectors constitutes a

Lewis turning *period*, rather than a point. In this conception *hukou* and discriminatory behaviour against China's large rural-to-urban migrant workforce act as institutional bottlenecks that are responsible for the premature appearance that China's labour surplus has been exhausted. Instead it remains, and remains a threat in terms of Freeman's great doubling.

Fresh figures concerning China's land to labour ratio confirms a case of huge underemployment in the economy's primary sector. While high-income economies have on average one labourer to 42.5 ha of arable land, higher middle-income economies have on average a ratio of 5.8 ha. China's land to labour ratio is 0.47 ha for every labourer (Wang and Weaver 2013). With data from the All China Data Center, it is possible to extend this figures and also make estimated predictions regarding the future of China's primary sector employment. Since 2003 employment in this sector has been decreasing, and keeping all else constant, with this decline the figure will reach 100 million employed in the primary sector by 2024, and 25 million by 2030. Considering the amount of arable land China has, and assuming it remains constant over this period, 25 million in the primary sector leaves the land to labour ratio at 4.87 ha for each labourer. At this stage, in 2030, and without dramatic external shocks, it might be the case that China will emerge from having a labour surplus and join the other higher middle-income economies in what are considered to be normal development.

The second key issues was a deeper look at the nature of China's supposedly rising wages. While real wages have risen, and skill mismatches in labour supply have occurred, that consumption as a share of GDP has declined, while savings have remained consistent, it would appear that Chinese household share of GDP is what has declined. This amounts to decreasing degrees of China's consistent and phenomenal growth resulting in the hands of the general population. While income per capita continues to grow, the extensive growth that the early period of China's reforms was known for, has dissipated. Beyond state revenue, company profits and the minority of high-skilled, high-income earners, the country still exists largely in poverty. Minimum wage is low when compared to neighbouring developing economies, and have largely stagnated, when they are paid at all (Chan 2003). Globally, China's labour has the lowest share of national income and increasing real wages are yet to converge with other developing economies (Dollar and Jones 2013). Inequality is growing. Regional equality had been the cause of reported labour shortages, but now this is easing somewhat as companies are moving away from the coast. However high-skill and knowledge-intensive incomes have rocketed past the still low, labour-intensive incomes

(Yang *et al.*2010). Again, *hukou* maintains a labour market situation that conceals the extent of China's labour surplus.

With data from the PENN World Tables, it is possible to extend claims stated by The Economist (2007), that the Chinese consumption share of GDP was declining, and signified a reduction in the household share of national income. According to the fresh data the consumption share of GDP has continued to drop since 2006. Considering this in conjunction with Dollar and Jones's (2013) work on declining labour share, and Kuijs' (2005) and Modigliani and Cao's (2004) earlier work regarding the nature of China's savings, it would seem that China's inequality has continued to rise as labour's share of growth is diminishing. Looking at World Bank figures from 1990 to 2009 it would appear that this is indeed the case, as those in the bottom quintile are seeing less of the pie as time goes on, while those at the top are earning more.

Finally, the third issue split into two subsections. An examination of China's impact on the markets highlighted both fears of crowding out in terms of flooding export markets with cheap goods, and also undercutting practices in labour standards. While China's comparative advantage lies in labour-intensive industries, through technological progress, inward flowing FDI, and increased international trade, its economy's capacity to innovate and compete in high-tech products ought to increase. Indeed China is already the world's number one exporter of ICTs. It is thought that the fragmenting of the global production chain has allowed China to benefit so immensely in this respect. However that this production chain has relocated in China signifies more a redirection, rather than an outright crowding out, and neighbouring exporters are sharing in the growth of the entire region, even if this means China becomes a central hub.

With the aid of WTO Trade Profiles it is possible to examine trade flows, and the varying degrees of importance various partners are to one another, and the shifts between these degrees. Continuing beyond 2005 (See 2008) to 2012 it is evident that China's share of global exports continued to increase while Japan's has decreased. However, most of China's neighbours experienced a slight increase in this period. This suggests that, other than for Japan, there is not much evidence of crowding out. Indeed See's claim that China is redirecting, rather than displacing, its neighbours exports to the West is supported by the increase in importance in China for those economies' exports. However, this is more the case for the more developed of these economies than it is for the less developed. This coupled

with the fact that China is increasingly exporting back to those less developed countries does suggest that in terms of regional impact, the weaker economies may find it difficult to compete with China.

As for a race to the bottom in terms of labour standards, it would seem that there does exist empirical evidence that makes it at least difficult to refute the claim that MNCs pursue greater profits through lower taxation, cheaper labour, and slack labour and environmental regulations. It would also seem that due to this being the case, countries seek to undercut one another in their attempt to attract (or maintain) FDI by meeting those conditions that favour greater profits. Despite there now being a greater consumer demand for the ensuring that their goods are not made by exploited workforces, there is also empirical evidence that this undercutting competition between developing countries exists not so much at labour regulations, but in enforcing such.

