Title
A Global History of Unemployment: Surplus Populations in the World Economy, 1949-2010

Author
Benanav, Aaron Seth

Publication Date
2014

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA

Los Angeles

A Global History of Unemployment:

Surplus Populations in the World Economy, 1949-2010

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor in Philosophy

in History

by

Aaron Seth Benanav

2015

ABSTRACT OF THE DISSERTATION

A Global History of Unemployment:

Surplus Populations in the World Economy, 1949-2010

by

Aaron Seth Benanav

Doctor of Philosophy in History

University of California, Los Angeles, 2015

Professor Robert Brenner, Chair

This dissertation examines the rise in what I call, in an approximate sense, "global unemployment," since the 1950s. The category of unemployment is difficult to apply precisely at the global level, since in most countries either there is no unemployment insurance, or that insurance covers only a small portion of the unemployed. As a result, the unemployed must work even though they are unable to find regular work. Some of these unemployed individuals end up underemployed in the formal sector of the economy. Globally, many more find their way into the informal sector. I develop a category of "surplus population," drawn from 19th century political economy, to describe the diverse situations of these unemployed and marginally employed individuals. I also offer a dynamic theory of how people come to find themselves in those situations—due to processes leading, on the one hand, to an oversupply of labor and, on the other hand, to an under-demand for labor. And I estimate the size of the global surplus population, at present.

The dissertation then goes on to provide an historical account of the rise of surplus populations worldwide, mainly in the period since World War II. My argument is that the rise of surplus populations was largely the result of three processes that unfolded globally: (1) a massive, demographically driven increase in the world's working population; (2) a global "Green Revolution," which significantly reduced the price of food but also resulted in a worldwide wave of agricultural exit, making for the further rise in the population needing jobs; and (3) a global wave of deindustrialization, which unfolded not only in the high-income countries, but also across the low-income world. The result was a huge increase in the global supply of labor relative to a weakening demand for labor, and this brought into being a gigantic population of unemployed people—whether in open or hidden forms. I try to buttress this account by reference to the exception that proves the rule: the unique developmental path of East Asia, where a combination of a more slowly growing labor supply and a larger demand for labor reduced the scale of the surplus-population problem, as compared to other developing regions.

The dissertation of Aaron Seth Benanav is approved.

Francis Anderson

Ivan Berend

Ching Kwan Lee

Robert Brenner, Committee Chair

University of California, Los Angeles

2015

Table of Contents

Acknowledgements vii

Vita viii

Prologue 1

1. Surplus Populations 7

    1. Preliminaries to a Theory of Superfluity 9

    2. An Empirical Estimate 16

    3. Historical Origins of Superfluity 26

    4. Three Sources of Surplus Workers 33

    5. Towards the Post-Industrial Doldrums 39

    6. East Asia: An Exception Proves the Rule 43

    7. Contending with Alternative Accounts 46

    A Note on Statistical Sources 55

2. Demographic Proletarianization 60

    1. A Universal Tendency 64

    2. The Key: Growing Urban Populations 68

    3. A Theory of Demographic Transition? 74

    4. Beyond Demographic Transition Theory 88

    Conclusion 100

3. De-Agrarianization 107

1. A Limited Transformation of Agriculture before 1940 116

2. A Double Revolution in Agricultural Affairs 125

3. An Expanding Supply Confronts a Constricted Demand 140

4. The End of the Peasantry 162

Conclusion 177

4. De-Industrialization 180

1. Import Substitution Yields Limited Results 184

2. Under Pressure to Promote Exports 193

3. The Onset of Deindustrialization 212

4. Deindustrialization and Structural Adjustment 225

Conclusion 238

Bibliography 242

Acknowledgements

This dissertation could not have been written without the support and assistance of many people. I would like to thank, first of all, the members of my dissertation committee—Perry Anderson, Ivan Berend, and C.K. Lee—for being so patient and understanding, as I worked my way through this project. I am especially thankful to Robert Brenner, who has not only been a wonderful advisor, but also a true friend and intellectual companion, over many years. I also thank Hadley Porter, Director of Student Affairs for the UCLA History Department, for her administrative support, particularly while I was away in the Bay Area.

Many others provided me with intellectual, material and emotional support, over the past few years of writing. I am grateful to Jason Smith, Rachel Kushner, and their son Remy, for accepting me into their lives and into their home, whenever I needed to be in Los Angeles. I would also like to thank Jason for reading through large portions of this dissertation, and also for the long conversations we had about my work on a coast-to-coast road trip in the summer before I filed. John Clegg also read through large parts of this dissertation; his intellectual camaraderie, and willingness to talk with me endlessly about my project, made it a significantly better work than it would have been otherwise. In addition, I would like to thank: Chris Chitty for his support and friendship, Maya Gonzalez and Madeline Lane, as well as Chris O'Kane, for some last minute editorial help, Joshua Clover and Jasper Bernes for their emotional and intellectual support, and Juliana Spahr, who was my faithful writing companion for the last few months of work.

I would like to thank Jacob Collins, Naomi Taback, Eli Diner, Alexander Zevin and Rachel Schley, without whom I could not have survived graduate school. Over the years, Rob Lucas, Zoe Sutherland, Nils McLean, and Jeanne Neton, as well as Maya and John, provided me with exactly the sort of "good" conversation that I needed.

None of this would have been possible without the support of my parents, Elyse and Dan, and my brother Ethan, who has moved to California, so we could thankfully be closer. I owe a deep and abiding debt to my partner, Chloe Watlington, who stayed with me through many stressful evenings, and continued to do so as the evenings turned into weeks, and the weeks turned into months, and the months into years. Chloe has been the sort of intellectual and emotional companion I never thought I would find. Thanks as well to her cousin, Sarah Watlington, who also became my good friend. Lastly, I would like to extend a special thanks to Gopal Balakrishnan, who set me on this intellectual path, so many years ago, at the University of Chicago. Gopal was my first intellectual mentor, and a close friend, who helped me to develop many of these ideas, and so many more, from their infancy.

Vita

Education

M.A. with distinction, European History, UCLA, 2008

B.A. with honors, History, University of Chicago, 2005

Publications

"Can Dialectics Break BRICS?" (with Joshua Clover), *South Atlantic Quarterly*, 113.4 (Fall 2014): 743-759.

"Misery and Debt" (with John Clegg), *Endnotes* 2 (2010): 20-51.

"Landscapes of Labour," *New Left Review* II/61 (January-February 2010): 222-232.

"Critique in Crisis," *Lana Turner Journal* 2 (Fall 2009): 212-223.

"Kali's Prophet," *New Left Review* II/48 (November-December 2007): 139-151.

Conferences

April 2013, Center for Social Theory and Comparative History, "The New Global Revolutions"

January 2010, Historical Materialism NY, "Dimensions of the Present Crisis" (Opening Plenary)

January 2010, Historical Materialism NY, "Too Few Jobs for Too Many People"

November 2009, Historical Materialism London, "Structures of Superfluity"

Prologue

On January 28, 2002, a defiant march took place in the streets of Buenos Aires. Starting from La Matanza—a district on the outskirts of the city with a large population living in poverty—it stretched forty kilometers to the city center. People in the procession were protesting an impending devaluation of the Argentine peso. They demanded "*que se vayan todos*," that all the politicians should go (although it was never quite clear what was supposed to replace them). This march was a signal event within a wider social movement, which had grown significantly in the year before. It brought together two groups that had not previously united: the *piqueteros* and the *cacerolazos*.

Piqueteros were unemployed workers who organized blockades of highways, starting in 1997.[1] In that year, mass layoffs were already taking place at factories and schools, during what was still supposed to be an economic boom. Unemployed workers used the blockades as a means to demand compensation. In the years that followed, the *piquetero* movement grew and diversified. The state's response to the *piqueteros*' disruptions was to pay small sums to some unemployed heads of households—but far from the majority—for participation in minor public works projects.

Cacerolazos, by contrast, were formed from among the middle classes and took their name from characteristically noisy street protests. They banged on pots and pans, demanding an end to restrictions on bank withdrawals, known as the "*corralito*," imposed in 2001. The need to impose

---

[1] Aufheben, "Picket and Pot Banger Together: Class recomposition in Argentina?" *Aufheben* 11 (2003), accessed December 25, 2014, http://libcom.org/library/argentina-aufheben-11.

this *corralito* showed how deep the crisis, which started as a recession in 1998, had become.[2] Those with savings lost access to them; many were reduced to poverty. That explains the slogan announced on January 28: "*Piquete y cacerola, la lucha es una sola"* [Pickets and pot-bangers, there is only one struggle].[3] *Piqueteros* had organized coordinated blockades that strangled traffic coming into the city. Marching to the center thereafter, they were greeted with approbation, food and drink.

Into the raucous demonstrations of that January 28 stepped Argentine director Fernando "Pino" Solanas. He captured footage of the march for a 2006 film titled *La dignidad de los nadies* [The Dignity of the Nobodies].[4] Solanas followed the protest movement, including visits to the occupied Zanon ceramics factory, from the moment of its expansive growth in 2001 to the elections in 2003, when Nestor Kirchner took power and the economy began to recover. At that point, the masses, having so recently entered the stage of history, quietly shuffled off it. What makes Solanas's film memorable is that he not only followed the protestors into the streets. Having met them there, he then interviewed some protest participants in their homes. The first such interviews are of Martín—a motorcycle courier who survived being shot in the head at one of the protests—as well as of Toba, the older militant and school teacher who saved Martín's life. So begins a filmic journey to the outer district of La Matanza, as well as Ezeiza, where Toba lives.

---

[2] This recession started due to knock-on effects from the unfolding East Asian Financial crisis, which had already issued in crises in Brazil and Russia. Hot money, which had flooded into Argentina throughout the 1990s, now flooded out of the country. With the peso under pressure, the government turned to the IMF for assistance. However, abiding by IMF loan conditionalities only caused the crisis to deepen, in the years that followed.

[3] Aufheben, "Picket and Pot-Banger."

[4] *Dignidad de los nadies*, directed by Fernando Solanas (2005; Buenos Aires, Argentina: Cinesur, 2005), DVD.

Leaving the scene of the protests in the city center, the film enters a landscape of unpaved roads, of streets without streetlights, and of homes lacking hookups for heat and electricity. Newer dwellings are constructed from corrugated metal; older squatted structures frequently flood (UN-HABITAT estimates that around this time, one-third of Argentine urban-dwellers lived in slums).[5] Not everyone who lives in these slums is destitute: Toba works at a school for adults, traveling 2.5 hours by four buses to get to work in the city center. He makes less than 300 dollars per month, but what he has, he shares. For many of the people living in the slums, existence is more precarious even than that.

Slum-dwellers may be described as *desempleado,* since some of them once had steady work. But they have no access to unemployment benefits. Under these conditions, to be fully unemployed would thus mean to live by begging, or by the kindness of family members. In reality, most of the unemployed take whatever work they can find, however temporary. Many of the men work as casual day laborers, when they can, while the women work as domestics. They have been absorbed into the vast informal sector of the economy, which accounts for about half of all non-agricultural employment in Argentina.[6]

In *La dignidad de los nadies*, Solanas interviews a number of these informally employed individuals. Margarita and Colinche drive a donkey cart, collecting recyclables along the street. Colinche explains that when he ventures to the city center, he takes his daughter with him: facing police harassment, he fears that without his daughter there, he would be thrown in jail rather than merely shooed out of the city. Solanas also attends the funeral of Darío Santíllan, who had

---

[5] U. N. Habitat, *State of the World's Cities 2012/2013: Prosperity of Cities* (London: Routledge, 2013), 125.

[6] International Labor Organization, *Women and Men in the Informal Economy: A Statistical Picture, Second Edition* (Geneva: International Labor Office, 2013), 66.

a makeshift brick making factory and ran a soup kitchen. He was killed in one of the protests. These are some of the "nobodies" of the film's title, members of what I will call, in what follows, the global "surplus population" or "surplus workers."

For the most part, these surplus workers lead unnoticed existences on the margins of a globalizing economy. Yet they can be found in great numbers across the low-income countries: in urban or peri-urban areas, such as La Matanza, as well as in rural towns. Individuals sift for recyclables in the trash heaps outside of Sao Paolo, cut hair and repair shoes in back alleys in Karachi, and sell homemade hooch in Lagos. They wash dishes in restaurant kitchens in Shanghai, despite lacking a proper urban registration (*hukou*), and polish diamonds in tiny informal shops in Surat. Everywhere, street-sellers can be found hawking "vegetables, fruit, meat, fish, snack-foods, and a myriad of non-perishable items ranging from locks and keys to soaps and detergents, to clothing."[7]

Nor are these most precarious forms of life limited to the low-income world. They can be found in the high-income countries as well, although they are somewhat less numerous there. People collect cardboard in San Francisco, sew in crowded sweatshops in Prato, and work "zero-hour contracts" in London. They pull espresso shots in Berlin, in spite of having earned university degrees, and they wash floors in Paris without proper documentation. Everywhere, people, and especially women, work at part-time jobs—which are supposed to provide supplementary incomes for families with a full-time worker—as their only form of employment.

Rarely do these individuals appear on the center stage of history, as they did briefly in Argentina around the turn of the millennium. However, there were clear echoes of Argentina

---

[7] International Labor Organization, *Women and Men in the Informal Economy: A Statistical Picture* (Geneva: International Labor Office, 2002), 9.

2001/2 almost exactly a decade later, at the start of the Arab Spring. Once again, the "nobodies" emerged from the margins; they were defiant. On December, 17th, 2010, Mohamed Bouazizi set himself on fire outside the police headquarters in Sidi Bouzid. He was a university graduate, reduced to selling fruit from a street-cart, who said he was fed up with police harassment. Bouazizi's act resonated across the region. Often protesting the rising price of bread, more people self-immolated across the Arab world. They lit up the region like distress flares. These solitary acts played a key role in setting off the mass protests that followed, which brought down some long-standing governments.

In this context, a second march took place, similar in certain respects to the one in Buenos Aires, in 2002. This second march happened almost exactly nine years later, in Cairo, on January 25th, 2011. Egyptian activists had planned a demonstration against police brutality on a day traditionally reserved for appreciating the police. However, these activists did not make their way directly to the city center, as usual. Instead, they began their march from the slums on the outskirts of the city. Once again, long chains of people, numbering in tens of thousands, marched from slums in outer districts to the city center—in this case, to Tahrir Square. When they arrived, they chanted "*ash-sha'b yurid isqat an-nizam*" [the people want the regime to fall]. This call was not unlike the one heard in the Plaza de Mayo nine years earlier, "*que se vayan todos*," that they all should go…

What follows is an historical study of the expansion of global unemployment, or of what I call, using a more expansive category, the global surplus population. It is not possible to provide an exhaustive study of this phenomenon. After all, labor markets are embedded in local and national contexts: they are structured by labor market regulations and inflected by levels of national economic development, as well as by levels of economic and gender inequality. My argument is

that it is nevertheless possible to tell a global history of unemployment because the global expansion of unemployment, since 1950, was in large part the result of processes that unfolded at the global level: first, a massive increase in the world's population, and in particular, its working population; second, a global "Green Revolution," which significantly reduced the price of food, but also resulted in a worldwide wave of agricultural exit; and third, a global wave of deindustrialization, which unfolded not only in the high-income countries, as is well known, but also, across the low-income world. The result was a huge increase in the global supply of labor, relative to a weak demand, and that in turn created a gigantic population of unemployed people, whether in open or more hidden forms.

1. Surplus Populations

In trying to tell a global history of unemployment, one comes up against the following problem. Only a portion of the unemployed persists in "open" unemployment. That might be because their unemployment benefits ran out, or because they did not qualify for benefits (e.g., due to the circumstances in which they lose their jobs). However, the truth is that in many countries, unemployment insurance is extended only to a small portion of the population. For example, in Argentina and Brazil, unemployment insurance was estimated to cover only about ten percent of the unemployed, or less, between 2007 and 2009.[8] In addition to these countries, only four other Latin American countries offer unemployment insurance of some kind: Chile, Ecuador, Uruguay and Venezuela. For the rest—similar conditions apply across Asia and Africa—there is no unemployment insurance at all. In essence, high rates of open unemployment are an artifact of the availability of this insurance. They are a consequence of welfare reforms, weakly on offer in most low-income countries, which create distinctions among working populations that do not otherwise exist as features of the labor market. As UN-HABITAT explains,

> Unemployment is part of the formal labour market, describing those people who are actively seeking work and are unable to find it. It is largely irrelevant in countries with large informal sectors because virtually everyone, even children, are involved in a number of economic activities in order to live, and the conceptual separation of workers and non-workers is meaningless.[9]

---

[8] Mario Velásquez, "Unemployment Insurance: What to Do during Growth?" *ILO Notes on the Crisis* (2010), accessed December 25, 2014, http://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/documents/article/wcms_limd3_24_en.pdf.

[9] United Nations Human Settlements Programme, *The Challenge of Slums: Global Report on Human Settlements 2003* (London: Taylor & Francis, 2012), 98.

Unemployment is thus an inadequate category for a global history of unemployment. It is so, even in the rich countries, where many people end up taking jobs that underemploy in various ways in order to make ends meet.

Indeed, in all countries, if the unemployed cannot depend on others, or the state, to support them, then they have to work—regardless of the fact that there is little work available for them. They cycle into the underemployed, who are forced to put together a meagre income from whatever opportunities arise. The result is that, worldwide, *there are many people who need to work in order to survive, but who have a tenuous or episodic connection to labor markets*. At the extreme, unemployed individuals find no wage-work at all. Instead, they must make a place for themselves in the economy where none otherwise exists. Resourceful people fish recyclables out of the trash, cut hair, give rides, sell cut fruit, and so on. These are forms of informal self-employment, which account for a large portion of total employment worldwide.

The existence of a large informal sector creates further conceptual problems for anyone attempting a history of unemployment. As is well known, the tendency of capitalist economies is towards an increasing specialization, leading to an ever more complex division of labor. By contrast, among the informally employed, there is a tendency to *diversification*: people work multiple jobs, sometimes including self-employment on the side, in order to make ends meet.[10] The informally employed are likely to switch jobs on a month to month or even day to day basis, depending on what work is available. In the countryside, it is common for people to describe their primary occupation as "farmer," if they own a little land, when in fact the majority of their incomes

---

[10] Thomas Reardon, Julio Berdegué, Christopher B. Barrett, and Kostas Stamoulis, "Household income diversification into rural nonfarm activities," in *Transforming the Rural Nonfarm Economy: Opportunities and Threats in the Developing World*, ed. Steven Haggblade et. al. (Baltimore, MD: Johns Hopkins University Press, 2007), 115.

derive from other sources, and often, from many *different* sources, changing over the course of the year. As a result, the very mode in which employment statistics are collected turns out to be problematic, once we try to examine the sectoral distribution of employment across the world.

1. Preliminaries to a Theory of Superfluity

For all of these reasons, it is necessary to develop a broader category than unemployment, which can describe people in these diverse conditions. I use the term "surplus population," which I derive from late 18th and 19th century political economy.[11] This term was understood to name a set of individuals without reserves or savings, dependent upon selling their labor in order to survive, yet earning incomes below (and often far below) the prevailing wage. In extreme cases, portions of the surplus population were reduced to pauperism, that is, living by begging. Prior to the twentieth century—when unemployment insurance became widely available in high-income countries—the existence of a surplus population was a fundamental problem within the study of economics. Who were these "redundant" people? Why were there so many people left without a place in the labor market?

Extremely divergent answers were given to these questions. For Reverend Thomas Malthus and his followers, the existence and growth of this surplus population demonstrated the futility of trying to eradicate poverty. Malthus argued that increases in wages only encouraged the poor to have more children; poverty was thus discovered to be a consequence of a corrupted human nature. By contrast, Karl Marx deployed the category of surplus population in his critique of political economy, including in his critique of Malthus. For Marx, the expansion of the

---

[11] See, for example, Ian EJ Hill, "The Rhetorical Transformation of the Masses from Malthus's 'Redundant Population' into Marx's 'Industrial Reserve Army,'" *Advances in the History of Rhetoric* 17, No. 1 (2014): 88-97.

surplus population, in modern times, had nothing to do with human nature; rather, its expansion was a historically specific feature of the capitalist mode of production. Since the advent of capitalism, the amount of work required to produce many goods has been greatly reduced, increasing the material wealth of society. But the result of this transformation was ultimately a decline in the overall demand for labor. This growing material wealth of society is thus linked to growing poverty among working people. For Marx, the growth of the surplus population was both cause and consequence of the immiseration of the working class.

Even today, these debates are ongoing, if not in the economics literature, then more broadly across society. It is common enough for people, including some elected officials, to blame surplus populations for their own conditions. They say that immigrants from poor countries should never have immigrated to the rich countries; likewise, in poor countries, they say that those from the countryside should never have emigrated to the cities. Slum-dwellers are said to be having too many children. Meanwhile, those same children are described as being too lazy, troubled, or troublesome: these perceived character flaws supposedly explain why they have not found regular work. Still worse is said about populations marginalized along gendered or racialized lines: they are found most responsible for their miseries. Many others, including surplus workers, defend themselves against these charges. They demand access to jobs, or to a guaranteed income not connected to wage-work, as well as demanding protections, documentation, and so on.

In reality, to be surplus to the needs of the labor market on such a massive scale cannot be the fault of these populations. They are at the mercy of vast impersonal forces. To understand these forces, it will be necessary to undertake an historical investigation adequate to the size and breadth of the surplus population. But first, we have to define this term more precisely. I hope to

demonstrate that, unlike the concepts we currently use, the concept of surplus population can capture the whole of the unemployed population, in both its open and hidden forms.

(a) Defining surplus population

As a first approximation, we could think of a surplus of workers as similar to surpluses of any number of goods. Let's take, for example, steel. What does it mean to speak of a surplus of steel? When the supply of steel exceeds its demand, some steel cannot be sold at the going rate, its "equilibrium" price. This price is equal to the sum of the steel's (normal) costs of production, plus an additional amount that allows the steel producer to earn an average rate of profit. Surplus steel must accept a price below the equilibrium level, thus yielding its seller less than the average profit rate. The more surplus steel there is, the further its price will have to fall, up to the point at which its producer takes a loss. Even so, some steel may end up sitting on the shelf, without a buyer.

Similarly, to speak of surplus workers in the vein of a surplus of steel is to say that the supply of workers is in excess of their demand. Surplus workers cannot sell their labor power for the going price, that is, the *wage* (which varies, of course, according to skills, among other attributes). As a result, surplus workers have to sell their labor for less than the market rate, sometimes far less. The more surplus workers there are, the lower the wages these workers are forced to accept. When there is an extreme oversupply of labor, some workers will not find a buyer at any price. These workers will be forced to set up shop on their own, as self-employed individuals in the informal sector. Workers in any of these situations—that is, workers who cannot regularly sell labor power at the market price—are by definition part of the surplus population.

At this point, the analogy to steel begins to break down, in a way that reveals something important about the peculiarity of the labor market. After all, unsold steel can sit in warehouses,

waiting for market conditions to improve, or it can be scrapped. In any case, surplus steel eventually disappears from the market into one or another use. Such is not the case with workers. They must sell their labor-power regardless of whether, or to what degree, they count as surplus from the perspective of the labor market. And they must continue to do so day after day, regardless of prevailing market conditions. Here, we get to the heart of the matter. No steel producer would continue to produce steel, day after day, if markets were oversupplied. Were profitability to fall in steel production (more than momentarily), some producers would sell their stakes in steel. They would invest in some other line of production, for example, plastics production, where profit rates were higher. The quantity supplied in any market is determined by these sorts of considerations: capital tends to flow from relatively oversupplied to relatively undersupplied markets.

The same is not true of the labor market. The supply of labor is not determined by the profitability of "producing" workers. Workers are not produced; they are born. When the children of workers reach a certain age, their parents no longer support them, and they must find a job. As we will see later on, there are "laws" that regulate labor supply in this context; however, these are not economic, but rather, demographic. That is, they are a matter of births and deaths among workers (as well as among poor rural-dwellers). Demographic laws determine the largest portion of the growth rate of the labor supply. Households adjust their own supply, on the margin. However, the size of the labor supply will not adjust all that much in response to changing labor market conditions, since most workers need to sell their labor power, regularly, in order to buy what they need to survive. Entry into the labor market is only weakly responsive to labor market conditions; the same is true of exit from labor markets.

Workers are held captive by the labor market in a manner that differentiates them from the minority of market participants who are not workers. Even if workers can switch from one

employer to another, few can leave the labor market entirely, in order to sell some other good such as steel. The vast majority of workers cannot stop selling their labor-power even when the demand for labor falls far below its supply. That's because *workers lack access to capital in sufficient quantities to allow them to move from line to line seeking the highest possible rate of return*. This lack of access to capital is what defines workers as workers. They usually leave the labor market, not to enter some other market where returns to economic activity are higher, but rather, only temporarily (for school or due to illness), or at the end of their working lives.

Given these exceptional circumstances, surplus workers face the problem of surviving in spite of the fact that they count as surplus. They can sometimes solve this problem by withdrawing from the labor market altogether, if they can depend on their families for support. As I have already discussed, in some countries, surplus workers can also get temporary support from the state, e.g. unemployment benefits. In these cases, we call surplus workers the *latent surplus population*.[12] Those who cannot leave the labor market by way of support from families, or by accessing unemployment benefits, join the *manifest surplus population.* They must work, but they earn a rate of return on their labor that is lower than the standard wage, either because they cannot get enough work (involuntary part-time) or because they earn an income that is much lower than the wage (super-exploitation).

Surplus workers also have a third option. They can sell something besides their labor power—something they can do or make on their own with very little capital, in what I call *labor-derivative markets* (for example, street-side shoe repair or selling fresh fruit out of carts). Barriers to an entry into these markets are low: like the labor market, labor-derivative markets can be en-

---

[12] The term "latent surplus population" comes from Karl Marx, *Capital: A Critique of Political Economy, Volume 1* (New York: Penguin, 1976 [1867]), 794.

tered by workers with little to no capital. For this reason, rates of return in labor derivative markets are very low, often far below the wage.[13] Surplus workers enter these lines precisely because they cannot earn a proper wage. They will continue to enter derivative markets despite the fact that, like the labor market itself, these line are also oversupplied. It is commonly believed that the informal sector can absorb all entrants. In fact, it takes a lot of effort to make room for oneself as a self-employed producer in the informal sector. There is a lot of pressure on informal workers to keep additional entrants out of their markets; additional entrants only drive prices even lower, making it thus more difficult for everyone to survive.

(b) Implications for non-surplus workers

The category of surplus population allows us to think about how a growing oversupply of labor reverberates throughout the entire labor market, with implications for non-surplus workers as well surplus ones. Due to the unique conditions of the labor market, there is no equilibrium price for labor, that is, no equilibrium wage. Workers do not move between the labor market and other markets seeking the highest rate of return. For this reason, the wage level does not automatically track the growth of labor productivity, as expected. The wage is highly responsive to the degree to which labor is oversupplied. The result is that when the surplus population is small, workers find they have an easier time securing wage increases, in line with or even slightly above the rate of growth of labor productivity: in tight labor markets, some employers will have to offer

[13] Following Marx's schematization of the surplus population, workers in this category could be called the "stagnant surplus population." See Marx, *Capital Volume 1*, 794.

better wages in an attempt to attract new employees, so all employees will have more bargaining power with their employers. The opposite is true when the surplus population is large.[14]

At issue, however, is not only the quantity of wages but also the quality of working conditions more broadly. The only way workers can hope to "police" employers who offer poor working conditions is if those workers can make good on a threat to leave their employers, if conditions fail to improve.[15] But workers can make good on such a threat only when the surplus population is relatively small. When the surplus population is large, workers will find that *there are already other workers just like them who are looking for work and cannot find it*. They are thus less likely to leave their jobs, whatever the conditions. The implications of a high degree of labor oversupply/underdemand are therefore massive, for working people. If employers underpay, or are particularly abusive, it is much more difficult for workers to switch employers in a slack labor market, since, once again, there are already other workers just like them who need work but have not been able to find it.

Likewise, the implications of losing one's job are much more severe when there is already a large surplus population. It becomes more risky to pass over a job offer that under-employs in terms of one's skills, or that pays much less than one's previous job. There are likely to be many other workers in the very same situation, who also have not found jobs commensurate with their skills or former pay levels. Under these conditions, the implications of losing work are particularly bad for older workers, in spite of their greater work experience, as well as for populations that are

---

[14] While it is easy to identify the middle or lower levels of the set of surplus workers, it is much more difficult to identify its upper levels, as the wage of surplus workers approaches the market wage, since the latter is relatively under-determined. That makes surplus workers very much unlike surplus of other goods, for which the equilibrium price is more defined.

[15] Howard Botwinick, *Persistent Inequalities: Wage Disparity Under Capitalist Competition* (Princeton, NJ: Princeton University Press, 1993), 65.

marginalized in other ways (women, marginalized minorities, etc.). There are likely to be other workers without these disadvantages, who are also unemployed and looking for work but have not yet found it. In general, there is nothing to ensure that those workers who have been unemployed the longest will necessarily be those who are then re-employed first.

Labor markets are traditionally supposed to ensure the efficient allocation of human resources across the economy. In reality, it is not labor markets in general that ensure efficient allocation, but rather, tight labor markets. When there is considerable slack in the labor market, labor market efficiency—even for those who are formally employed and protected—is drastically reduced. Hence, the effects of a growing surplus population are a detriment to many workers, besides those without formal work.

2. An Empirical Estimate

How many workers count as surplus, today, in global labor markets? No single statistical category captures the entirety of the surplus population. We have to use a few categories to get an approximate count. These are:

Unemployment. Those without work who are presently looking for work. The unemployed are counted as part of the laborforce but are not employed.

Underemployment. Those who are unemployed, plus marginal and discouraged workers who have stopped looking for work and thus have technically dropped out of the laborforce. Under-

employment also counts involuntary part-time workers, who are working part-time but want to work full-time.[16]

Informal employment. Those who are employed or self-employed, producing legal goods and services, whose work is neither protected nor taxed by the state. Informality counts both those working in the informal sector in micro-enterprises of five or fewer, as well as those doing unprotected ("under the table") work and domestic service in the formal sector. Informality is usually measured as a share of non-agricultural employment. Although it is defined by its invisibility, informality is better thought of in terms of the high degree of insecurity with which it is associated: "informal jobs are often precarious, have low productivity, and are of a low general quality."[17] Here I am using the year 2010 as a benchmark because the International Labor Organization (ILO) undertook a global survey of informality in that year.

(a) High-Income Countries[18]

In the high-income countries in 2010, the laborforce was still reeling from the worst recession since the 1930s Great Depression. Unemployment rates were elevated across the G7 countries, at 8.2 percent (Table 1). The unemployment rate in the US, at 9.6 percent, was the highest it had been since the recession of 1982; the US rate was also the highest among the G7 countries.

---

[16] However, underemployment, as a category, does not include workers who are underemployed in terms of skills—for example, university graduates working jobs that do not require college degree—nor those workers we might call "super-exploited," who find full-time work but at very low wages, or in jobs that are particularly dangerous.

[17] Johannes P. Jütting and Juan R. Laiglesia, "Employment, poverty reduction and development: What's new?" in *Is Informal Normal? Towards More and Better Jobs in Developing Countries*, ed. Johannes P. Jütting et. al. (Paris, France: OECD, 2009), 18.

[18] In this dissertation, I use the categories of "high-" and "low-" income countries to describe what many other authors call the "developed" and "developing" countries, or the "Global North" and the "Global South." I abbreviate these as "HICs" and "LICs."

However, as I've suggested, unemployment rates systematically underestimate labor oversupply/ under-demand. Underemployment rates give a better sense of labor-market conditions, and they were substantially higher: across the G7 economies, 15.9 percent of the workforce was underemployed in 2010, almost double the percentage that was unemployed (Table 1). The underemployment rate was higher in the US, at 17.2 percent, but it was higher still in Italy, at 22.2 percent. In Italy in 2010, more than one in five workers was seeking full-time work but was unable to find it.

Table 1. Unemployment and Underemployment Rates in selected HICs as a Percentage of the Total Laborforce (percent), 2010

	Total Workforce		Youth (Ages 15-24)	
	Unemp.	Underemp.	Unemp.	Underemp.
Canada	8.0%	13.4%	14.8%	23.6%
France	9.3	15.1	22.8	32.0
Germany	7.1	12.6	9.7	14.6
Italy	8.4	22.2	27.9	49.2
Japan	5.0	14.7	9.2	19.7
United Kingdom	7.8	12.4	19.3	27.1
United States	9.6	17.2	18.4	31.1
G7 Countries	8.2	15.9	16.8	28.0

Source: OECD.Stat

It is worth noting that in every country in the G7, the situation was even more dire for young workers, ages 15-24. Compared to older workers, youth have more trouble finding employment in an oversupplied labor market. In 2010, the youth *unemployment* rate was already at 16.8 percent, across the G7 economies, that is, more than double the total unemployment rate. Meanwhile, youth underemployment rates reached 28.0 percent. In the US and France, youth underemployment was even higher, at just under one third of the laborforce. In Italy an astonishing one half of all youth, 49.2 percent, were underemployed in 2010.

In fact, even these measures underestimate the total number of surplus workers, in the HICs. They do not account for underemployment in terms of skills, e.g. university graduates working jobs that do not require a degree. Nor do they include workers who lost their jobs and then subsequently took full-time positions that paid much lower wages than their previous jobs. As long as workers find full-time employment of some kind, they disappear from un- and under-employment statistics. Nevertheless, those statistics remain the best available measures of labor oversupply/under-demand for high-income countries: in 2010, more than 1 in 6 workers, and 1 in 4 young workers, counted as surplus to labor demand.

Of course, this snapshot of the labor market was taken at the height of the Great Recession. In the G7 economies, underemployment had already fallen to 14.5 percent in 2012. It is reasonable to expect that this rate will continue to fall in the future. However, it may not fall quickly or substantially. Underemployment rates were already elevated before the start of the recession. In the decade before 2010, underemployment rates averaged between 12 and 14 percent in Canada, France, Germany and the UK: that's roughly 1 in 8 workers. For the G7 economies as a whole, the average underemployment rate for the three decades from 1983 to 2012 was 11.8 percent (for youth it was 20.6 percent). Moreover, some evidence suggests that labor-market recoveries, in the aftermath of recessions, are taking ever longer with each passing recession.[19] Following the 1981 recession, in the US, it took 28 months for employment to recover its pre-recession level; following the recession of 1990, it took 31 months; following that of the year 2000, 47 months, and following that of 2007, 77 months, or almost six and a half years. Lengthening re-

[19] Lawrence Mishel, Josh Bivens, Elise Gould, and Heidi Shierholz, *The State of Working America* (Ithaca, NY: Cornell University Press, 2012), 358.

covery periods have effects that ripple through the workforce. More and more workers are forced to take jobs that underemploy in modes that are not captured by the statistics (skills, wages).

It seems highly likely that rising levels of un- and underemployment explain a substantial portion of the growing problems that workers have been facing in high-income economies, even before one looks at the changes in labor market policies associated with the transition to a neoliberal policy framework: "Since 1970, unemployment has risen very substantially in most Organisation for Economic Co-operation and Development (OECD) countries – from 'full employment' rates of less than 2 per cent to rates typically in excess of 8 per cent" (as I have shown, underemployment rates have been even higher).[20] At the same time, in the high-income countries, many workers have seen their real wages stagnate. Since labor productivity has continued to rise, in spite of stagnant wages, the result has been a falling wage-share of income and rising inequality.[21] According to UN-HABITAT, "The only time when inequality appears to decrease is during long, steady growth periods, such as 1945 to 1967, when slowly increasing excess demand for labour allows wages to rise and keeps unemployment low."[22] In the US, the only period like that, in recent times, was 1995-2000, when labor markets briefly tightened and real wages for non-supervisory workers rose for the first time in twenty years.[23]

---

[20] United Nations Human Settlements Programme, *The Challenge of Slums*, 98.

[21] UNCTAD, *Trade and Development Report 2012* (New York: United Nations, 2012), 48.

[22] United Nations Human Settlements Programme, *The Challenge of Slums*, 35.

[23] Lawrence Mishel et. al., *The State of Working America*, 180.

(b) Low-Income Countries

Surplus population is even more of a problem in the low-income countries. That is not immediately obvious, if one compares unemployment rates across regions. Unemployment is typically lower in low-income countries than in high-income ones, although not in every case. In Turkey and South Africa, unemployment rates were very high, at 11.9 and 24.9 percent, respectively, in 2010. However, these countries are outliers. More typical was Argentina, where the unemployment rate, at 7.7 percent, was lower than in France (Table 2). In Pakistan, the unemployment rate was even lower, at 5.2 percent. These rates are low not because labor oversupply/underdemand is less severe in poor countries—it is much more severe—but rather because workers in most low-income countries cannot collect unemployment benefits.

Underemployment statistics are generally unavailable, for low-income countries, so it is impossible to extend our analysis of surplus populations in that direction. The best measure of labor oversupply/underdemand is therefore rates of informal employment in the non-agricultural sector (Table 2). Like underemployment, informality measures superfluity indirectly. It includes some self-employed individuals in micro-enterprises who are not particularly precarious, and who earn incomes above the going wage-rate. But these are a minority of the informally self-employed. For the most part, people in low-income countries end up in informal sector due to a lack of formal employment, as well as a lack of social security: "unable to afford spells of unemployment, many people in developing countries use informal employment as a survival strategy."[24] Note that, since informality levels are usually measured as a percentage of non-agricultural employment, they are limited in scope. However, for the same reason, these statistics are suggestive not only of the present state of the laborforce but also its future trajectory, as workers exit from

[24] Johannes P. Jütting and Juan R. Laiglesia, "Employment, poverty reduction," 18.

agriculture and are deposited in the non-agricultural sector. It is important to note that the process of agricultural exit is already advanced, across broad swathes of the low-income world. For the LICs as a whole, only 38 percent of the workforce is employed remained in agriculture, in 2010.