The key issues have been: China's Lewis turning point and the extent of its reserve labour surplus; whether or not rising Chinese wages signal an end to this surplus, and; China's regional impact in terms of crowding out and causing a race to the bottom in labour standards. It would appear that the *hukou* system has artificially and prematurely brought about the symptoms of China having achieved its Lewis turning point and considering the alarmingly low land to labour ratio, it seems that China's reserve labour surplus is still quite extensive. In terms of reports of rising wages and labour shortages, once the figures are looked at more closely, these reports mask the reality of increasing inequality and a sustained reduction in the labour share of growth. Trade flows suggest that fears of crowding out can largely be put aside, however weaker economies will face difficulty in this respect, this fear being supported by recent evidence that MNCs do seek lower production costs, that countries do seek to lower these costs in order to attract or maintain FDI, and they do so not in instituting labour regulations, but in the enforcement of those standards.

5 CONCLUSION

The research question was: Does China present to the global economy a labour supply large to the extent that it will upset the current capital to labour ratio, resulting in a new and lower equilibrium in terms of returns to labour? It was derived from the debate between free-market, free-trade globalisation theory, and theory concerning fears of a Great Doubling of

cheap labour in the global market which would cause a race to the bottom in terms of labour standards. The hypotheses stated to test the race to the bottom theory, and answer the research question were: *Hypothesis 2*: Rising incomes do not signify the depletion of China's reserve labour surplus; *Hypothesis 3.1*: China's increasing share of world exports implies a crowding out effect among other regional economies; *Hypothesis 3.2*: MNCs pursue cheaper production costs; Countries compete in terms of these costs, and; Countries with high labour standards fail to attract FDI.

This research set out three sections in order to test these hypotheses: China's Lewis turning point; China's income levels, and; regional impact, which was in turn subdivided into crowding out and labour standards. The research employed a treatment of the literature relevant to each of these branches of the argument, in the construction of an argument based on key issues. Findings for each hypotheses were made based on these treatments in conjunction with fresh empirical data taken from various sources. What now follows is a conclusive discussion of the findings, taking each hypothesis in order.

Hypothesis 1: China has not reached its Lewis turning point

This section began by outlining Richard Freeman's Great Doubling theory which sets up the logic of the hypotheses and the order in which the underpinning claims are tested. The theory states that there is a great doubling of the global labour stock with the entry of economies such as China into the global economy and that this will cause a shift in the traditional global division of labour as China comes to compete with developed economies in high-value production but at lower costs due to its large reserve labour supply that will naturally suppress wages. If this is the case it would be expected that the world's labour standards would reach a lower equilibrium than the sort of economic development that is touted by globalisation theory, which insists that greater openness causes a race to the top in this respect. The extent of China's reserve labour force, then, is paramount to this process, and so when China reaches its Lewis turning point, or if it has already, is key to answering the research question. According to Krugman (2013) and Cai (2008) it is the case that China has already done so as wages are rising and there are reported labour shortages. However, upon further examination these instances might more appropriately be explained by market segmentation and China's *huokou* system that regulates the labour market. China's land to labour ratio is astoundingly low at 0.47 ha compared to other higher middle-income countries (Wang and Wan 2014), and based on a data analysis this comparable figure will not be

achieved until 2030. The premature appearance of China's Lewis turning point is therefore more likely to be caused by such institutional bottlenecks as the *hukou* system (*ibid*.), reform of which should allow the release of China's still extensive reserve labour surplus (Dollar and Jones 2013).

Hypothesis 2: Rising incomes do not signify the depletion of China's reserve labour surplus

The next section returned to the question of rising wages and labour shortages. Through the treatment of the literature it argues that while China has experienced real poverty reduction, in the latter half of the reform period it would seem that extensive growth has been replaced by intensive growth as the labour share has been decreasing. Consumption share of GDP has decreased, meaning that people are not partaking in China's phenomenal growth. While it could have meant that households were saving their share of the growth, it appears to be the case that China's high savings are resultant of high government revenues and company profits (Kuijs 2005; Modigliani and Cao 2004). In support of this claim, the literature provides anecdotal evidence that while wages in high-skill sectors are rocketing, they are plummeting or stagnating elsewhere (Chan 2003). Fresh data illustrate the continuation of the trends stated in the literature. It would appear that due to rising inequality and continued decreases in consumption share of GDP, claiming that China's reserve labour surplus has been exhausted based on rising wages is unfounded.