Table 2. Unemployment and Informality in Selected LICs (percent), 2009/10

Country	Unemployment as percentage of the laborforce	Non-agricultural share of total employment	Of which informal employment
Argentina	7.7%	93.3%	49.7%
Brazil	7.1	83.3	42.2
China	4.1*	63.3	32.6*
Egypt	9.0	77.4	51.2
India	4.3	45.3	83.6
Indonesia	7.3	62.3	72.5
Mexico	5.5	85.6	53.7
Pakistan	5.2	61.0	78.4
Philippines**	7.3	66.8	70.1
South Africa	24.9	93.2	32.7
Thailand	1.0	61.7	42.3
Turkey	11.9	60.9	30.6

* Six cities only, ** 2008

Source: ILO, GGDC 10-Sector Database, and FAOSTAT

In the low-income countries, the weight of informal employment in non-agricultural employment is overwhelming.[25] Brazil, Thailand and Turkey stand out because, in those countries,

[25] For the sake of comparison, the informal sector in Europe tends to absorb around 10-12 percent of the laborforce. Higher rates of informality are found in countries where a larger portion of the population is undocumented and/or works "under the table" in the formal sector of the economy. In Austria, Ireland, the UK, Portugal, Italy and Spain, levels of informality reach around 20 percent or more. However, these statistics on Europe are not strictly comparable to statistics from low-income countries, since they measure informality as a percentage of the total laborforce rather than of non-agricultural employment. See Mihails Hazans, "Informal workers across Europe: Evidence from 30 European countries," background paper for *In From the Shadow: Integrating Europe's Informal Labor*, ed. Johannes Koettl et. al. (Washington, DC: World Bank, 2012).

less than half of the non-agricultural laborforce is informally employed. By contrast, in most LICs, informal employment absorbs the majority of the non-agricultural laborforce. In Mexico and Egypt, more than 50 percent is informal; in Vietnam and Uganda, more than 60 percent is; in Indonesia and Tanzania, more than 70 percent is. India and Mali have some of the highest rates of informality in the world: more than 80 percent of the non-agricultural workforce is informal. There are similar rates across South Asia and sub-Saharan Africa. In most LICs, to be informally employed is the norm.

Moreover, informality has become more normal over time. Since the early 1980s (when statistics first become available across a wider set of countries), informal employment has tended to grow as a share of non-agricultural employment.[26] At first, that seems surprising: across countries, levels of informality tend to be lower, the higher a given country's GDP per capita. Thus, Thailand, with a GDP per capita of more than 10,000 in 2012 PPP $, has a smaller informal employment level (42 percent) than nearby Indonesia (73 percent), with a GDP per capita of less than $5,000. Nevertheless, levels of informality have been increasing in many LICs, even where average incomes are growing. In Egypt, 38 percent of the non-agricultural workforce was informal in the half-decade 1985-89, when GDP per capita (GK$ PPP) measured $3,209.[27] By 2005-10, informality levels had risen to 51 percent, in spite of the fact that GDP per capita levels had risen to $4,956. To make matters worse, in 1989, some 42 percent of the Egyptian workforce was in agriculture. By 2010, only 28 percent was. Informality consumed a larger portion of a

---

[26] David Kucera and Theodora Xenogiani, "Persisting informal employment: what explains it?" in *Is Informal Normal? Towards More and Better Jobs in Developing Countries*, ed. Johannes P. Jütting et. al. (Paris, France: OECD, 2009): 67.

[27] Historical data on informality from Jacques Charmes, "The Informal Economy Worldwide: Trends and Characteristics," *Margin: The Journal of Applied Economic Research* 6, No. 2 (2012): 110-112.

non-agricultural workforce that was itself expanding rapidly. The Egyptian economy may have been growing, but not fast enough to raise the demand for labor in step with the growing labor supply. This pattern is reproduced across many low-income countries' economies.

The severity of underemployment and informality makes life extremely difficult for workers in poor countries. That cannot but affect workers in the high-income countries as well. There are huge quantities of labor available to capital, in the global labor market. Firms are therefore able to arbitrage wage levels across vast distances; they have developed global supply chains to do just that. Although it would be wrong to place too much emphasis on the "runaway factory," it is nevertheless the case that many companies rely on global sourcing for production, assembly, etc. There are tens of thousands of export processing zones, by which means countries compete to lure capital to their shores. It would be difficult to imagine firms not taking advantage of these opportunities, given this vast global pool of surplus labor.

(c) Estimating the global surplus population

The foregoing survey has suggested that the global surplus population is enormous. It may be possible to try to come up with a rough and ready estimate of its total size, worldwide. The OECD estimates that 55 percent of the non-agricultural workforce, globally, is informally employed.[28] Since agriculture absorbs about one-third of the three billion people in the global workforce, that suggests that slightly more than one billion workers are informally employed globally, in the non-agricultural sector. To these informally employed individuals must be added the approximately 200 million who are openly unemployed globally (and the 30 million or more

[28] Johannes P. Jütting and Juan R. Laiglesia, "Employment, poverty reduction," 18. The figure provided by the OECD appears to be an unweighted country average. That will undoubtedly introduce some uncertainty into the estimate I have provided.

who are underemployed in the formal sectors of high-income countries). However, the real figure may be even higher, since this one excludes those who are underemployed in terms of skill, as well as those who have taken a job with much lower wages than the job they previously held. It also excludes poor peasants, many of whom are partly dependent on labor markets for their survival, as we will see later on. Given these caveats, I will provide the following estimate: the global surplus population numbers around 1.3 billion people, accounting for roughly 40 percent of the world's workforce. By contrast, only about 33 percent of the world's workforce is employed in the non-agricultural formal sector.

These figures are suggestive of a real de-centering of the world economy, ongoing for decades, which has been inadequately registered by economists and other social theorists. The unemployed, and by extension, the underemployed, are usually thought of as marginal figures in the economy. For example, classical Marxist theory spoke of a "reserve army of the unemployed." When the economy approaches full employment, workers are able to demand greater pay, which eventually causes wages to rise more rapidly than productivity. As a result, profitability falls, and that, in turn, reduces investment levels, eventually leading to a recession and a renewal of the stock of the unemployed. Thus, according to the classical Marxist theory, the workings of the economy automatically ensure that at least a portion of the laborforce tends to remain unemployed or underemployed. In neoclassical economics, this notion was made more palatable as "NAIRU," the non-accelerating-inflation rate of unemployment (inflation rates are actually kept down, in this model, by suppressing rates of wage growth).[29] Both models set a regulative *floor* on unemployment levels: those levels cannot remain very low for very long. My point

---

[29] Robert Pollin, *Contours of Descent: US Economic Fractures and the Landscape of Global Austerity* (New York: Verso Books, 2005), 50ff.

is that neither of these theories set a *ceiling* on the size of the unemployed workforce. It seems that, as long as the labor supply continues to grow under conditions in which the demand for labor is weak, the reserve army can expand almost without limit. A very large percentage of the workforce can exist as surplus population.

Looking at the international data, it is clear that, today, un- and underemployment are not marginal conditions. The margin is encroaching on the center. Superfluity has swallowed the majority of the world's non-agricultural workforce and a sizable percentage of the total workforce. How did this happen?

3. Historical Origins of Superfluity

This study will focus on the historical expansion of the global surplus population, since 1950. According to the model laid out above, it is useful to think about that expansion dynamically, in terms of two sources: on the one hand, a growing labor oversupply, and on the other hand, an insufficient labor demand. I'll take the latter first.

Certainly, one portion of the present-day surplus population derives from workers who had steady employment in the formal sector of the economy and then lost it. Workers saw their jobs melt away as crisis after crisis wracked the world economy. In the course of the past few decades, many factories were shuttered across the world's many "rust-belts," for example in Detroit and Turin. State-owned companies in Belo Horizonte were privatized and their workforces downsized. A similar fate befell workers at state-owned enterprises in northeastern China: in the mid 1990s, entire towns, their economies centered on a few large enterprises, fell into a vital de-

cay.[30] Meanwhile, across capital cities, government employees were laid off en masse, usually in order to comply with the terms of IMF-imposed loan conditionalities. Facing periodic surges in unemployment—and low rates of reabsorption into economies that were, for the most part, growing slowly—it was highly unlikely that all of these laid-off workers would find comparable employment in the formal sector when the dust settled. Many did not.

However, these make up relatively small portion of the surplus population, globally. The majority of those selling homemade soap out of family stalls in the markets of Marrakesh or scraping together a living in the slums of Mumbai—or toiling in dead-end retail jobs in Toledo—never knew any other forms of employment. They were entrants to the labor market, under conditions of high levels of oversupply/underdemand. To have a global account of superfluity, we need to focus on these individuals first and foremost: their entry was what turned a very large problem of un- and underemployment into a gigantic one. How did so many people who previously existed outside of labor markets come to pour into them? And why was there so little work available to them, at that time?

The key point, here, is that a generalization of dependence on labor markets has been a historically recent phenomenon. Before 1950, and even for some decades after, the bulk of the world's population did not sell labor in labor markets, in order to survive. Instead, people mostly produced to meet their own needs; they were mainly subsistence farmers. The story of the expansion of the surplus population is in large part a story of how so many people came to depend on markets, in a short period of time, in spite of the fact that those markets were already massively oversupplied. Telling this history will require a new set of categories for describing the ways in

---

[30] See Ching Kwan Lee, *Against the Law: Labor Protests in China's Rustbelt and Sunbelt* (University of California Press, 2007), 69ff.

which people obtain what they need to survive: via subsistence production or foraging, via market exchange, or via the sale of labor-power. The categories I use are drawn from Robert Brenner's work on the origins of the capitalist mode of production in early modern England:[31]

Market-involved. These individuals *can* produce everything they need, by themselves or, at least, without relying on markets. Typically, this category refers to subsistence farmers, but it can also refer to others as well: shepherds, foraging tribes, etc. Individuals in any of these conditions are referred to as "market involved" because it is important to remember that markets have always existed, historically. The point is that people were not dependent on selling in markets: they only sold what they had in excess of what they needed. "Market-involved" would describe the situation of all people, historically, before modern period.

Market-dependent. These individuals *cannot* produce everything they need, by themselves. As a result, they are forced to sell some goods on the market, to buy whatever they need but do not themselves produce. To be market-dependent constrains individuals' modes of existence, in such a way that they tend to become or remain highly market dependent: generalized market dependence makes for certain "rules of reproduction," which economic actors must adopt: they have to specialize, accumulate, innovate, and move from line to line, seeking the highest rate of return.[32]

Labor-dependent. These individuals are a subset of the market-dependent population. They are unable to follow the rules of reproduction listed above because they lack capital in sufficient quantities to allow them to move from line to line, seeking the highest rate of return. As a result, they are forced to sell in a limited set of markets: in order to buy what they need to survive, they

---

[31] See Robert Brenner, "Property and Progress: Where Adam Smith Went Wrong" in *Marxist History: Writing for the Twenty-First Century*, ed. Chris Wickham (New York: Oxford University Press, 2007), 49-111.

[32] Robert Brenner, "Property and Progress," 57-61.

either have to sell labor-power, or some commodities in labor derivative markets. They are commonly referred to as proletarians, but here, I expand the term to include those who work for themselves in labor-derivative markets.[33]

The bulk of the world's population was rendered labor dependent only in the past few decades. Their proletarianization—that is, the process by which they were rendered labor dependent—was a key element in the history of an expanding superfluity in the late twentieth century. Before then, most of the earth's inhabitants were not even market-dependent, let alone labor-dependent. The world of the 1950s was largely a world of peasants, living and working on the land. Many people were part of this agrarian world but had only partial access to land: they were workers on agricultural estates or plantations, or sharecroppers. Others existed in the interstices of this agrarian world, such as shepherds, in mountain and jungle tribes, etc. However, for the most part, it was people's relationship to cultivation, from which they scratched out a living, that determined their existences. As late as the 1950s, that was still true in parts of Europe, particularly in southern and eastern Europe, as well as in Japan. But it was especially true outside of the high-income countries, in the colonial and post-colonial worlds (Table 3).

Table 3. Percentage of the Workforce in Agriculture, and of the Population Living in Rural Areas (percent)

	Agricultural	Rural
Argentina	25%	35%
Bangladesh	90	96
Brazil	62	64
China	88	88

[33] Self-employed workers in the informal sector are sometimes defined as "entrepreneurs without access to capital." But according to my definition, all workers are, in essence, "entrepreneurs without access to capital." Being market dependent but lacking capital is what defines the condition of labor-dependence. Lacking access to capital doesn't distinguish the fruit-vendor from the common office worker, who also often dreams of owning his own company.

Egypt	67	68
India	80	83
Mexico	60	57
South Korea	77	79
Tanzania	94	97
Thailand	85	84
LICs	79	82
HICs	41	54
World	66*	71

Source: UN, *World Urbanization Prospects*, 2011 Revision and FAOSTAT. Averages are population weighted. *World average, for agricultural employment share in 1950, is my own very rough estimate calculated from available statistics.

Indeed, in the low-income countries, in 1950, more than four-fifths of the population were rural dwellers and about as many worked in agriculture. A few countries in the southern cone of Latin America had urbanized: Argentina and Chile were majority urban. With slightly more than five million inhabitants, Buenos Aires was the largest city in the low-income world and the third largest city on the continents of Asia, Africa and Latin America after Tokyo and Osaka.[34] But Argentina and Chile were exceptional. More typical were countries like South Korea and India, where four-fifths of the population lived in rural areas and about as many labored in agriculture. Many LICs were even more rural and agriculturally centered: in Kenya and Bangladesh, nineteen out of twenty people lived in rural areas and nine in ten worked in agriculture.

Colonialism, whether direct or indirect, had already integrated low-income countries' economies into world markets, in the nineteenth and early twentieth centuries. The exports by means of which low-income countries participated in world markets mostly centered in resource

[34] United Nations Population Division, *World Urbanization Prospects: The 2014 Revision*, CD-ROM Edition, 2014. Buenos Aires was the seventh largest city overall.

extraction (oil, minerals) and agriculture. Typical agricultural exports included not only foodstuffs like bananas and cocoa beans. Many raw materials—eaten up by in gigantic quantities by factories in the metropoles—were grown in tropical areas: cotton and jute for textiles, rubber for tires. It was only later that these would be replaced by synthetics. Most poor countries were integrated into global markets via the export of a few such commodities, which counted for a majority or near majority of their exports: in Brazil and Colombia, coffee; in Indonesia and Malaysia, rubber; in Egypt, cotton, in Turkey, tobacco, etc. Whole economies grow up around these exports. However, returns were largely consumed by domestic elites and foreign investors. The bulk of the populations of Asia, excluding Japan, as well as Africa and Latin America, was only peripherally engaged in these export economies. Those who worked in the mines or grew cash crops were either only partially labor dependent and/or not fully market dependent. The vast majority were still involved in various forms of production for subsistence, if not for all of the year, then for much of it.

From the perspective of capitalist enclaves in the low-income countries, these large agrarian populations were held in reserve, locked away in the massive labor sink of rural existence. Many existed as a latent surplus population, or as what Arthur Lewis called "disguised unemployment."[35] That is, they were supported by peasant holders, and may have worked in the fields, but did not contribute in terms of raising agricultural output. That such vast populations could remain on the land in spite of adding little to output suggests that they were unregulated by capitalist norms of efficiency. These populations were not free from exploitation: many were share-

[35] Arthur Lewis, "Economic development with unlimited supplies of labour," *Manchester School of Economic and Social Studies*, 22, No. 2 (1954): 141ff.

croppers; many also labored on agrarian estates or plantations. However, they were kept off of labor markets, both locally and in a globally relevant sense.

This situation provided some context for the success of the labor movement in the high-income countries, in an earlier moment. The industrial working classes of the high-income countries represented a growing portion of the labor force in those countries—35 to 40 percent during the "Golden Age" of the 1960s—but only a tiny fraction of the world's workforce—7 to 8 percent.[36] Rising wages in the HICs were predicated on keeping the masses of the world's poor out of relevant labor markets. And they were kept out, in spite of a massive divergence in levels of GDP per capita between high and low income regions. Immigration from poor countries to Europe was limited. Likewise, the continent of North America, mostly emptied of natives, was largely earmarked for Western-offshoot populations. It was equally the case that capital could not leave the HICs, in order to open factories in the poorer countries: there were no concentrated urban populations there, labor dependent and also literate, and thus available for semi-skilled factory work (except, importantly, in the Southern Cone of Latin America and in Southern Africa). Industrial capital was therefore limited to specific national and regional containers.

However, the dikes that had been holding back the human flood-tides were already breaking. In the course of the half-century after 1950, people poured on to capitalist labor markets, or were born into labor-dependent families, in great numbers. The result was a massive oversupply of labor. Moreover, it was increasingly impossible to handle this oversupply in the traditional way: by forcing it back into the countryside or by sending it to die on ships bound for "new worlds." In that sense, the world population was definitively proletarianized. There are still hun-

---

[36] This statistic is my own, very rough estimate, based on extrapolation from the Conference Board's Total Economy Database, http://www.conference-board.org/data/economydatabase/.

dreds of millions of people who remain merely market-involved. However, this population is now a minority: most households are market-dependent and, lacking access to capital, also increasingly labor-dependent. That is true, even though many workers never became wage earners, *strictu sensu*. Instead, they earn their keep as self-exploiting proletarians in various informal, labor-derivative markets. There is no longer an outsized labor sink in the countryside. The latent surplus population has largely become a manifest surplus population.

To this first source of the global surplus population, a second was shortly added: the problem of labor oversupply, which became ever worse in the decades after 1950, was compounded by a problem of labor under-demand, starting from the 1970s. At that time, industrialization drives that had formerly absorbed at least a portion of the growing global labor force slowed or halted. In many regions—especially in the HICs as well as in Latin America, sub-Saharan Africa, and in parts of the Middle East—these drives went into reverse. Deindustrialization set in, as a nearly global trend. It is true that today, unlike in the 1960s, there are many more industrial jobs in low-income countries than in high income countries (although most value in industry is still added in the rich countries). Much ink has been spilled about the portion of LIC industrial workforce that labors in the global factory, and about the very poor conditions that exist in factories that supply multinational firms. However, low pay and poor conditions in the global factory are made possible because of the sea of surplus workers on the outside of the factory, needing employment but not finding it. The global factory is an island in a sea of surplus population.

4. Three Sources of Surplus Workers

What I have described so far is a global transformation, which would need to be specified at the local, national, and regional levels. However, this transformation cannot be *explained* at

those levels. It unfolded at more or less the same time, across a wide geographic expanse. To explain this transformation therefore requires the identification of a global cause or causes. In this study I will examine three such causes, which I believe to have resulted in the massive expansion of the surplus population. Each of the chapters that follow will deal with one: the first two causal factors issued in a growing labor oversupply; the third in labor under-demand.

In Chapter 2, I look at the process of *demographic proletarianization*. Due to the unfolding of a global demographic transition—that is, a period in which the population expands, due to falling mortality rates, especially among infants and young children—the world's population grew rapidly. On account of this transition, the world's population doubled almost three times over in a little less than two centuries, rising from one billion people in 1820 to seven billion in 2011. The population will probably reach some 8.5 billion in the mid-21st century, before declining to around 6.7 billion in the year 2100. Of the population increase that has occurred so far, around three-quarters took place after 1950, and more than nine-tenths of that was in the low-income world. The effect of this massive increase in the size of the population was to proletarianize individuals who formerly had non-market access to means of subsistence. That is because demographic growth undermined customary modes of inter-generational land transfer in the countryside: children either did not inherit land or inherited plots too small to support traditional forms of life. Meanwhile, demographic growth caused a rapid, and in the end, much more consequential increase in the number of urban-dwellers, who depend on labor markets to survive, since to live by subsistence farming is impossible in cities. In 1950, there were fewer city-dwellers in the LICs than in the HICs. By 2010, the number of city-dwellers in the LICs was greater than the total population of the world in 1950 (Table 4). I claim that rapid demographic growth was therefore proletarianizing in itself, although as we will see in later on, it is important to recognize

that demographic proletarianization occurred in a context in which land was already concentrated in the hands of a small class of non-capitalist or old regime elites, rather than distributed equally across the population.

Table 4. Urban population, in thousands, 1950-2010

	1950	2010	Change
HICs	441,845	957,251	117%
LICs	303,650	2,601,326	757%
Africa	33,004	400,651	1,114%
Asia	245,052	1,847,733	654%
Latin America	69,264	465,246	572%

Source: UN, *World Urbanization Prospects,* 2011 Revision

In Chapter 3, I look at the process of *deagrarianization*. The second source of labor oversupply was a massive transformation of agricultural production in the middle of the twentieth century, which ensured that—although a growing portion of the population was being rendered market and labor dependent—it would not find work in the "primary" sector of the economy. After having been held back for at least a century, organic agricultural production was finally made to "look" ever more like an industrial process, from the 1940s. On the one hand, that was due to the mass application of synthetic fertilizers, and on the other hand, to the motorization and mechanization of farm implements (gas-powered tractors, threshers). On the basis of these two innovations, it proved possible to halve the amount of land devoted to crops, on a per capita basis, while increasing the world per-capita food production by 217 percent, between 1961 and 2010. This technical achievement was a boon to growing populations: although there were periodic spikes, food prices generally fell between 1953 and 2003, in spite of rapid population growth. However, this same price trend was a disaster for most agricultural producers. Only some farmers—particularly those with access to a lot of land and credit—were becoming more effi-

cient, since they had adopted the new techniques. The result was a deepening problem of overcapacity in agricultural markets, issuing in a massive reduction in the demand for agricultural labor, whether that of small owner-operators or of laborers exploited on vast plantations. Market-dependent producers were rendered labor-dependent, and labor-dependent farm workers were shunted out of the agricultural sector entirely. As late as 1980, the majority of the world's workers were in agriculture; today, only one third are.

The final causal factor has to do with forces leading to a decline in the demand for labor, in spite of its growing supply.

Table 5. Industrial and Service-Sector Shares of Non-Agricultural Employment (percent), 1870-2010

Industry	1870	1913	1950	1973	2010
UK	55%	50%	49%	37%	18%
US	48	41	38	42	17
France	55	54	49	33	22
Germany	57	63	55	47	28
Average	54	52	48	40	21
Services	1870	1913	1950	1973	2010
UK	45%	50%	51%	63%	82%
US	52	59	62	58	83
France	45	46	51	67	78
Germany	43	37	45	53	72
Average	46	48	52	60	79

Source: For 1870-1950, derived from Angus Maddison, *Contours of the World Economy*, 76; *Monitoring the World Economy*, Table 2-5. Statistics for 1973-2010 from the BLS.

Chapter 4 looks at the process of *deindustrialization*. A global wave of deindustrialization spread from the US and UK in the late 1960s to Europe and Japan in the mid-1970s, and then to much of the rest of the world in the 1980s. In the high-income countries, before deindustrialization began, the industrial sector vacuumed up workers, in large numbers: industrial output, pro-

ductivity, and employment all rose simultaneously. Industrial employment growth was slower in the low-income countries, during the era of import substitution industrialization; however, LIC industry still absorbed substantial quantities of labor, if less than the developmentalists had hoped. Then, the era of industrialization came to an end: the industrial sector began to expel labor, or else, failed to absorb it in line with the expansion of the non-agricultural workforce. This was a major transformation. Forty years into the process, we can safely say that deindustrialization (or, where deindustrialization has not set in, weak manufacturing employment growth) has become an unrelenting trend. In the HICs, during the era of industrialization, the non-agricultural workforce tended to divide evenly between industrial and service sectors; today, it has decisively tipped towards services (Table 5). Service workers now outnumber industrial workers, in the HICs, by a three to one margin, and in the LICs—excluding East Asia, which I will discuss momentarily—by a two to one margin; the ratio of service to industrial workers in the LICs is about the same for the world as a whole (Table 6).

Table 6. Industrial and Service-Sector Shares of Non-Agricultural Employment (percent), 2010

	Industry	Services
Latin America	26%	74%
Sub-Saharan Africa	24	76
Middle East	32	68
Southeast Asia	32	68
Southern Asia	43	57
Eastern Asia	45	55
LICs	37	59
HICs	25	75
World	34	66

Source: ILO, *Key Indicators of the Labor Market*

The causes of deindustrialization were in some ways similar to the causes of de-agrarianization, and in some ways very different. The key point is that manufacturing firms become ever more numerous and productive. They were competing in a limited set of international markets, which faced overcapacity and a heightening intensity of competition. The result was a growing "global turbulence" that saw manufacturing output growth fall, almost everywhere.[37] As output growth rates fell towards productivity growth rates, employment growth collapsed (when output is growing at a rate of 3 percent and productivity is growing at a rate of 3 percent, employment growth will net to zero). Manufacturing expansion now occurs alongside falling or stagnant employment levels and wages.

As a result of these three globally-operative tendencies, the world's workforce was increasingly pressed into the service sector. The service sector appears to be at an advantage in absorbing labor, compared to agriculture and industry, since services are mostly non-tradable and thus are not susceptible to international overproduction. It is true that services have absorbed much of the labor that was expelled from the agricultural and industrial sectors. But that labor was mostly absorbed into precarious, low-wage service occupations. In the US, the latter represent the vast majority of new job growth projected for the ten years to 2022; nine of the top ten occupations, in terms of the "highest projected numeric change in employment," are extremely low-paying (they pay half or less of the median US income).[38] These include personal and home-healthcare aides, nursing assistants, retail salespersons, food preppers and servers, janitorial cleaning staff and customer service agents. In the low-income countries, the same structural tendency is playing

---

[37] Robert Brenner, *The Economics of Global Turbulence: The Advanced Capitalist Economies from Long Boom to Long Downturn, 1945-2005* (New York: Verso, 2006).

[38] Bureau of Labor Statistics, "Most New Jobs," *Occupational Outlook Handbook*, 2014, accessed December 25, 2014, http://www.bls.gov/ooh/most-new-jobs.htm

out, but at much lower levels of income: the labor shed by agriculture and not absorbed into industry has mostly made its way into low-return informal service activities. In many LICs, petty trade is now the single largest occupation, excluding agriculture and sometimes even including it.

Why has the expansion of service sector employment been associated with immiseration? Obviously, that is not true of all service employment: many of the best paid workers are employed in one or another economic activity in the service sector (doctors, lawyers, financial analysts). Yet, even in those lines, service sector employment does not tend to grow very quickly. That's because services see limited rates of overall productivity growth, and as a result, firms provisioning services do not benefit from falling prices. In fact, due to a tendency known as "Baumol's cost disease," the relative prices of services tend to rise over time, constricting the growth of markets for services.[39] Precisely for that reason, *services can expand their markets more quickly, if they are able to repress wage growth or to depress wages*. Wage levels have an outsized impact on the prices of services, since much of the cost of production is labor rather than machines or raw materials. Reducing wages significantly reduces prices and expands markets. This is why surplus labor collects primarily in the service sector, in the low-wage or informal parts of that sector.

5. Towards the Post-Industrial Doldrums

The major role of demography in this history is, as I will hope to show, unavoidable. That is not only because demography causes the population of labor-dependent people to grow. It is also because demography plays a key role in generalizing market and labor dependence. Beyond this demographic story, however, the global history of unemployment turns out to be one of on-

---

[39] William J. Baumol, Sue Anne Batey Blackman, and Edward N. Wolff, *Productivity and American Leadership* (Cambridge, MA: MIT Press, 1991), 124ff.

going transformations in employment structure, taking place across the world's national and regional economies. It is necessary, I will argue, to examine each sector of the economy on its own terms, on the basis of its own dynamics. However, the compounding effects of these unfolding dynamics has been the same everywhere: the tendency has been towards a growing preponderance of service sector employment. Globally, services now employ the largest portion of the world's workforce: roughly 44 percent. 33 percent is employed in agriculture and just 22 percent in industry. The main regional difference has been that in Europe, North America, and East Asia, industrial employment tended to rise in tandem with service employment until the 1970s or 1980s, reaching heights of between 30 and 40 percent of total employment. By contrast, in Latin America, Africa and the rest of Asia, industrial employment tended to peak at between 10 and 20 percent of total employment.

In examining the global rise of service sector employment, it is necessary to consider a well-regarded theory about the emergence of a "post-industrial society."[40] According to this theory, the growth of service-sector employment has to do with an evolution in the character of demand: initially, incomes are spent mostly on agricultural goods; as people become richer, they spend more on manufactured goods; finally, at the height of economic development, they come to spend most of their incomes on expensive services, whether directly, in the form of healthcare and education, or indirectly, in the form of scientific or technical inputs into agricultural and industrial production processes (as well as in the form of government or community services). The idea is that this transition from a food- to a goods- to services-based economy corresponds to changes in the employment structure: at first, most of the population was employed in agricul-

---

[40] See Daniel Bell, *The Coming of Post-Industrial Society: A Venture in Social Forecasting* (New York: Basic Books, 1999).

ture; then, industry took the lead; now, the service sector is the largest employer. In Daniel Bell's original account of this phenomenon, the coming of a post-industrial society was supposed to end the drudgery associated with industrial work. It was supposed to usher in a world in which most people were highly educated and worked in jobs requiring creative or critical thinking: for example, scientists and all sorts of technicians and engineers, as well as doctors, lawyers, etc.

In this account, I am describing a very different sort of post-industrial world. Ours is a world with massive service-based drudgery, in which many people are precariously employed or informally self-employed in retail, food, hotels, entertainment, and personal services. Moreover, this transformation in the structure of employment cannot simply be the result of an evolutionary transformation in demand, associated with economic development, since it is occurring at very different levels of GDP per capita. In 2010, Argentina had a larger service-sector share of employment, at 72 percent, than did Italy, at 69 percent—even though Argentina's level of GDP per capita, at $10,256 (GK PPP) was only 55 percent of Italy's. In an appendix to this chapter, I provide some examples of changing employment structures across regions, demonstrating the same general tendency for industrial employment shares to stagnate or fall, while service sector employment rises.

How do we explain this global tendency, if not in evolutionary terms? I will argue that it is a matter of an ongoing transformation in world markets. The tendency globally has been towards oversupply and overproduction in global markets, leading to a slowdown in overall output growth. As I will show, industrial employment only tends to expand quickly when economies are growing quickly, overall. That's because industrial productivity growth is usually very high. Industrial employment only grows when industrial output growth rates are even higher than industrial productivity growth rates. In the HICs, rates of GDP per capita growth have been very low. It is

true that East Asian and South Asian economies have been growing quickly, over the past thirty years, but since these are economies with very low levels of GDP per capita, their higher growth rates have not been enough to counteract the tendency of per capita growth rates to decline in other regions. The result has been low rates of per capita growth globally (Table 7). Due to over-supply in international markets, the tendency of capitalist economies the world over—with the exception of East Asia and parts of India—has been to end up in low-growth economies, with demand for labor insufficient compared to labor supply. Capitalist economies are not tending to end up in a harmonious post-industrial society. Due to low labor demand, they are instead ending up in a *post-industrial doldrums*.

Table 7. Regional and World GDP-per-Capita Growth Rates (percent), 1961-2009

	1960s	1970s	1980s	1990s	2000s
East Asia	1.5%	5.0%	5.9%	6.8%	7.9%
Latin America	2.8	3.5	0.0	1.1	1.6
Middle East	—	6.3	-1.8	2.3	2.8
South Asia	1.8	0.6	3.2	3.4	4.9
Sub-Saharan Africa	2.1	1.3	-1.1	-0.9	2.4
LICs	2.7	3.3	1.3	2.1	4.3
HICs	4.4	2.9	2.3	1.8	1.3
World	3.5	2.1	1.3	1.2	1.4

Source: World Bank, *World Development Indicators*

I will go over this tendency, in more detail, in the chapter on de-industrialization. For now, I should note that mine is not a claim that all service sector workers are surplus population, but rather that, for many reasons, a large part of the surplus population ends up in that sector, either in low-wage or informal employment, or as informal self-employed. Likewise, not all informal workers are in the service sector. A portion is manufacturing (Table 8). Indeed, sometimes informally employed workers in manufacturing end up supplying global markets with cheap products.

They find themselves at the ends of long subcontracting chains: knotting together macrame sandals at home, to be sold by American retailers, or polishing diamonds in back alley shops for sale on the international market. This is an economy with low labor demand, overall, which tends to have much of surplus labor underemployed or informally employed in services.

Table 8. Share of Manufacturing Employment in Non-Agricultural Employment and Share of Informal Employment in Manufacturing Employment (percent), 2009/10

	Share of manufacturing employment in all non-agricultural activities	Of which informal employment
Argentina	15%	43%
Brazil	18	32
Egypt	18	49
India	23	87
Indonesia	26	57
Mexico	19	43
Pakistan	26	80
Philippines	15	62
South Africa	14	19
Tanzania	14	80
Thailand	23	21
Turkey	26	26
Vietnam	30	59

Source: ILO, "Statistical Update on Employment in the Informal Economy," 2012.

6. East Asia: An Exception Proves the Rule

At this point, it must be noted that one low-income region—containing more than a fifth of the Earth's human inhabitants—was partially able to avoid the fate of the others. Developing East Asia suffered from far less of a problem of labor oversupply and labor underdemand. Consequently, the surplus population of that region is substantially smaller, relative to the total work-

force, than elsewhere. This point should not be exaggerated: there are more slum-dwellers in China than in any other country, and the industrialization that has taken place in the Pearl River Delta has largely been on the backs of very poorly paid and largely unprotected workers, who lack an urban residency (*hukou*).

Nevertheless, the differences between this region and the others are stark. With regard to labor oversupply, East Asian populations actually grew more slowly than the populations of other low-income regions. Given China's massive stature, that is not immediately obvious, but in fact, between 1950 and 2010, the population of East Asia grew by only 139 percent, that is, less than two and a half times; whereas the average for other LICs, excluding China, was 270 percent, or more than three and a half times. With regard to labor demand, the exit from agriculture in Taiwan and South Korea—and more recently, in China as well—has been far more orderly than elsewhere. There has been a massive expulsion from that sector (in fact occurring more rapidly than in other low-income regions), but since there were jobs in urban areas, not only for urban residents but also for rural-to-urban migrants, the latter could be more easily absorbed into the formal sector. Industrial employment shares tended to rise to greater heights in South Korea and Taiwan, compared to other low-income countries.

These successes should not be exaggerated. Catch-up development in East Asia has not necessarily been democratic. On the contrary, East Asian development has taken place under dictatorships, which were fully willing to visit horrors on their populations (e.g. the repression of the Gwangju Uprising in 1980). Nor did South Korea and Taiwan escape the structural limits of the era: both countries are deindustrializing, slouching towards the same post-industrial doldrums as the high-income world. China, while following in their path, has arguably been less successful developmentally. Inequality has risen sharply alongside economic growth. China's economy has

grown very quickly, but since it had fallen so far behind Latin America and Middle East, in earlier decades, it is only now catching up to those regions in terms of GDP per capita. But it cannot be denied that the region has been exceptional. I claim that it was, in essence, the exception that proves the rule.

East Asia's success has frequently been taken as a model for successful development. At the extreme, it is as if this very exceptional case is actually the norm, and what is the norm everywhere is an exception. But, really, the lesson of East Asian development is only that successful development was extremely improbable. East Asia's success was both predicated on the non-success of other regions, and at the same time, made that success much more unlikely. The course of events that led to East Asia's unique developmental trajectory were unlikely to be replicated elsewhere. Discussing that course of events will take us far from the material I have presented so far, even as it provides a clearer view on what was happening in the rest of the LICs. The tendencies I discuss, related to oversupply and underdemand, did not go unopposed in the middle of the twentieth century. Peasant revolts flared up across the entire world; they were fighting for land reform.[41] These revolts were mostly defeated, and their defeat ensured that the low-income countries entered the post-colonial era with very high levels of inequality.

By contrast, in East and Southeast Asia, revolts were sometimes victorious. The Chinese Revolution was the first successful communist revolution since 1917 (which is often forgotten, in light of what came after). More revolutions followed, and would have spread even further if not for US military intervention in the region: *South Korea and Taiwan were garrison states, which existed only because of that military intervention*. As a result of these conjunctural factors, South Korea and Taiwan—as well as postwar, occupied Japan—ended up in a virtually unique position. Land reform

---

[41] See Russell King, *Land Reform: A World Survey* (London: Westview Press, 1977).

was achieved in all three countries as a counterrevolutionary measure. This land reform got rid of the landlord class, whose power was based in the countryside, and who tended to oppose development projects. However, these countries remained within capitalist markets, having the support of the US (whereas Communist land-reform usually entailed being cut off from world market).

With Robert Castley, among others, I would argue that these states were eventually made "to be a showcase of successful private enterprise to the rest of South-East Asia, to demonstrate an alternative to communism."[42] The US held them up, as a beacon to the region, of what could be achieved via the capitalist road. The US was not immediately successful, in that regard, but once South Korea and Taiwan were forced to integrate into Japanese export machine—itself part of the same showcase—in the mid 1960s, they were able to develop quickly. The US strategy in the region was ultimately successful, since, even if the war was lost in Vietnam, it was nevertheless the case that China (and later, Vietnam as well) were drawn back within capitalist markets and US trade relations.[43]

7. Contending with Alternative Accounts

There is vast literature on unemployment, informality, and low-wage service work, in various national or regional contexts. There are fewer works attempting to look at the global causes of the growth of surplus population. Here I will discuss two recent accounts, also global in their reach, from which I have drawn inspiration. My first inspiration has been Harvard sociologist

---

[42] Robert Castley, *Korea's Economic Miracle: The Crucial Role of Japan* (New York: Palgrave McMillan, 1997), 79.

[43] I will examine this conjunctural history in a later text. I was unable to include it in this study.

Richard Freeman, who's scholarly career has focused on labor in the US and Europe. Freeman published an article in 2005, on "the doubling of the global labor force."[44] Since then, he has expanded his analysis in numerous articles. His most developed account is presented in a 2008 article, "The New Global Labor Market."[45] My second inspiration has been urban theorist Mike Davis, whose work has been popular, in different circles, for providing an explanation of the global growth of the slum-dwelling population. His 2004 article, "Planet of Slums," reviews the UN publication *The Challenge of the Slums,* quoted above.[46] Then, in 2006, Davis published a book-length study with the same title as his article, expanding on his account.[47] Neither theorist uses the term surplus population, although Davis does speak of a "surplus humanity."[48] However, each is in effect talking about the same phenomenon: a massive increase in the supply of labor, coming up against an insufficient demand, in a new global labor market (Davis's focus is also on slum-dwellers, but he devotes ample space to the phenomenon of the growing informal-sector proletariat).

The difference between these two theorizations of the growth of the surplus population and my own account is that theirs focus on more recent changes in national or global policy frameworks. In Freeman's account, global labor oversupply is the result of changes in trade poli-

---

[44] Richard Freeman, "China, India and the Doubling of the Global Labor Force: Who Pays the Price of Globalization?" *The Globalist* 3 (2005), accessed online on December 25th, 2014, http://www.japanfocus.org/-richard-freeman/1849.

[45] Richard Freeman, "The New Global Labor Market," *Focus* 26, No. 1 (2008).