Hypothesis 3.1: China's increasing share of world exports implies a crowding out effect among other regional economies

See (2008) argues that China's capture of global exports shares does not signify displacement, but a redirection of exports as regional neighbours export to China instead of the West. Figures from the WTO Trade Profiles support this claim, however, they also suggest that for the weaker economies exporting to China is less prominent than for other advanced neighbours. Also, it appears that China is increasingly exporting to these weaker economies. These processes suggest that the possibility does indeed exist that China could overwhelm its weaker neighbours. However, the literature argues that it is possible to rise with China, if niches in production are found, that complement China's production for export to the West. As for the what China presents to those advanced economies, while traditionally its economy's comparative advantage lay in labour-intensive production, this is upgrading and could pose threats to high-value production due to its lower costs. So while there exists signs of crowding out, it is difficult to say conclusively in these respects what China will present to

both advanced and developing economies as niches may be discovered and new, higher-tech innovations made (Alternburgh *et al*. 2008; Bremmer *et al.* 2006; See 2008).

Hypothesis 3.2: MNCs pursue cheaper production costs; Countries compete in terms of these costs; Countries with high labour standards fail to attract FDI

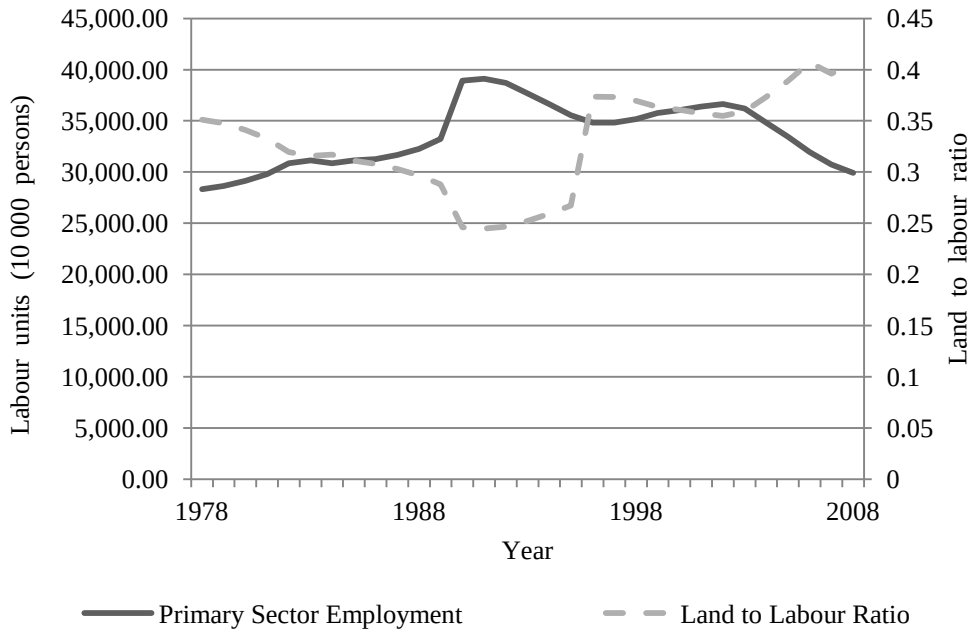
Based on Olney (2013) and Davies and Vladamannati (2013), there appears to be empirical evidence that at least makes it difficult to dismiss the asking of these questions. Between these two papers and OLS regressions therein, it appears that when employment protection rules are less strict and the cost of production is lowered, this does attract FDI, particularly when capital is more mobile (Olney 2013). Also that when competing countries lower standards, hosts of FDI do indeed follow suit, and that a significant and negative correlation exists between protection and FDI, which therefore suggests that FDI does respond to restriction on capital to labour (*ibid.*). Further to these findings, while there may be limited evidence in terms of the instituting of labour laws and standards, there is more and open competition in labour standard practice and enforcement suggesting that it may be true that MNCs seek countries with apparent labour regulations due to growing consumer awareness and brand reputation (Davies and Vladamannati 2013). However, if these regulations are not enforced it results in a win-win for FDI as reputation remains intact and production costs remain low.

From the treatment of the literature, and in conjunction with fresh data analysis, it would seem that: H_1 is confirmed - China has not yet achieved its Lewis turning point and maintains a large reserve labour surplus underemployed in the primary sector that looks likely to sustain itself for almost another two decades; H_2 is also confirmed - rising wages do not signify the exhaustion of this reserve labour surplus, but rising inequality as the labour share of growth diminishes; $H_{3.1}$ is more ambiguous - while China shows limited signs of crowding out its neighbours due to the extent of its reserve labour surplus, it remains inconclusive as to what this might mean for its neighbours as both the possibility of externalities coming to bear on the process, and the possibility of complementary niche production could either reverse the trends, or cause them to be beneficial; $H_{3.2}$ is confirmed based on the literature - arguments that claim MNCs do not seek lower transaction costs, that countries do not seek to attract FDI through lowering such costs, and that lax enforcement of such regulations is not positively correlated with the presence of MNCs no longer have the final say as, due to fresh empirical evidence, it would seem that it might be the case that a race to the bottom is afoot.

In conclusion, and based on the thorough examination of the literature on the topic, in conjunction with fresh data analysis, China's reserve labour surplus looks far from being exhausted, and while the nature of the implications of this are essentially inconclusive, there do appear to be signs that, due to the extent of its huge supply of cheap labour, China might be tipping the balance somewhat in favour of capital and posing the possibility of a global race to the bottom in terms of labour standards, a cause for concern and strong reflection on our global economic policies.

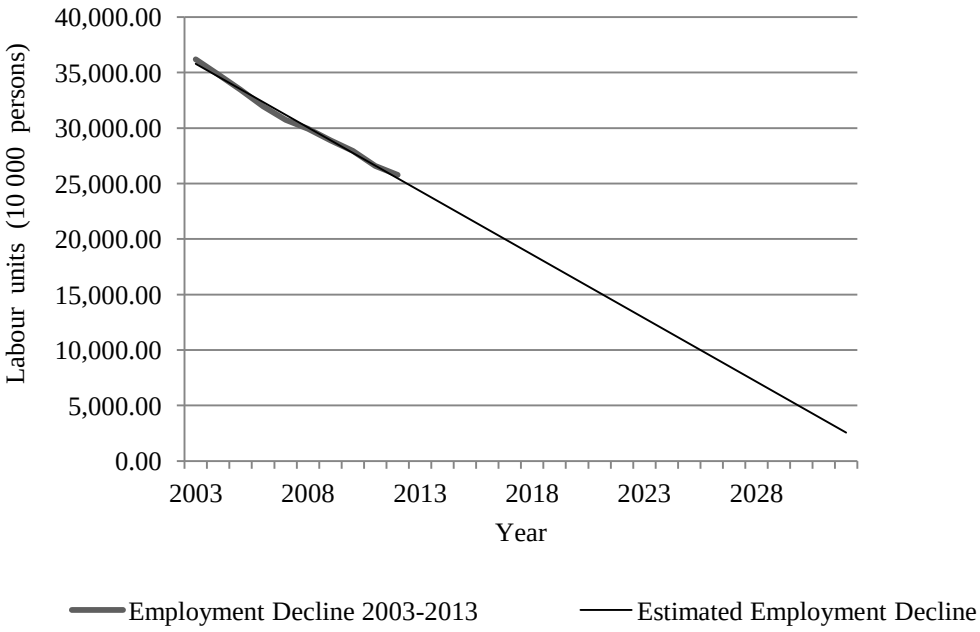
APPENDIX

Appendix 1.1 China's primary sector employment and land to labour ratio, 1978-2008



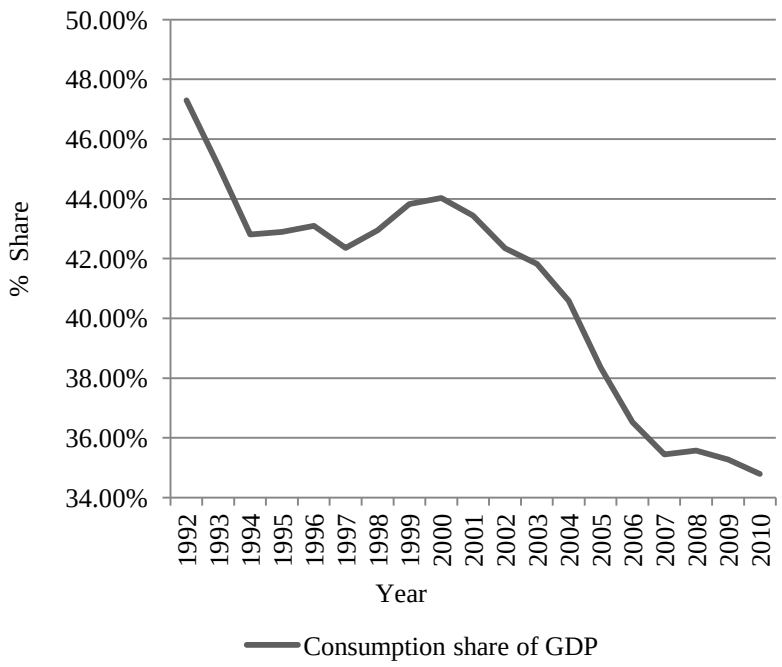
Source: All China Data Center (2014)

Appendix 1.2 Estimated primary sector employment decline



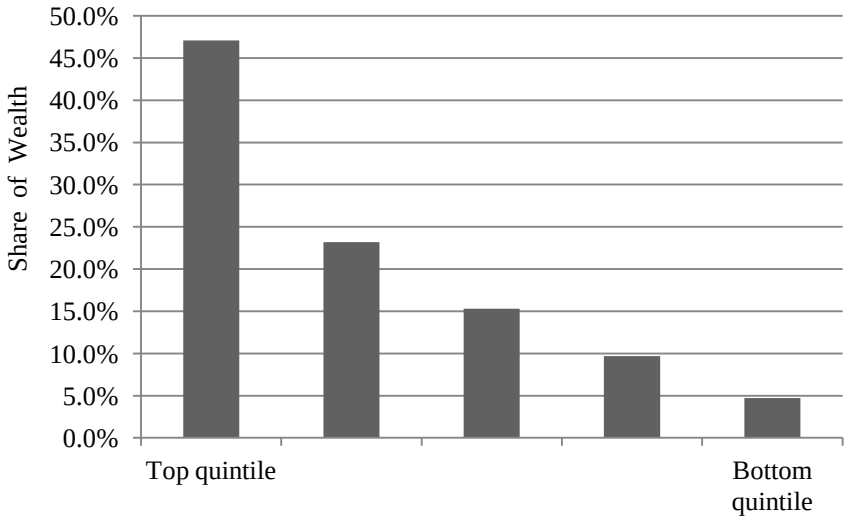
Source: All China Data Center (2014)