[46] Mike Davis, "Planet of Slums: Urban Involution and the Informal Proletariat" *New Left Review* II/26 (March/April 2004), 5-34.

[47] Mike Davis, *Planet of Slums* (New York: Verso, 2006).

[48] Mike Davis, *Planet of Slums*, 174.

cies that ended the self-exclusion of socialist countries from the world market: in the 1980s and 1990s, China, India, and former USSR entered into global markets, bring huge quantities of cheap labor with them. In Davis's account, entry into global markets was not a free choice, but rather a forced one. He focuses on the nearly global imposition of IMF structural adjustment, in the 1980s and continuing into the 1990s, across Latin America, Africa and Asia, but importantly excluding East Asia. I certainly agree with both authors that the 1980s and 1990s were when the global surplus population problem exploded. However, I argue that the forces generating this population were already at work, relentlessly, in earlier decades. I will have to justify my historical-structural perspective as against the policy-based explanations on offer. In the process, I will sound off some themes and complexities to be found in the account to follow.

(a) A doubling of the global labor force, or more?

For Freeman, it all started in the 1980s and 90s, when India, China and the former Soviet countries decided to integrate their gigantic economies into the capitalist world market, after shunning it for decades. The problem is that "these new entrants to the global economy brought little capital with them, either because they were poor or because the capital they had was of little economic value."[49] Thus, while the global workforce has increased dramatically, the quantity of global capital remained relatively constant. It is as if "twice as many workers" were seeking employment "from the same number of businesses."[50] In other words, the massive growth in the supply of workers has not been matched by a commensurate increase in the demand for workers.

---

[49] Richard Freeman, "What Really Ails Europe (and America): The Doubling of the Global Workforce," *The Globalist* (2010), accessed online December 25th, 2014, http://www.theglobalist.com/what-really-ails-europe-and-america-the-doubling-of-the-global-workforce/

[50] Freeman, "New Global Labor Market," 2.

It is on account of this imbalance between the supply and demand for labor that workers are currently fighting a losing battle against capital. For Freeman, that explains why the polices grouped under the rubric of the Washington Consensus failed to deliver: "The IMF, in particular, has sought to protect capital" but "with a doubled workforce, capital should be quite capable of taking care of itself."[51]

It is certainly true that the entry onto the world market of extremely low-cost labor, e.g. in India and especially in China, was devastating for industrial workers everywhere. That was particularly true, given that the world market grew more slowly in the 1980s and 1990s compared to previous decades: in a world of heightened international competition, China's very right rates of export growth could only be won at the expense of other countries' shares of export markets.

However, Freeman is wrong in suggesting that the massive entry of labor into internationally relevant markets was a freely chosen policy decision. Freeman makes his story too simple by focusing on countries from the socialist bloc. He does not explain why the countries that Davis examines—countries whose deepening integration into global markets achieved less spectacular results—made the same sorts of policy decisions. China and India were following in the footsteps of other countries that had blazed the trail ahead of them, including a few success stories, like South Korea and Taiwan, as well as many less successful cases in Latin America and Africa. Starting in the mid-1960s, many poor countries began to transition from a traditional export regime based to one based on manufactures. This earlier transition was not freely chosen; it was forced.

For the prices of agricultural products, on whose export most poor countries relied, declined substantially relative to the manufactures those countries imported. Between 1953 and

---

[51] Freeman, "What Really Ails Europe."

2003, non-food crops' terms of trade declined by 56 percent from their early postwar peak; terms of trade for food crops declined by 62 percent.[52] I will argue that declining terms-of-trade were linked to the ongoing revolution in agricultural technique, which greatly increased the supply of agricultural commodities on international markets, relative to demand. On account of this changed international framework, poor countries saw their access to world markets shrink: they had to export many more agricultural goods to import the same number of manufactures. It was in this context that poor countries tried to switch to an export regime based on manufactures: they had to do so, to remain connected to world markets, even as those markets became increasingly crowded.

Freeman's account may thus be found lacking, insofar as it fails to account for the global trend of entry into markets for manufactures, of which China's entry (as well as India's and Russia's) are only one part. This problem of taking the part for the whole extends to the Freeman's conception of the "doubling of the global labor force," more broadly. It is worth looking at Freeman's statistical portrait of the "great doubling," in greater detail. This dramatic doubling turns out to be an undersell: it was actually a "great tripling" or even more.

Let's look at Freeman's arithmetic. Freeman claims that due to population growth alone the globally relevant laborforce would have grown to 1.46 billion people in the year 2000. The actual labor force was larger because, "almost all at once in the 1990s, China, India and the former Soviet bloc joined the global economy."[53] As a result, the labor force expanded to 2.93 billion workers, thus doubling. But Freeman presents these statistics in a way that emphasizes the

---

[52] Based on the Grilli-Yang index, updated by Stephan Pfaffenzeller to cover 1900-2011, accessed December 25th, 2014,http://www.stephan-pfaffenzeller.com/csv/gycpi-2011-01.csv.

[53] Freeman, "New Global Labor Market," 1.

short-term effects of policy decisions. To do so, he has to abstract away from long-term trends that also increased in the size of the world's labor force. If one is interested in the total increment to the labor force, why should one ignore these other factors? Including population growth, the global labor force grew by more than double. Freeman estimates that (excluding China, India and the former USSR) the labor force numbered "approximately 960 million persons" in 1980.[54] Using that as the starting figure, the global labor force appears to triple, rather than double.

But even this estimate is too restricted. After all, Freeman is trying to measure the globally relevant labor force. Arguably, the world's peasantry has only been marginally integrated into national and so also global labor markets. As mentioned above, the majority of the world's workforce still toiled on farms in 1980. By 2000, only 40 percent did (by 2010, only 33 percent did). In the end, the multiplier one gets depends on which of many factors one holds constant. Factors affecting the size of the globally relevant labor force include: population growth, declining agricultural employment and falling dependency ratios. Rising international trade is part of the story but so are changes in the structure of global trade: primary commodity prices have fallen, so firms in more countries have been competing in already crowded international markets for manufactures. All these factors contributed to the growth of the labor force competing in global markets.

Looking at these long-range factors, it makes little sense to begin in 1980. If we move the starting date back to 1950, the multiplier grows even more. The contribution of long-term trends looms larger and larger in the story.

---

[54] Freeman, "What Really Ails Europe."

(b) Global structural processes, or IMF-led processes?

Davis's perspective is the immanent obverse of Freeman's. For Davis, the growth of the global surplus population was not a free choice, but rather a forced one: it was an effect of IMF and World Bank interventions into the economies of poor countries. In other words, it was the result of the advent of *neoliberalism*. Like many stories about the origins of neoliberalism, Davis's story of the "urban poverty's big bang" begins in the 1970s, when the two OPEC-initiated oil price-hikes of 1973 and 1979 forced governments in many countries to borrow from international banks.[55] The LICs took on massive amounts of debt, in order to keep oil flowing into their countries. Then in 1979, Paul Volcker, chairman of the Federal Reserve, suddenly raised interest rates to control inflation. This decision had worldwide ramifications: it made the debt burdens of poor countries unbearable. Mexico was the first to default in 1982. Shortly thereafter, lending to LICs halted.

In the ensuing debt crisis, poor countries were made to hand over control of their economies to technocrats at the IMF and World Bank. Across the low-income world, these institutions "offered poor countries the same poisoned chalice of devaluation, privatization, removal of import controls and food subsidies, enforced cost-recovery in health and education, and the ruthless downsizing of the public sector."[56] The result was "an artificial depression engineered by the IMF and the White House," whose impact, "in tandem with protracted drought, rising oil prices, soaring interest rates and falling commodity prices, was more severe and long-lasting than the Great Depression."[57] In Davis's account, the key consequence of this long-lasting economic

---

[55] Davis, *Planet of Slums*, 152f.

[56] Davis, *Planet of Slums*, 153.

[57] Davis, *Planet of Slums*, 155.

downturn was a deep and abiding *agrarian* crisis, which forced rural labor from the countryside to the cities: "as local safety nets disappeared, poor farmers became increasingly vulnerable to any exogenous shock."[58] According to Davis, the "cities – in spite of their stagnant or negative economic growth, and without necessary investment in new infrastructure, educational facilities, or public-health systems – have simply harvested this world agrarian crisis."[59] For Davis, forced migration from the countryside thus accounts origins of the present-day "planet of slums." Davis explicitly argues against those who claim that the origins of the slum planet, and the associated growth of the informal proletariat, were "an expression of an inexorable trend," whereby capitalist dynamics "delink the growth of production from the growth of employment."[60] Instead, Davis argues that that the origins of the slums are to be sought in " a global political conjuncture – the worldwide debt crisis of the late 1970s and the subsequent IMF-led restructuring of Third World economies in the 1980s."[61]

Davis is of course correct that the veritable economic depression that struck the low-income countries in Latin America, the Middle East and sub-Saharan Africa in the 1980s was largely responsible for consolidating the surplus populations of those regions. It is also true that IMF and World Bank policies contributed to the severity of that depression. However, neither the forced exodus from agriculture nor the urban crises of the 1980s can be understood purely as results of the SAPs.

---

[58] Davis, *Planet of Slums*, 12-3.

[59] Davis, *Planet of Slums*, 16.

[60] Davis, *Planet of Slums*, 14.

[61] Ibid.

A forced exodus from agriculture, which unfolded regardless of the availability of jobs outside of the agricultural sector, was everywhere part of the postwar transformation of agricultural production: it took place in the 1980s in high-income countries like Spain and Italy, where unemployment levels were already elevated, as much as in low-income countries like Brazil and Mexico, where unemployment was even more severe. In addition, this forced exodus unfolded in low-income countries like India, which did not undergo structural adjustment in the 1980s. The tendencies to the "consolidation of landholdings," to the "mechanization of agricultural production," and to "competition from agribusiness," which Davis attributes to structural adjustment programs, were at work throughout all economic regions.[62] They were due to the industrialization of agriculture taking place worldwide.

Urban crises, too, were not limited to countries suffering under structural adjustment, nor even to low-income countries as a whole. In northeastern China, as in France as in the US across the rustbelt, the hollowing out of older manufacturing firms, geared towards domestic production, was not counterbalanced by the expansion of newer firms that were integrated into global supply chains. As a worldwide tendency, this hollowing out began, in the high-income countries, a least a decade before the neoliberal turn. When the same trends appeared in the LICs after 1980, that represented a generalization of already existing trends towards a rising economic "turbulence," not a conjunctural about-face.[63]

Furthermore, and perhaps most controversially, I will argue that the 1980s LIC agrarian crisis cannot be held responsible for the explosive growth of urban slum-dwelling in that decade. In cities experiencing depression-like conditions, there were already too few jobs for rapidly grow-

---

[62] Davis, *Planet of Slums*, 16-17.

[63] See Robert Brenner, *Economics of Global Turbulence*.

ing urban populations. As a result, many of those who lost their livelihoods in the countryside—and who would have migrated to the cities to look for work—were instead forced to languish in rural areas, in an expanding rural non-farm economy. Outside of East and Southeast Asia, where the economy continued to expand at a rapid pace, rates of rural-urban migration actually decelerated in the 1980s and 1990s.[64] Demographic growth came to account for an ever larger share of total urban population growth. Mostly due to demographic growth, these decades saw some of the largest absolute increments to the urban population that the world has seen, in spite of the fact that, due to deindustrialization and the slow expansion of service sector employment, few urban jobs were created in the formal sector.

These problems with Davis's account suggest that, to understand the explosive growth in the overt surplus populations, we will need to examine processes that were unfolding before the 1980s policy shift towards neoliberalism. We need to look to processes that are more structural in nature. That is what I will do in the chapters that follow.

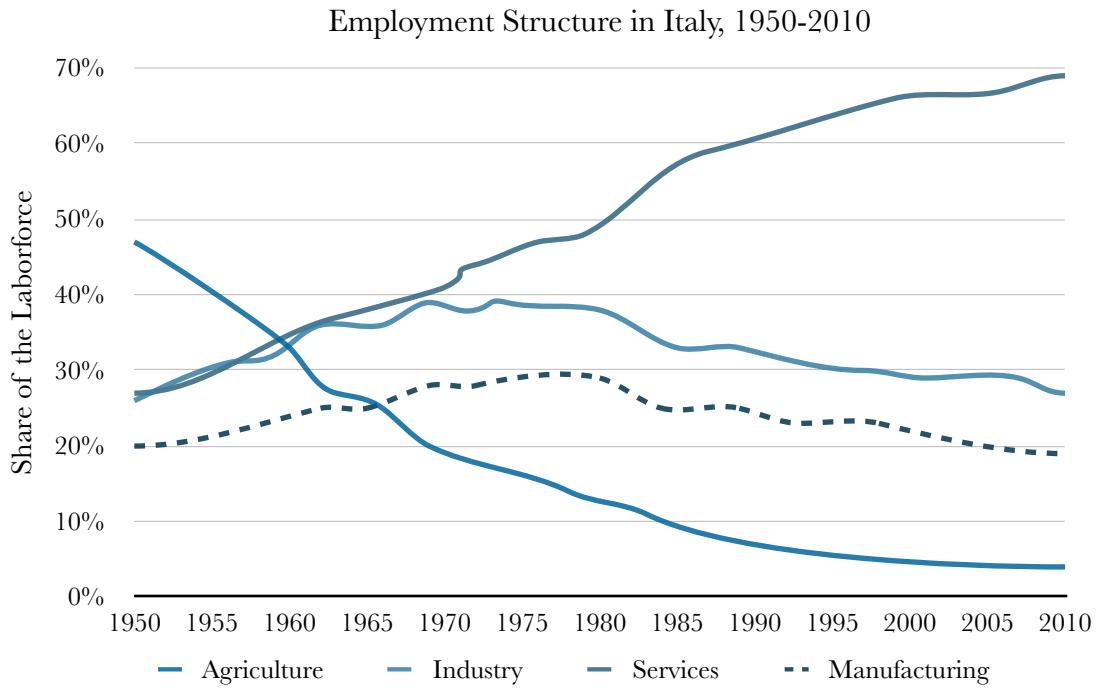
A Note on Statistical Sources

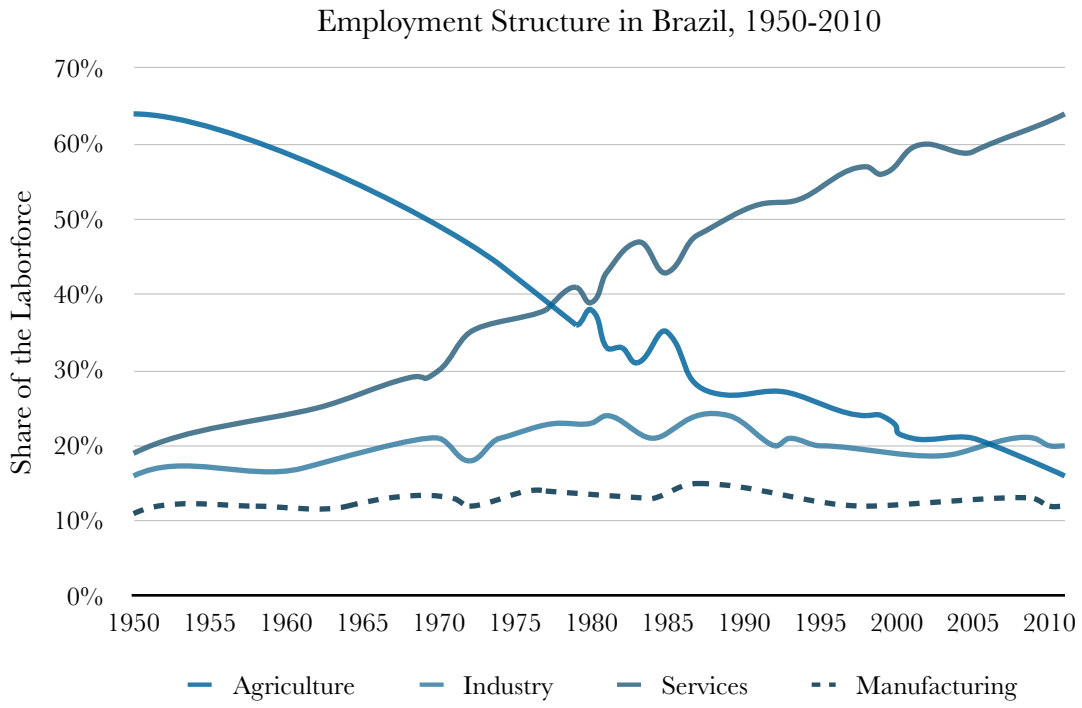
The following account compiles statistics on demography, on employment structures, on unemployment and informality. It has required the consultation of many databases, facilitated by the fact that these are now generally available online, and are regularly updated. Ever more powerful computers allow one to quickly manipulate data sets applying to many countries. For demography, all statistics on the modern period, since 1950, come from UN Division on Population. That applies to statistics on population size and growth rates, infant and child mortality, rates of total fertility, as well as of urban and rural population size and growth and rates of ur-

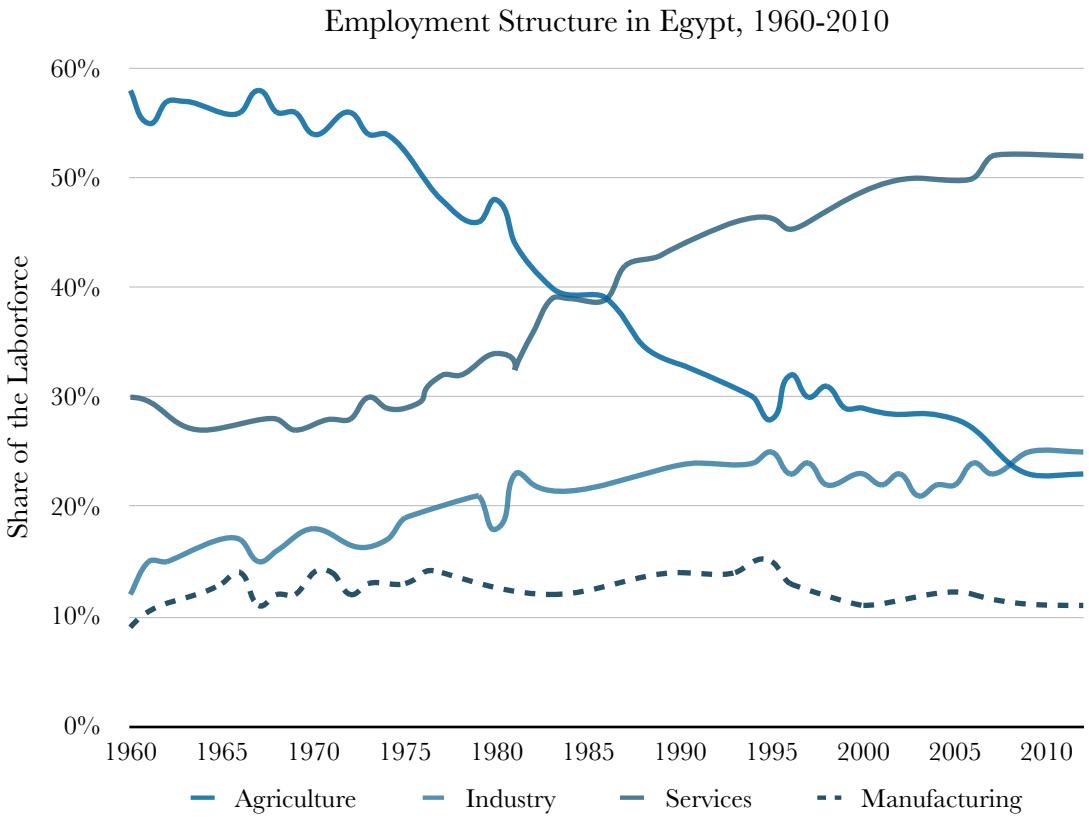
[64] See below, Chapter 1, Section 2.