Appendix 2.1 Consumption share of GDP as %



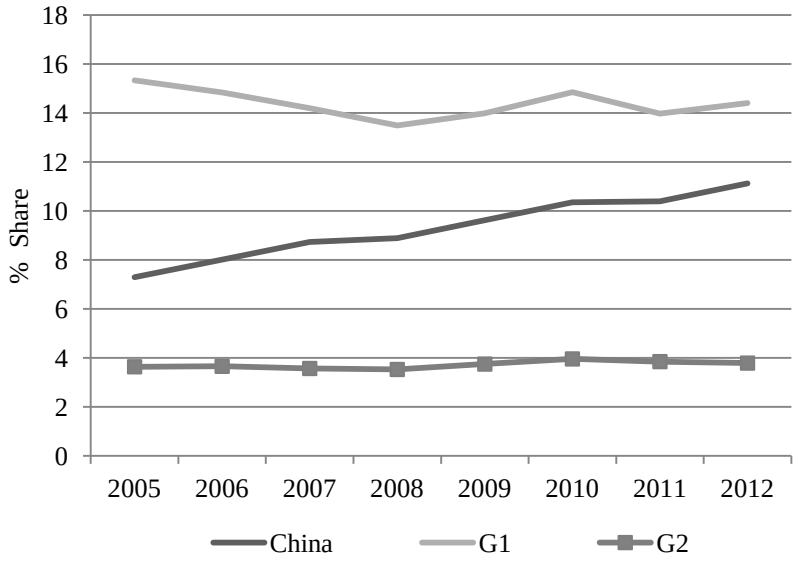
Source: Heston *et al.* 2012
Note: Consumption Share of PPP Converted GDP Per Capita at current prices.

Appendix 2.2 Distribution of China's wealth



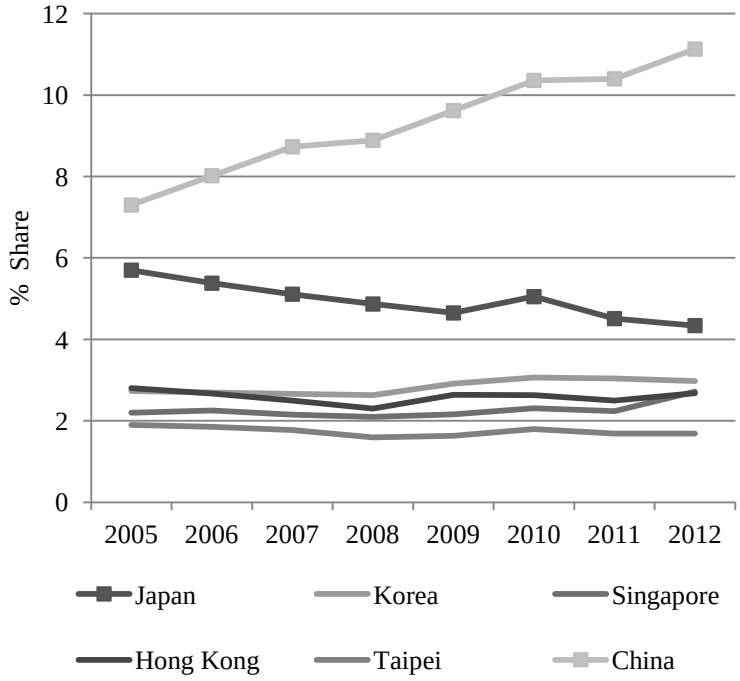
Source: World Bank 2014
Note: Percentage share of income or consumption is the share that accrues to subgroups of population indicated by quintiles for the year 2009.