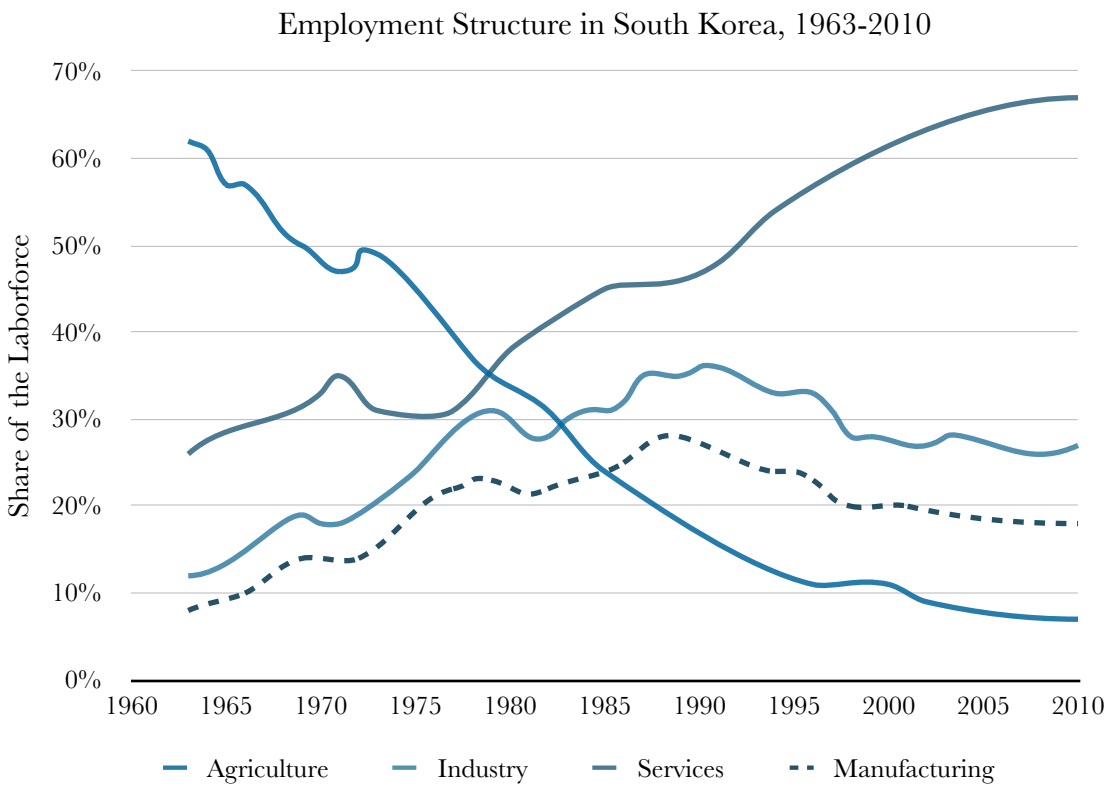
banization. Statistics on slum dwelling, however, are derived from UN-HABITAT publications. Historical demographic statistics come from Angus Maddison's publications, as well as datasets he provided online, before he passed away. For agriculture, most of my statistics on the period since 1950 come from the UN Food and Agriculture Association. That applies to statistics on arable land, on crop production, and on the use of fertilizer and tractors. These are supplemented by data on real commodity prices, originally established by Enzo Grilli and Maw Cheng Yang in 1988 and updated by Stephan Pfaffenzeller for the World Bank. For employment structures, I rely heavily on a new, 10-Sector Database, put together and maintained by Groningen Growth and Development Center, with which Angus Maddison was associated. It covers 42 countries in sub-Saharan Africa, North Africa, Asia, Latin America, North America and Europe. For most countries, the data covers 1950 or 1960 to 2010, standardizing output and labor data from national accounts into 10 sectors according to UN classifications. The purpose of the database was to make possible analysis of structural transformations in employment and output, particularly in low-income countries. Data on employment, in this dataset, is actually "all persons employed." It therefore includes employees, the self-employed and family labor. These statistics are supplemented by some statistics on manufacturing from UN Industrial Development Organization, including its infrequent flagship publications, and also by BLS data on comparative labor statistics, for some countries. Data on unemployment and underemployment come from the OECD. Data on informal employment from the ILO's "Statistical Update on Employment in the Informal Economy." Historical statistics on informality, going back to late 1970s, come from Jacques Charmes. General economic statistics, since 1961, come from World Bank's World Development Indicators, supplemented by data from the Groningen Growth and Development Center's Total Economy Database.

Appendix: Changing Employment Structures, Selected Countries.




Employment Structure in Brazil, 1950-2010
70%
60%
50%
40%
30%
20%
10%
0%
Share of the Laborforce
1950 1955 1960 1965 1970 1975 1980 1985 1990 1995 2000 2005 2010
Agriculture
Industry
Services
Manufacturing


Employment Structure in Egypt, 1960-2010
60%
50%
40%
30%
20%
10%
0%
Share of the Laborforce
1960 1965 1970 1975 1980 1985 1990 1995 2000 2005 2010
Agriculture
Industry
Services
Manufacturing


Employment Structure in South Korea, 1963-2010
Share of the Laborforce
70%
60%
50%
40%
30%
20%
10%
0%
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
Agriculture
Industry
Services
Manufacturing

2. Demographic Proletarianization

Proletarianization is here understood to describe the processes that render populations labor-dependent, whether or not they were already market-dependent, or merely market-involved. Typically, the process of proletarianization is explained as a matter of the *expropriation* of the peasantry, after the model of Marx's account of "so-called primitive accumulation" in the English countryside.[65] According to this account, proletarianization resulted from the peasantry's forcible expropriation from the land, which was consolidated under the control of capitalist tenant-farmers. Peasants whose services were no longer needed were forced to migrate to cities, where they found work in factories or else found themselves in a workhouse (or hanging from the gallows' pole). The forcible expropriation of the peasantry thus constituted a working class and capitalist class, simultaneously. It prepared the way for the industrial revolution that followed. Marx's account was meant to apply to the origins of the capitalist mode of production: it explained capital's emergence from outside of itself. His account was later generalized to the whole history that followed, e.g. in David Harvey's concept of "accumulation by dispossession."[66] Does an expropriation-based account explain the growing labor-dependence of populations in the low-income countries, since 1950? That is, does the present-day proletarian population, massively oversupplied with respect to the demand for labor, find its origins in a systematic expropriation of the world's peasantries?

---

[65] Marx, *Capital, Volume 1*, 877ff.

[66] See the chapter "Accumulation by Dispossession" in David Harvey, *The New Imperialism* (New York: Oxford University Press, 2003), 137-182.

It is undeniable that many expropriations took place in LICs, in the course of the second half of the twentieth century. For example, in Central America in the 1950s, huge numbers of peasants who had labored on large agrarian estates were expropriated to make way for cotton crops.[67] Their services were no longer needed, since landowners had purchased newly invented cotton threshers to help them with the harvest. One can find many similar examples, across the low-income world, particularly in those countries that were still under direct colonial rule, as for example in Kenya, where a massive increase in English settlers, in the 1950s, led to the expropriation or forcible relocation of many native Kenyans. However, the aggregation of these examples does not add up to a universal explanation: in the poor regions of the world, for most of the twentieth century, elites did not try to expropriate peasantries *en masse*. Capitalism in its colonial guise "bequeathed, in the post-1945 era, at the moment of decolonization … agrarian landscapes dominated by landed property in countries where a significant majority of the working population was in agriculture, sometimes markedly so."[68] In 1950, after the postwar wave of decolonizations had already begun, four-fifth of the low-income countries' population still remained in the countryside. Accumulation by dispossession was never attempted at the aggregate level in the colonial and post-colonial world.

Instead of expropriating native populations wholesale, elites fastened the peasants to the land (while also transforming their relation to the land), for two reasons. First, it was true that, insofar as peasants fought against capitalist encroachment, it was risky to try to evict them fully,

---

[67] William C. Thiesenhusen, *Broken Promises: Agrarian Reform and the Latin American Campesino* (Boulder: Westview Press, 1995), 16.

[68] Terence J. Byres, "Paths of Capitalist Agrarian Transition in the Past and in the Contemporary World" in *Agrarian Studies: Essays on Agrarian Relations in Less-Developed Countries*, ed. V.K. Ramachandran and Madhura Swaminathan (New York: Zed Books, 2003), 56.

especially in far-flung corners of colonial empires. Second, it was equally the case that elites did not need to proletarianize populations fully. Their aim was to produce or extract primary commodities for export. It made more sense to undermine peasants' access to the land only partially, for certain seasons or in specific regions. When and where peasants' labor was not needed, they remained ensconced within personal relations of domination in the countryside: there, they were less concentrated; their periodic uprisings were easily thwarted or contained. The export economies of the low-income world thus floated on a sea of subsistence production. That is not to say that subsistence producers were not market-involved; they simply were not market-dependent.

How were so many partial proletarianizations transformed into outright dispossession? Was it only after neoliberal policies were adopted in the 1980s that fully proletarianized populations appeared in low-income countries? To what extent was proletarianization undertaken in an earlier moment, by developmental states seeking to become industrial powers? For now, it is pertinent to focus on a more general problem with this expropriation-centered analysis. To see proletarianization as a matter of expropriation is to see it as a problem of *transferring* the population from the countryside to the cities. But proletarianization was never a matter of a pure population transfer; instead, it has taken place in concert with *population growth*. That was already the case in the 18th century English countryside, which was the subject of Marx's investigations into the origins of capitalism: the English population expanded by almost 150 percent between 1700 and 1820.[69] But it was especially true in the global countryside, in the second half of the twentieth century.

---

[69] Estimated from Angus Maddison's historical statistics.

During that later period, urban populations expand immensely, throughout the low-income world, and in spite of the fact that rural populations fail to decline. For example, in Bangladesh—where the urban population expanded 25 times over between 1950 and 2010 and the urban percentage rose from 4 to 28 percent—the rural population did not decline in absolute terms (tables 1 and 2). Instead, the Bangladeshi rural population tripled in size. This tripling put Bangladesh only somewhat out of sync with the low-income countries' average: although the LIC urban percentage rose from 18 to 46 percent between 1950 and 2010, the rural population more than doubled in absolute terms, from 1.4 to 3.1 billion people.

Table 1. Rural Population Growth (thousands), 1950-2010

	1950	1980	2010	Multiplier
LICs	1,417,393	2,376,66	3,058,66	2.2
Africa	196,891	348,583	621,583	3.2
Asia	1,158,337	1,922,35	2,316,51	2.0
Latin America	98,104	129,371	124,836	1.3
Argentina	5,945	4,814	3,092	0.5
Bangladesh	36,272	68,651	107,216	3.0
Brazil	34,457	42,030	30,537	0.9
China	485,765	792,851	681,049	1.4
Egypt	14,645	25,237	45,935	3.1
India	308,484	538,360	845,839	2.7
Mexico	15,980	23,151	25,151	1.6
Nigeria	33,993	53,952	80,795	2.4
South Africa	7,905	14,996	19,278	2.4
South Korea	15,109	16,212	8,223	0.5
Tanzania	7,383	15,966	33,057	4.5
Thailand	17,211	34,762	45,807	2.7
Turkey	15,977	24,796	21,471	1.3

Source: UN, *World Population Prospects*, 2012 Revision.

Table 2. Urban Population Growth (thousands), 1950-2010

	1950	1980	2010	Multiplier
LICs	303,650	995,253	2,601,326	8.6
Africa	33,004	134,220	400,651	12.1
Asia	245,052	715,234	1,847,733	7.5
Latin America	69,264	232,955	465,246	6.7
Argentina	11,206	23,317	37,320	3.3
Bangladesh	1,623	11,973	41,476	25.6
Brazil	19,517	79,682	164,409	8.4
China	65,006	190,320	660,286	10.2
Egypt	6,869	19,715	35,186	5.1
India	63,373	161,698	378,775	6.0
Mexico	11,886	45,626	88,272	7.4
Nigeria	3,867	21,592	77,629	20.1
South Africa	5,778	14,081	30,855	5.3
South Korea	4,102	21,247	39,960	9.7
Tanzania	267	2,720	11,784	44.1
Thailand	3,396	12,721	23,315	6.9
Turkey	5,262	19,309	51,281	9.7

Source: UN, *World Population Prospects*, 2012 Revision.

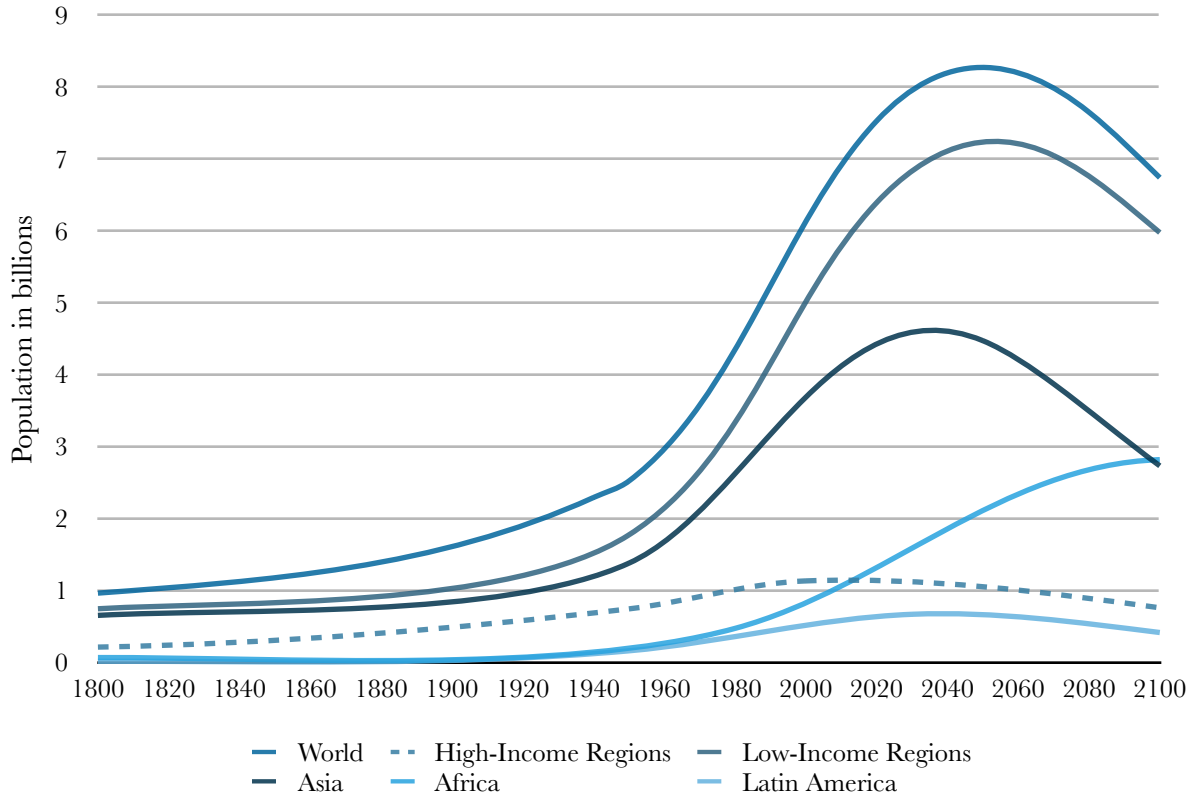
1. A Universal Tendency

We cannot abstract away from demographic trends in order to peer directly into the economy. Demographic trends have never been a constant in the history of capitalism. The past two centuries saw a wave of rapid population growth, which contrasted with all centuries prior.[70] In 1820, the world population reached a milestone: for the first time in history, there were one billion people living on the planet. Accepting Angus Maddison's estimate that the world's popula-

[70] The process began even earlier in England.

tion had been 267 million in 1000 AD, that suggests an average annual growth rate, between 1000 and 1820, of just 0.17 percent per year, or 17 people per 10,000 per year. At this rate, population growth would have been all but undetectable (in fact, population growth rates were not constant, over long periods; they tended to oscillate, but remained very low). Then, over the short two-centuries after 1820, growth rates rose to one percent or more per year. On that basis, the population grew seven times over, from one to seven billion, by 2011; it will continue to grow to the middle of this century, at least (Chart 1). My contention is that this wave of population growth, now entering its final stages, is the key to explaining the generalization of labor-dependence in the 20th century. Not all these added billions of people were proletarians. Nevertheless, population growth had a massively proletarianizing effect. Once set in motion, population growth

Chart 1. World Demographic Transition, Low Fertility Variant (in Billions), 1800-2100



continued to proletarianize, independently of whether the demand for labor has been there to meet the growing labor supply. I call this process *demographic proletarianization*.

It is important to stress that demographic proletarianization is not a matter of people losing access, *tout court*, to whatever resources they need to survive. Rather, this process transforms the ways in which people access resources. What changes, in other words, are forms of social mediation: distinct forms, specific to local or regional contexts, are giving way to one: market mediation. Without a doubt, actual experiences of proletarianization varied across LICs (and particularly in rural areas). Yet this tendency has been universal: from the middle of the twentieth century onwards, populations began to grow at an unprecedentedly rapid pace. This demographic process is the only viable explanation for the surge in proletarianization, across the low-income world. It also explains why that process sped up in the 1970s and 80s: the absolute increment to the population was rising to a peak (table 3). In the 1980s, the LIC population rose by 79 million people per year, a peak that is unlikely to be reached again in human history.

Table 3. Yearly Increments to The Total Population and Urban Population (thousands), 1960-2030, Using the Medium Variant of the UN Population Projection

Total Population	1970s	1980s	1990s	2000s	2010s	2020s
LICs	68,215	79,011	77,194	72,603	72,310	64,220
Africa	11,466	15,248	17,581	21,113	25,596	28,385
Asia	50,259	56,190	51,956	44,521	40,127	30,222
Latin America	75,949	80,706	78,397	68,653	62,100	49,424
Urban Population	1970s	1980s	1990s	2000s	2010s	2020s
LICs	31,341	45,905	52,298	62,404	67,013	64,816
Africa	4,765	6,916	8,502	11,225	15,090	19,293
Asia	20,956	31,704	35,996	45,550	45,698	39,781
Latin America	6,955	7,867	8,200	7,163	6,599	5,411

Source: UN, *World Population Prospects*, 2012 Revision.

Why does population growth lead to proletarianization? All non-capitalist social forms generate relative population stability. This stability was relative rather than absolute because populations actually grew slowly but cumulatively over time. In fact, until the nineteenth century, population size oscillated, rising and falling over long periods but around an upward-creeping average. Relative population stability found its basis in the limited social capacity of non-capitalist social forms to raise levels of economic output. Unlike capitalist societies, non-capitalist social forms were not oriented towards regular increases in productivity and the constantly changing rhythm of social existence that flows from them. In line with that observation, each one "adopted regulatory mechanisms that worked to keep long run population growth rates close to zero."[71] Those regulations were enforced despite the fact that many such social forms also valorized large families.[72] Individuals tried to have large families in a social and epidemiological context that ensured that few families succeeded. Under these conditions, rapid population growth distended the social fabric. It disrupted inter-generational resource transfers, particularly concerning land inheritance: "lineage principles of land inheritance became difficult to reconcile with the reality of contracting land availability."[73] Land had to be subdivided among more children, or more children had to find themselves with no inheritance at all. In this regard, it is important to remember that population growth occurs in a context in which the majority of the population had constricted access to land, which was concentrated in the hands of rural elites.