Appendix 3.1 Share of global exports for Asian economies



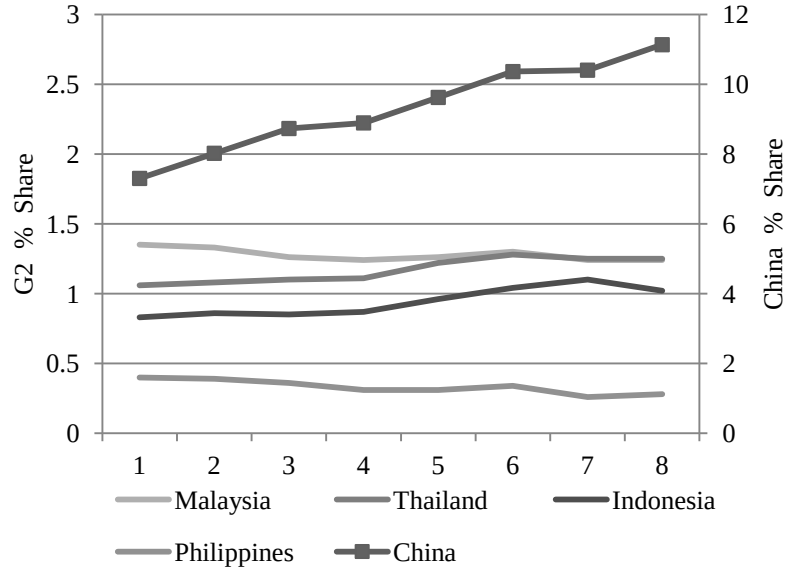
Source: WTO various years
Note: The data for appendices 3.1 - 4.4 are taken from merchandise trade alone, and consider only the top five destinations/origins for each economy, as was available in the Trade Profiles.