---

[71] Chris Wilson and Pauline Airey, "How Can a Homeostatic Perspective Enhance Demographic Transition Theory?" *Population Studies* 53 (1999): 120.

[72] See below, Section 4.

[73] Deborah Bryceson, "African Peasants' Centrality and Marginality: Rural Labor Transformations," in *Disappearing Peasantries? Rural Labor in Africa, Asia and Latin America*, ed. Deborah Bryceson, Cristóbal Kay, and Jos E. Mooij (London: Intermediate Technology Publications, 2000), 51.

Since it caused an immense increase in the number of people, population growth disconnected individuals from customary access to what they needed to live. In the absence of social alternatives to capitalist markets, demographic growth therefore rendered people market-dependent. That is, they lost the capacity to survive by subsistence production and were therefore forced to sell on the market in order to buy at least some of what they needed (food, heating). Since they lacked capital, they were increasingly rendered labor-dependent as well: they depended not only on selling in order to buy but, more specifically, on selling their labor-power, since they had nothing else at their disposal.

Meanwhile, as a result of the same process, urban populations grew exponentially—at first due to migration from the countryside and then, later, primarily as a result of demographic growth within the cities themselves. That is key: urban populations are automatically denied customary access to means of life, insofar as very few individuals are able to grow their own food or to produce many other necessaries in spaces where land is so expensive. With time, urban population growth came to account for a large majority of population growth. As late as the 1970s, the growth of the urban population accounted for only 46 percent of total population growth in the low-income countries; by the 2000s, that proportion had risen to 86 percent (table 3). In the first half of this century, urban population growth is expected to account for all population growth in the low-income countries.

2. The Key: Growing Urban Populations

It is with regard to growing urban populations in the LICs that the failure to think demographically is most obviously on display: "observers of rapid city growth are often tempted to

think of migration as the dominant demographic factor."[74] They attribute unprecedented rates of urban population growth in the LICs to an unprecedented wave of rural-urban migration. As a result, a story about population growth is made to appear as a story about population transfer. In reality, rapid urban population growth in the LICs cannot be attributed to rapid rates of rural-urban transfer. The latter have not been "especially large," as compared to the HICs in the late nineteenth century.[75] What have been especially large were rates of demographic growth: these were without historical precedent. Demographic growth accounted for a high and rising portion of city population growth in LICs.

Here, some definitions are necessary. The "urban growth rate" measures the year-on-year growth of the urban population. It adds together the effects of rural-urban migration and demographic increase (as well as the reclassification of rural areas as urban ones). The pace of urbanization, also known as the "urbanization rate," is one of the components of urban growth. Technically, it measures the excess of urban growth over total population growth. It corresponds to the rate at which the population comes to live in urban rather than rural areas. As long as rates of population growth are approximately equal across rural and urban areas—a proposition that has been verified empirically—the urbanization rate functions as a proxy for rural-urban migration rates (when rural and urban growth rates are equal, the countryside and the cities grow at the

---

[74] Mark R. Montgomery, Richard Stren, Barney Cohen, and Holly E. Reed, *Cities Transformed: Demographic Change and Its Implications in the Developing World* (Washington DC: National Academies Press, 2003), 89.

[75] Mark R. Montgomery, "The Demography of the Urban Transition: What We Know and What We Don't Know," in *The New Global Frontier: Urbanization, Poverty and Environment in the 21st Century*, ed. George Martine et al. (Sterling: Earthscan, 2008), 22.

same pace; changes in the urban percentage are then attributable to migration, as well as re-classification).[76] Thus,

> urban growth rate = total population growth rate + urbanization rate
> urbanization rate = urban growth rate - total population growth rate

These terms are often mixed up and, so too, are the causes of urban expansion.

For example, in *Planet of Slums*, Mike Davis asks "how has Africa as a whole, currently in a dark age of stagnant urban employment and stalled agricultural productivity, been able to sustain an annual urbanization rate (3.5 to 4.0 percent) considerably higher than the average of most European cities (2.1 percent) during peak Victorian growth years?"[77] Here, Davis actually cites urban growth rates, not urbanization rates (the urban-growth rate in Africa measured 3.8 percent per year in the 1980s and 3.1 percent in the 1990s). Urbanization rates were much more comparable, across HICs and LICs. Between 1875 and 1925, the population-weighted urbanization rate for high-income countries was 0.43 percent per year. In the low-income countries, during their recent period of urbanization, the same rate was in fact slightly lower: 0.42 percent per year, between 1950 and 2000.[78] In the last quarter of the twentieth century, "the percentage of the population living in urban areas in developing countries grew from 29 to 41 percent, a change re-

---

[76] Montgomery et al., *Cities Transformed*, 115-116. The authors add the following: "If equality in urban and rural rates of natural increase appears to be a special case, consider data from the United Nations … These data show that in the 1950s and 1960s, a number of developing countries had values of n_r [natural increase in rural areas] and n_u [natural increase in urban areas] that were roughly equal. In the 27 developing countries examined by the United Nations, fertility and mortality rates were lower in urban than in rural areas, but the differences between fertility and mortality were about the same. When n_u is approximately equal to n_r, as in these cases, the rate of urbanization is all but entirely attributable to migration."

[77] Mike Davis, *Planet of Slums*, 14-15.

[78] Montgomery et al., *Cities Transformed*, 92.

markably similar to the experience recorded by the more-developed world during the first quarter of the twentieth century."[79]

It is possible to take this line of inquiry one step further. Manipulating the above equations gives us:

$$\frac{\text{demographic growth rate}}{\text{urban growth rate}} + \frac{\text{urbanization rate}}{\text{urban growth rate}} = 1$$

In other words, one can measure the relative contributions of demographic increase, on the one hand, and rural-urban migration, on the other, to urban population growth (table 4). The headline statistic for the LICs, in table 4, appears to contradict my claim that demographic increase accounted for a high and rising portion of total urban growth. For the LICs as a whole, the exact opposite is the case: the contribution of rural-urban migration to urban population growth rises steadily: from 38 percent in the 1960s to 45 percent at the end of the century. That seems to support the claims of Mike Davis that rural-urban migration continued at a rapid pace in Africa, as well as Latin America and the Middle East, throughout the crisis decades of the 1980s and 90s—in spite of the fact that labor demand in cities was falling. However, these overall averages are skewed by the inclusion of East Asia. China is a very large country; it is also "something of an outlier", as I will show in a moment.[80] Removing China from the mix, the exact opposite trend emerges: the contribution of rural-urban migration to LIC urban growth declines sharply, falling from 41 percent in the 1960s to 31 percent in the 1990s before rising slightly to 33 percent in the 2000s. At the end of the last century, demographic growth accounted for a large and growing

[79] Montgomery et al., *Cities Transformed*, 93.

[80] Montgomery et al., *Cities Transformed*, 90.

majority of urban population growth in LICs excluding China (and more in Latin America, Africa and the Middle East).

Table 4. Contribution of Rural-Urban Migration to Urban Growth, (percent), 1950-2010

	1960s	1970s	1980s	1990s	2000s
Low-Income Countries	38%	40%	44%	45%	50%
LICs, ex. China	41	39	35	31	33
Africa	48	38	34	30	30
Latin America	36	34	31	30	26
Asia	34	39	47	50	60
Western Asia	44	36	37	17	19
Southern Asia	34	44	34	31	41
SE Asia	36	43	50	54	53
Eastern Asia	27	33	60	69	83
China	10	30	67	75	85
South Africa	9	5	23	32	41

Source: Based on UN, *World Population Prospects*, 2012 Revision.

The implication is that, in the 1980s and 90s, rural-dwellers responded to declining job prospects in the cities not by moving there *en masse* but by not doing so. They languished in the countryside, in spite of the fact that job prospects were even worse in rural areas. That is because it was all but impossible for poor rural-dwellers to gain footholds in cities. The demand for labor in cities was extremely low. Thus, there were already many urban-dwellers who were looking for work and had not found any. It was unlikely rural-urban migrants would fare better than those already living in cities. China is the exception that proves this rule.

In China, economic growth rates did not decline in final decades of the twentieth century; they accelerated. Rapid economic growth resulted in a huge increase in urban jobs. On that basis, the contribution of rural-urban migration to urban population growth rose from 10 percent in the 1960s (an abnormally low rate due to the Cultural Revolution) to 75 percent in the

1990s.[81] In China, there were many jobs in urban areas. To fill those jobs, rural-dwellers undertook the largest migration in human history. Consequently, by the end of the century, demographic growth accounted for 25 percent of Chinese urban growth, while accounting for 69 percent of urban growth everywhere else. Outside of East Asia, the demand for labor in cities was so low that, despite declining job prospects in the countryside, it was impossible for most rural-dwellers to escape to the cities.

That a decline in urban job growth would lead to a decline in rural-urban migration rates is supported by numerous studies, which show that migrants usually find work before they migrate. For example, in Khartoum, as in many cities in the low-income world, "employers often recruit new workers by asking their current employees to recommend family members or friends" who still live in the countryside.[82] In the absence of those connections, rural dwellers who find permanent work in cities and towns are typically "better educated and have more economic resources than those who stay behind in rural areas", and that gives them "an economic advantage even over the poorest urban groups" who generally reside in the slums.[83] Rural dwellers without these advantages are forced to engage in temporary or "circular" migration: they work in the cities—or more commonly, in other rural areas—for a season and then return to the villages (see chapter 2), where they languish. Yet, in spite of that fact, city populations have continued to grow.

---

[81] In South Africa, abnormally low urbanization rates in the 1960s and 1970s were due to apartheid. That issued in a rapid increase in urbanization rates in later decades.

[82] Montgomery et al., *Cities Transformed*, 327.

[83] Cecilia Tacoli, Gordon McGranahan and David Satterthwaite, "Urbanization, Poverty and Inequity: Is Rural–Urban Migration a Poverty Problem, or Part of the Solution?" in *The New Global Frontier*, ed. George Martine et. al., 48.

Indeed, in spite of declining rates of rural-urban migration, urban populations expanded rapidly, following an arc of rising and falling demographic growth rates from which it was impossible to deviate. They filled up the slums. Urban governments engaged in slum clearance, justifying their actions by arguing that "the slum-dwellers should not have moved to the city in the first place."[84] In fact "many residents of these settlements are not rural–urban migrants, but are poor people who previously lived and worked in the city centre and who have been displaced by transformations in the urban space."[85] The slums filled up with urban-dwellers who lost their jobs or saw their incomes fall, as well as with the children of slum-dwellers, who did not have the economic opportunities that would have enabled them to leave the slums. The urban poor, like the rural poor, is self-expanding: it consists of urban proletarians born into a world that did not need their labor.

3. A Theory of Demographic Transition?

Once we have established that population growth plays an outsized role in generating a global proletariat, we come up against all manner of disturbing explanations for that growth. Neo-Malthusians, who might more accurately be labeld "populationists," tell the story of demographic growth as a moral story.[86] They try to establish culpability for it: poor people are the agents of this process; they are also to blame. Populationists have a long history of blaming the poor for their sexual practices: freed from the morality of the earlier age, they are now supposed-

---

[84] Tacoli, McGranahan and Satterthwaite, "Urbanization," 43.

[85] Ibid.

[86] I take the term populationism from Ian Angus and Simon Butler, *Too Many People?* (Chicago: Haymarket Books, 2011), xxi. They define populationism as a set of perspectives "that attribute social and ecological ills to human numbers."

ly swarming into the cities, where they have escaped the admonishing eye of sanctioned religion. That supposedly explains the existence of a global surplus population: the poor lack sexual restraint; they are having too much sex! In fact, population growth is primarily a matter not of sex but of death. That is, modern demographic growth finds its cause in falling mortality levels, not rising fertility levels. Marxists and assorted techno-progressivists frequently discuss the famed accelerating rate of technological change in capitalism. What they do not say is that that same process *also accelerates demographic change*. New technologies, partly generalized through state interventions, sped up the process of mortality reduction, and that in turn sped up population growth. We will come to the details of the process, momentarily. But first, it is worthwhile to pause on the issue of populationism itself.

For populationism appears to be a quasi-spontaneous ideology of capitalist societies, which naturalizes social and historical variable phenomena by positing a direct link between the size of the population and the extent of the surplus population. At the same time, populationist pessimism provides a rationale for opposing the demands of labor-dependent individuals for improvements in their conditions. In that sense, populationism is the ultimate "fetish:" it renders not only the capitalist mode of production but also its inherent social contradictions as natural facts. In reality, populationism mischaracterizes the causes and consequences of population growth. It obscures the origins of the surplus population. Marx said as much in *Capital*, but his approach to confronting populationists was different than my own.

In Marx's time, economists had already adopted populationist explanations of the origins of the surplus population. They believed that higher wages acted as a signal to proletarians that they should have more children, while lower wages signaled that they should have fewer children. Marx explained that this was "the dogma of the economists": they believe that "higher wages

stimulate the working population to more rapid multiplication, and this goes on until the labor-market becomes over-supplied, and hence capital becomes insufficient in relation to the supply of labor."[87] When wages fall, that supposedly has the opposite effect: population growth slows, ridding the economy of excess workers. Under these conditions, if unemployment and immiseration were persistent features of life in capitalist societies, that must have been proletarians' own fault: they failed to respond demographically to market incentives. Marx's response to the populationists was to point out that the absorption and expulsion of the surplus population happen over much shorter periods of time than the length of a generation: "For Modern Industry with its decennial cycles and periodic phases … that would indeed be a beautiful law, which pretends to make the action of capital dependent on the absolute variation of the population, instead of regulating the supply and demand of labor by the alternate expansion and contraction of capital."[88] By the time the population had grown or declined, the time when that was required by capital would have long since passed. The economy thus has its own laws of motion, which are "independent" of the "natural limits" set by population growth.[89]

Marx's effort to separate economics from demography influenced later social theorists; it inoculated them against modern fairytales about the struggle to the death among demographically expanding nations or races. However, the side effect of this inoculation was that demographic proletarianization was not examined as a source of proletarianization in its own right. What Marx could not have known—since he died before the process had fully revealed itself—is that

---

[87] Marx, *Capital, Volume 1*, 790.

[88] Marx, *Capital, Volume 1*, 791.

[89] Marx, *Capital, Volume 1*, 788.

the capitalist mode of production alters demographic patterns in a specific way.[90] A specific pattern of demographic change, often referred to as the *demographic transition*, has been an unavoidable accompaniment of the extension of capitalist social relations.

This specific pattern was first discovered in the middle of the twentieth century by a new breed of demographers. It is true that, until 1945, demographers were mostly eugenicists. They were trying to provide evidence for Social-Darwinist arguments about the origins of social misery.[91] But, in 1945, Social Darwinism had been discredited due to its role in the Nazi ideology. Frank Notestein, future director of the UN Population Division, set the science on a new foundation (in fact, this new foundation had already been proposed by Warren Thompson in 1930).[92] According to this theory, population is not condemned to oscillate cyclically, as Malthus argued and as was true before the advent of capitalist agriculture. For, in the modern era, the population undergoes a secular transformation: the demographic transition.[93] Before this transition, birth rates and death rates are high but remain in an approximate equilibrium. Many infants are born but few survive to reproductive age. The population grows slowly. Then, during the transition, death rates falls as agricultural innovations raise the food supply and medical ones raise resistance to disease. However, in spite of falling death rates, birth rates remain elevated. As a result, more

---

[90] Very few Marxists have written about the demographic transition. See, for example, Wally Seccombe, *Weathering the Storm: Working-Class Families from the Industrial Revolution to the Fertility Decline* (New York: Verso, 1993), and Goran Therborn, *Between Sex and Power: Family in the World, 1900-2000* (New York: Verso, 2004). My explanation of the transition differs from theirs.

[91] Simon Szreter, "The Idea of Demographic Transition and the Study of Fertility Change: A Critical Intellectual History," in *Population and Development Review*, Vol. 19, No. 4 (Dec. 1993), 663.

[92] Szreter, "Idea," 661.

[93] See Frank W. Notestein, "Population—The Long View," in *Food for the World*, ed. Theodore W. Schultz (Chicago: University of Chicago Press, 1945) and Kingsley Davis, "The World Demographic Transition," *The Annals of the American Academy of Political and Social Science* 237 (Jan. 1945).

children survive to reproductive age, and the population grows. Finally, falling birth rates catch up to already low death rates, restoring equilibrium; the population stops growing all together.[94]

Thus, at the end of the demographic transition, the population size settles into relative stability but now without the "demographic waste" that existed earlier.[95] This waste of human life was extreme in the millennia before the demographic transition took place. Its magnitude is approximately captured by measures of life expectancy, which are estimated to have been around 20 to 30 years, globally, in prehistoric times.[96] Life expectancies were low, not because adults lived only for a short time (many survived to age 60 or later) but rather because many children did not survive to adulthood. Infants and young children were much more likely to die before their parents than the other way around. And indeed, as late as 1950, 15.3 percent of infants still died before the age of one, in the low-income countries (table 5). Child mortality before the age of five was even higher: one quarter of children died before the age of 5, across the LICs (table 5). In Egypt, on the extreme edge of the statistical table, 38.7 percent of children died before the age of five. Today, infant and child mortality rates are much lower, everywhere. Child mortality in the LICs has fallen from around 25 percent in 1950 to 5.7 percent today. Worldwide, only 4 out of 100 children die before the age of one. Although infant mortality is higher in some regions of sub-Saharan Africa, even there, infant mortality rates have fallen substantially to around 7 percent.

---

[94] As I will show, below, this idea of a population equilibrium, at the end of the demographic transition, appears to be false. The population is not tending to stabilize. Unless current trends are reversed, it will enter into a period of decline.

[95] Massimo Livi-Bacci, *A Concise History of World Population, Fourth Edition* (Malden, MA: Blackwell Publishing, 2007), 98.

[96] National Research Council, *Beyond Six Billion: Forecasting the World's Population* (Washington, D.C.: National Academy Press, 2000), 117.

Table 5. Deaths before Ages 1 and 5 (percent of live births), 1950-2015

	Infant Mortality		Child Mortality	
	1950-55	2010-15	1950-55	2010-15
LICs	15.3%	4.0%	24.7%	5.7%
Africa	18.7	6.4	30.9	10.1
Asia	14.6	3.1	23.7	3.9
Latin America	12.6	1.8	18.8	2.3
Egypt	24.9	1.9	38.7	2.4
Turkey	21.8	1.2	29.3	1.8
Nigeria	20.1	7.6	33.6	12.2
Bangladesh	19.0	3.2	28.4	4.2
India	16.4	4.4	28.9	5.6
Tanzania	15.3	4.9	25.9	7.2
South Korea	13.8	0.3	19.4	0.4
Brazil	13.5	1.9	18.7	2.4
China	12.2	1.3	20.0	1.6
Mexico	12.1	1.4	19.3	1.7
Thailand	12.0	1.0	17.7	1.2
South Africa	11.0	3.8	16.6	5.1
Argentina	6.4	1.1	8.4	1.3
HICs	6.0	0.6	7.8	0.7

Source: UN, *World Population Prospects*, 2012 Revision.