Appendix 3.2 Share of global exports for G1 economies and China



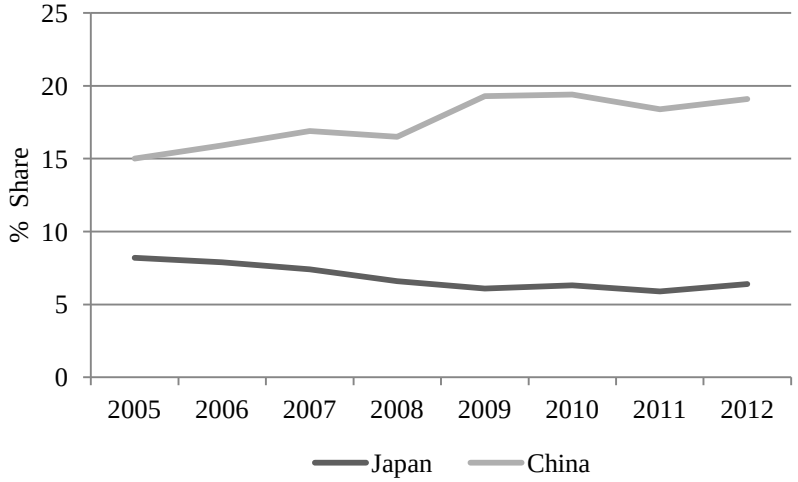
Source: WTO various years

Appendix 3.3 Share of global exports for G2 economies and China



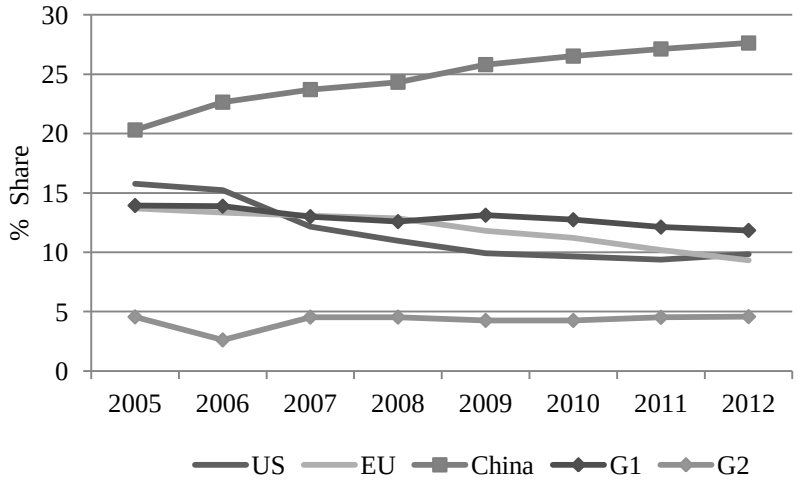
Source: WTO various years

Appendix 3.4 Share of US imports



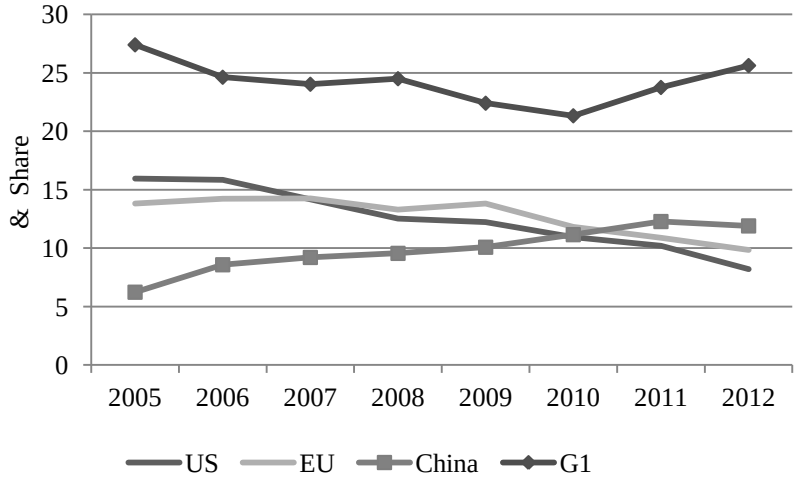
Source: WTO various years

Appendix 3.5 Export shares of G1 economies



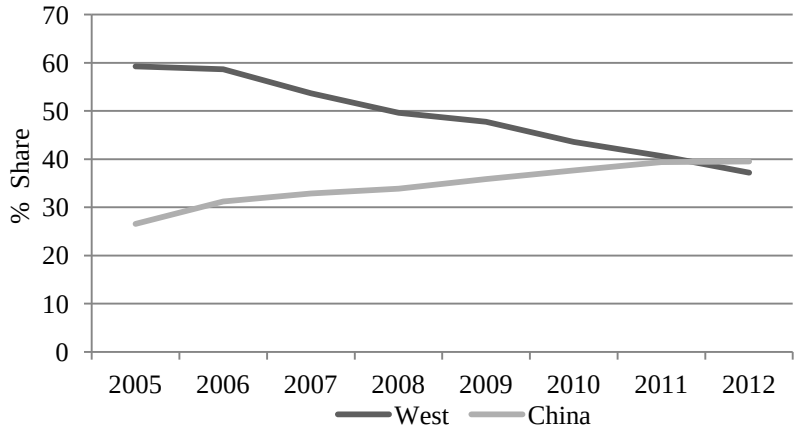
Source: WTO various years

Appendix 3.6 Export shares of G2 economies



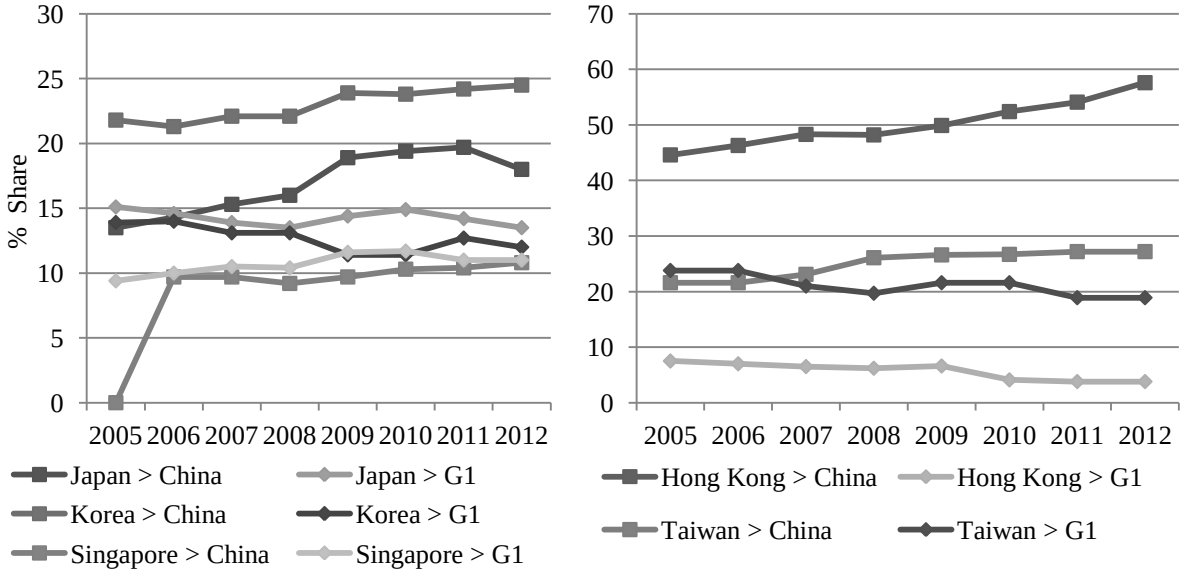
Source: WTO various years

Appendix 3.7 Asia's export shares (excluding China)



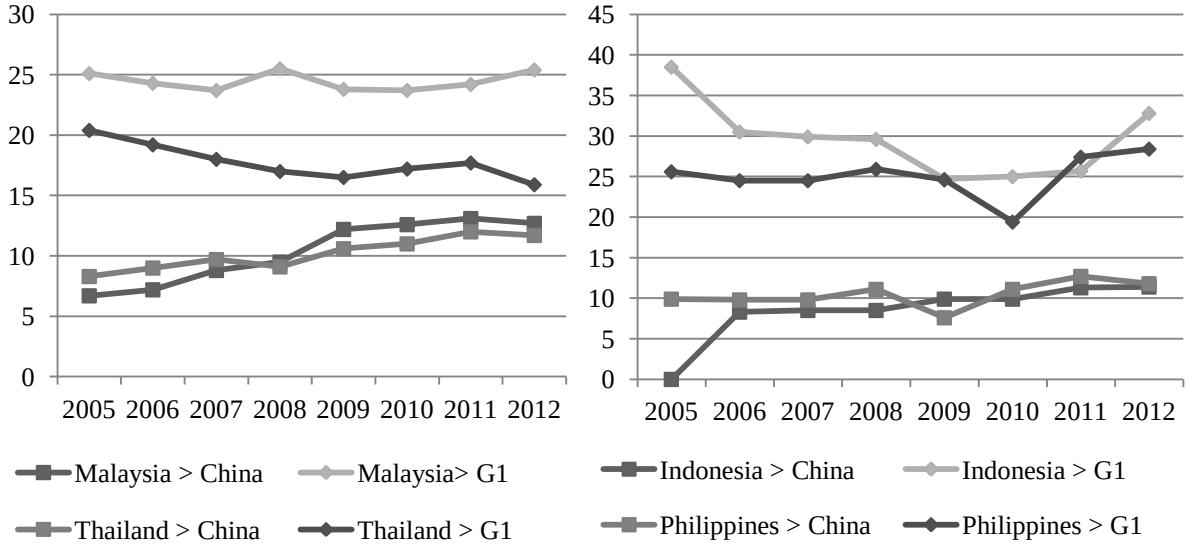
Source: WTO various years

Appendix 3.8, 3.9 G1 economies' exports to region



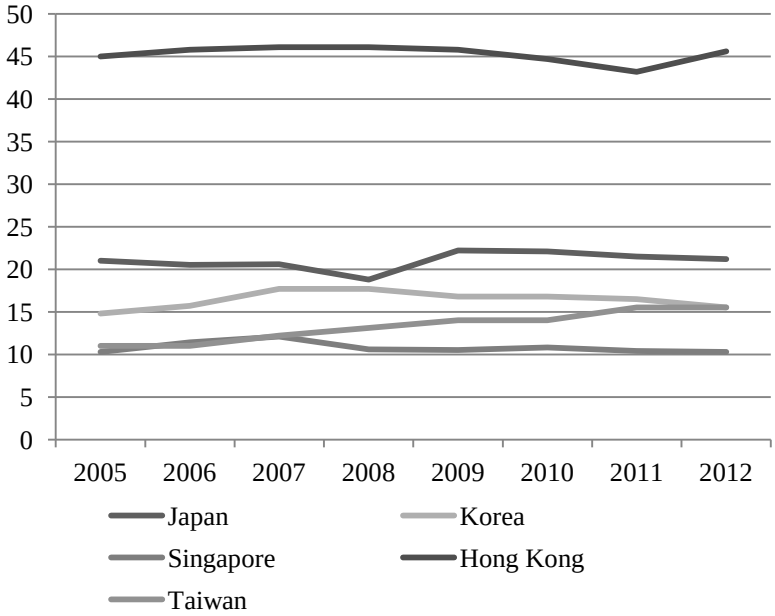
Source: WTO various years

Appendix 4.1, 4.2 G2 economies' exports to region



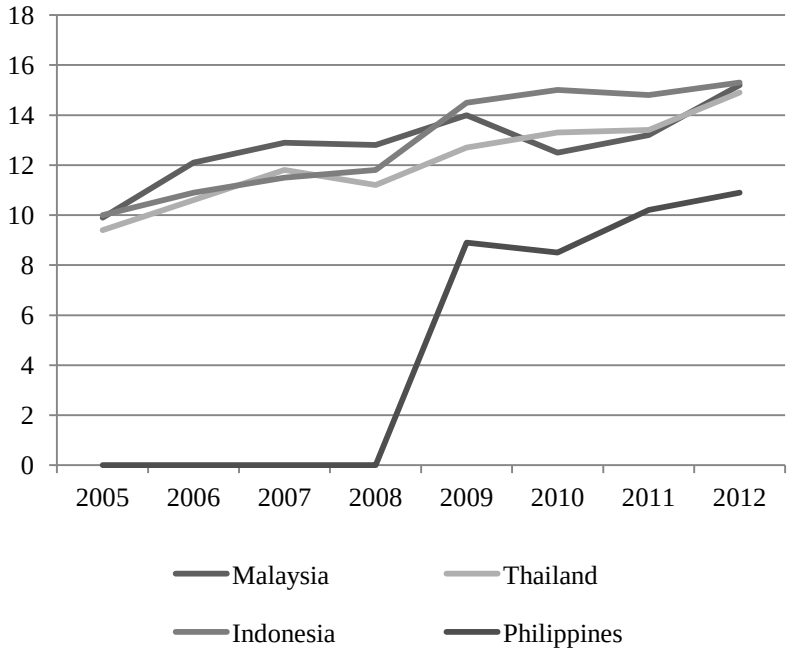
Source: WTO various years

Appendix 4.3 G1's import shares to China



Source: WTO various years

Appendix 4.4 G2's import shares to China



Source: WTO various years

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