Thus, the time of life is no longer simply matter of fate. The death of a child before his or her parent is experienced as a tragedy, rather than as an everyday occurrence. Parents can expect that almost every child who is born will grow to reach adulthood. Due to the demographic transition, human beings have fundamentally transformed their relation to death. As it turns out, this transformation was associated with a world-historical multiplication in the number of human beings (table 6).

Table 6. Growth of the Total Population (thousands), 1950-2010

	1950	2010	Multiplier
World	2,525,779	6,916,183	2.7
HICs	811,187	1,235,900	1.5
LICs	1,721,042	5,659,989	3.3
Africa	229,895	1,022,234	4.4
Asia	1,403,389	4,164,252	3.0
Latin America	167,368	590,082	3.5

Source: UN, *World Population Prospects*, 2012 Revision.

According to demographic transition theory, the entirety of the world-historical increase in the size of the population occurs due to a delay between falling mortality rates and falling fertility rates. Most versions of demographic transition theory focus on explaining the causes of this delay. Notestein was no different: he argued that the demographic transition was a symptom of the "process of modernization."[97] According to this theory, all social groups move through the same stages, from premodern to modern. Notestein explained delayed fertility decline in terms of the structure of societies in the premodern times. While it is easy for pre-modern societies to accommodate a smaller chance of any individual dying, it is supposedly difficult for them to adjust to the negative consequences of improved survival, across the population. That is because, according to Notestein, a demand for large families is sewn into their social fabric: "Their religious doctrines, moral codes, laws, education, community customs, marriage habits, and family organizations are all focused towards maintaining high fertility" in order to produce "large families."[98] For Notestein, only the process of modernization can alter social aspirations away from the fami-

[97] Notestein, "Population," 39.

[98] Notestein, "Population," 39-40.

ly and towards the individual. Once societies pass through this transformation, they emerge as modern, shedding their backwardness and becoming more or less European:

> It is felt that the Asiatic hordes are inherently different from Europeans, and that if they become dominant they will 'reduce' the whole world to the Asiatic level. This view overlooks the likelihood that if the Asiatics make the changes that will given them dominance, they will lose a great part of their Oriental mode of life.[99]

It was in this way that the new demographers distanced themselves from their eugenicist predecessors: instead of arguing from the presumption of inherent difference, the new demographers argued that any society, and indeed each one, goes through the same transformation. Demographers purported to be able to put this insight to use: "the theory of the demographic transition … appeared to show that all current colonial and non-European societies could be placed into a rank ordered typology in terms of their observable economic and demographic characteristics."[100] From their perch at the UN, demographers expected to be able to follow the modernization process statistically, as populations grew in tandem with economic growth. Perhaps the US could thereby determine where it would be necessary to intervene, to prevent turbulence along the road to modernity.

Precisely because the US was willing to promote modernization, its hegemony was supposed to be different from that of the Europeans. Already in a speech in 1945, Notestein warned that the European colonial project had ended in a Malthusian trap. Western powers had altered the fabric of non-Western societies, introducing "that part of their culture which reduces mortality" but not "those changes in the social setting out of which the reduction in fertility eventually

---

[99] Davis, "World Demographic Transition," 7.

[100] Szreter, "Idea," 666.

developed in the West."[101] According to demographic-transition theory, it is impossible to bring down fertility in any other way: only modernization—and here it becomes explicit that modernization is nothing other than industrialization and urbanization—would allow the colonies to climb out of the Malthusian trap. Unlike the Europeans, the US was supposedly going to help with the modernization process.

However, in the course of the decades that followed Notestein's intervention, demographers' cautious developmentalism was transmuted into a wild-eyed hysteria about over-population. The turning point was arguably the 1949 victory of the revolution in China: "whereas one Marxist-inspired revolution might be dismissed as an accident of history brought on by a careless Czar, two began to look distinctly like an ugly habit on the part of nations composed of impoverished and disaffected peasantries."[102] Fear spread that population growth was putting strain on peasants in the world's countryside. It seemed increasingly likely that modernization would unfold too slowly to prevent the spread of communism. Some demographers feared that rapid population growth had cut off the possibility of modernization altogether.[103] For industrialization to take place, resources formerly devoted to consumption had to be invested in future production. Was it possible that population growth was now so rapid that the opposite was occurring, that resources were being diverted from investment back to consumption? According to the demographers' theory, that would mean that the fertility transition would never arrive; the world population would grow until forced down by a Malthusian "positive" check (hunger, disease, war). It was

---

[101] Notestein, "Population," 51-52.

[102] Szreter, "Idea," 676.

[103] Dennis Hodgson, "Orthodoxy and Revisionism in American Demography," *Population and Development Review* 14, No. 4 (Dec. 1988): 545.

in this environment that demographers changed their minds about family planning. They began to advocate direct intervention into the reproductive process to bring down fertility by persuasion, and if not by persuasion, then by force.

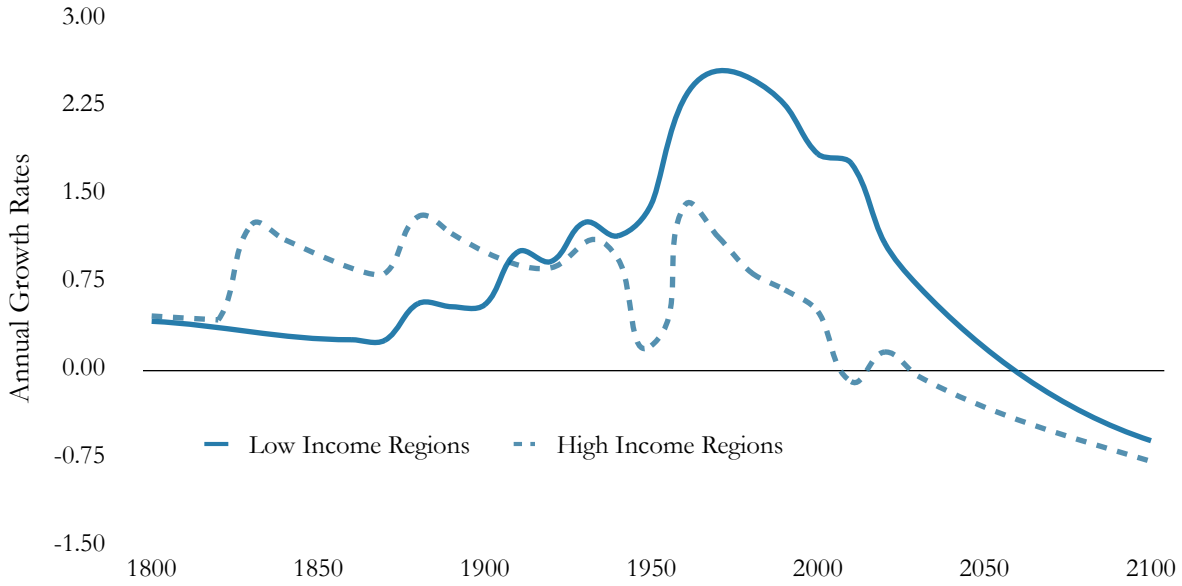
In 1945, Notestein had rejected these options: the fertility transition was a supposed to be a matter of the demand for children, not the supply of contraception. After all, "relatively effective methods of contraception were widely known for centuries before they were generally used."[104] In the 1950s, it was too late for elegant theories. The first reliable statistics coming in at the UN headquarters showed that worldwide population growth rates were continuing to rise. Contradicting what demographic transition theory had predicted, population growth rates in low-income countries were far higher than European precedents. In Western Europe, during its transition, rates of population growth rarely exceeded one percent per year. In the low-income countries, rates of annual population growth were twice as high, reaching 2.1 percent in 1950-55 (chart 2). In some regions, demographic growth rates were three times European precedents (e.g. in Central America).

Later on, I will try to answer the question, why were growth rates so high in the LICs, in the course of their demographic transitions? For now, I will note the following: just as population hysteria was reaching a fever pitch, the world was secretly nearing its peak rate of population growth. For low-income countries, that peak arrived in 1965-70, when the population was growing at a rate of 2.5 percent per year. Sustained at that rate, the population would have doubled every 28 years. Instead, population growth rates dropped off, falling to 1.3 percent per year, in 2005-10. This average rate hides a significant degree of variation: in Eastern Asia, the population

---

[104] Notestein, "Population," 40.

Chart 2. World Population Growth Rates, 1800-2100



is currently growing at less than 0.5 percent per year; by contrast, in Western Africa, populations are still growing at more than 2.5 percent per year. Nevertheless, even there, growth rates are falling and will continue to do so for the foreseeable future. For fertility is falling in more or less every country in the world.

In many low-income countries, the speed of this fertility transition has been unprecedented. Total fertility levels hovered at around 6.0 children per woman, between 1950 and 1970. Fertility levels then fell by more than half, to 2.8 children, in 2000-05, and 2.6 in the present half-decade (table 7). Moreover, in spite of variations in their historical experiences, many low-income regions saw fertility levels peak within a relatively short period of time: between 1965 and 1985. Whereas in 1953, 155 countries representing 67 percent of the world's population had total fertility levels of 4 children per woman or more; by 1993, that number had fallen to 83 countries, representing just 18 percent of the world's population (table 8). In 2008, only 13 percent of the population lived in countries with fertility levels of 4 or greater. These countries are outliers, but even they have experienced some decline in fertility. The other 87 percent of the world's inhabitants

have seen significant declines. Once begun, this process has sometimes stalled but has never completely reversed itself.[105] Today, the demographic transition is not in question. It is not a hypothesis about the future. We live in the hour of the transition's conclusion: the era of the "final build-out of humanity."[106]

Table 7. Total Fertility Levels (average number of live births, per woman, over her lifetime), 1960-2005

Region	1960-65	1980-85	2000-05
LICs	6.1	4.2	2.8
Africa	6.7	6.5	5.1
Asia	5.8	3.7	2.4
Latin America	6.0	3.9	2.5

Source: UN, *World Population Prospects*, 2012 Revision.

Table 8. Portion of World Population Living in Countries where Average Fertility Levels Were… (percent), 1950-2010

Fertility Level	1953	1973	1993	2008
Greater than or equal to 6	43.9%	18.1%	8.6%	5.4%
Between 4 and 6	23.5	53.1	9.8	7.3
Between 2.1 and less than 4	32.6	12.8	36.4	39.2
Less than 2.1	0.0	16.0	45.2	48.1

Source: UN, *World Population Prospects*, 2012 Revision.

The proximate cause of this momentous transformation is easy to identify. People are using "recently developed and highly effective methods of contraception to limit family size."[107] Around the turn of the twenty-first century, rates of contraceptive use had risen to 23 percent for sub-Saharan Africa, 50 percent for Asia and 57 percent for Latin America (in high-income coun-

---

[105] National Research Council, *Beyond*, 55.

[106] Davis, *Planet of Slums*, 2.

[107] National Research Council, *Beyond*, 56.

tries, where fertility is below replacement levels, rates of 70 percent or more are common).[108] However, demographers had sought the deeper motivations behind this transformation.

Did the fertility transition correspond to a process of modernization, as their theory had predicted? It did not: "Perhaps the biggest surprise has been the evidence that structural modernization of national economies, while conducive to fertility decline, is not a necessary precondition."[109] One need only to look at the experience of the Bangladeshis to see that this is so. In Bangladesh, GDP per capita stagnated at 280 dollars (in constant 2000 US$) between 1970 and 1990. Bangladesh was "one of the poorest and least developed countries, where long-standing tradition was widely held to favor high fertility."[110] Yet, during those years of stagnation, Bangladesh started its fertility transition. Fertility levels fell from 6.9 children per woman in 1970-75 to 5.0 in 1985-1990. The country went on to experience one of the fastest fertility declines in history: fertility levels fell to 2.4 in 2005-2010. The modernization theory of the fertility transition is not the only one to have faltered. No socio-economic factor seems to explain the onset of the transition. Fertility declined in countries where school enrollments were rising as well as in ones where they were falling. The most accurate predictor of fertility decline is literacy; however, "in some highly literate societies, childbearing has fallen rather slowly (e.g., the Philippines), and in others, levels of fertility still remain high, (e.g., Jordan)."[111]

It may seem like the obvious reason why no single socio-economic factor explains the fertility decline is that, following the advice of demographers, some states intervened in the process,

---

[108] Livi-Bacci, *Concise History*, 154.

[109] National Research Council, *Beyond*, 59.

[110] Wilson and Airey, "How can," 125.

[111] National Research Council, *Beyond*, 59.

pushing family planning programs on their populations. The Rockefeller Foundation was an early advocate of family planning; it was joined by the US government in the 1960s.[112] Does the presence of those programs explain fertility trends? In some cases, the answer is yes. In Indonesia, as well as in Bangladesh, family planning programs appear to have influenced the timing and speed of the transition.[113] Yet fertility declined in many low-income countries where governments were indifferent to family planning. For example, across Latin America, fertility levels declined before any such programs had been implemented. In general, efforts to measure the contributions of family planning programs to fertility decline "are plagued with difficulties, and results vary from next to nothing to almost one-half."[114] Part of the reason is that, as Notestein predicted, the availability of contraceptives seems to make little difference to individuals who are determined to have many children; likewise, government hostility to the use of contraceptives rarely deters populations from using them, if those populations are intent on reducing pregnancies. "Variation in actual fertility is almost completely explained by variation in wanted fertility", and with few exceptions, governments have proven ineffective in their attempts to influence the latter (they are more effective in speeding the transition along).[115] There is no way to predict exactly when this deep transformation in sentiments will occur. It may be more accurate simply to say that there is no single fertility transition. And yet today, the fertility decline, like the mortality decline, has become a universal phenomenon. In what follows, I lay out a critique of demographic transition

---

[112] Hodgson, "Orthodoxy," 551.

[113] National Research Council, *Beyond*, 61.

[114] Livi-Bacci, *Concise History*, 159.

[115] Livi-Bacci, *Concise History*, 161.

theory's mistaken notions, while providing an alternative explanation of the rapid rise and fall in population growth rates in the LICs.

4. Beyond Demographic Transition Theory

The main error on the part of the mid-century demographers was that, drawing on Parsonian structural functionalism, they suggested that all countries could be described as if moving along the same path, from simple to complex societies. In Parson's framework, "different societies are classified in relation to one another along an arbitrarily defined linear scale purporting to represent a temporal sequence."[116] It was as if each culture were writing the same story—each having the same beginning, the same middle (or process of change) and the same end—but out of sync. In fact, demographic transition theory was wrong on all three counts. (1) There was no single pre-capitalist social form and thus no shared origin; instead, there was substantial variation, in terms of pre-transition fertility and mortality levels. (2) The process of change wasn't the same everywhere; there was a distinct process of 'late' transition, which resulted from combined and uneven capitalist development. And (3) the endpoint was understood to be a return to *equilibrium* (zero net growth); whereas in fact we are approaching a tipping point, towards global population *decline*. Correcting the first two of these errors gives us a sense of the real reasons behind the rapid growth of LIC populations in the past. Correcting the third gives us a sense of our surprising demographic future. I take each in turn.

(1) There is no such thing as a "traditional society." Non-capitalist social forms were associated with a variety of mortality and fertility regimes. In Western Europe, pre-transition fertility levels were low, compared to other regions, with a total fertility rate of about four children per

[116] Szreter, "Idea," 684.

woman; by contrast, in Latin America, Africa, and Asia, pre-transitional fertility levels ranged as high as seven or even eight children.[117] That goes part of the way towards explaining why population growth rates were substantially higher in the LICs than in the HICs, in the course of the demographic transition. In the LICs, fertility levels had much further to fall, once the transition began. Why were LIC fertility levels higher? At the proximate level, differential fertility levels were primarily determined by two factors: age at first marriage and the normative duration of breast-feeding (which is a natural contraceptive).[118] So for example, in western Europe, women married relatively late—they were over twenty years old, on average—and around one in ten women never married; everywhere else, marriage was almost universal at puberty. But why was that the case? Was the distinction merely cultural?

As it turns out, there was something correct in the intuitions of the demographic-transition theorists: pre-transitional fertility levels approximately balanced mortality levels. Where life expectancy was forty years, total fertility rates were likely to be around four children per woman; where life expectancy was 25 years, they were likely to be around seven children per woman.[119] It seems likely that mortality is the independent variable in this relation and fertility the dependent one: mortality varies in relation to disease vectors (see below), and fertility varies in relation to mortality. In any case, no matter what the death rate, social relations adjusted age at first marriage and breastfeeding duration to keep population growth rates at extremely low levels. Women could have been having up seven children (or even much more than that, e.g. by varying the age at marriage), even where four children was all that was needed to produce relative population

---

[117] Livi-Bacci, *Concise History*, 18-19.

[118] Livi-Bacci, *Concise History*, 12.

[119] Livi-Bacci, *Concise History*, 17ff.

stability. Yet that combination was uncommon outside of populations that were colonizing new lands.

That social regulations enforced a relative demographic balance regardless of pre-existing mortality levels is confirmed by the fact that rates of human population growth over the 200,000 years since the emergence of the species were extremely low, until recently: "Following the courageous hypotheses of [Jean] Bourgeois-Pichat, we can estimate the total number of births from the origins of the human species to the present day at 82 billion, of which only 9 billion took place in the [approximately 190,000] years prior to the neolithic era."[120] Once again, we forced to return to the notion that this relative population stability in pre-transitional societies had a material basis: pre-capitalist forms of life were not geared towards raising their productivity and thus expanding their access to resources. Under these conditions, even if it was in any given family's serial interest to have many children, it was in the collective interest of all families to enforce cultural norms (concerning age at marriage and the care of small children) that ensured that only two children survived to adulthood, on average, per family.

From this perspective, we can begin to see what is wrong with Notestein's explanation of the mechanism behind population growth, that is, of the delay between the mortality and the fertility transitions. According to his theory, the mortality and fertility transitions were relatively independent: even when mortality began to fall, pre-modern societies continued to valorize large families. He thought that they would do so until a socio-economic change took place that caused them to valorize small families instead. In truth, although women in pre-transitional social groupings were giving birth to four to eight children, they probably did not do so because they wanted

---

[120] Livi-Bacci, *Concise History*, 27. That would mean that the population living today accounts for almost nine percent of the people ever born in human history

large families: "it is much more likely that attitudes to child-bearing among our ancestors were less positive, and more ambivalent, than is usually taken to be the case."[121] Rather, they were trying to ensure that, given cultural constraints on age at first marriage and breastfeeding duration, they would have *at least* a small family, with two surviving offspring.

Having more surviving children, in spite of social regulations that ensured only two children survived to adulthood on average, would have seemed to be largely a matter of fate. And it was: it implied that in a family with a normative fertility level, fewer children had died than was average. Statistically speaking, for every family that was blessed in this way, there would have been about as many that were cursed, so that mortality and fertility continued to balance. Many families "would have had no surviving offspring", many "would have had one or more surviving daughters but no living male heir", while others "could expect to see several surviving sons at their deathbed."[122] As long as the population was still growing very slowly overall, there would have been land and other resources available for the children of large families to inherit. For that reason, the existence of some large families would not have been experienced as a social catastrophe.

Indeed, in social groups experiencing high mortality levels, there must have been established mechanisms for handling variation in survival rates across families. As Kingsley Davis observed: in pre-transitional cultures, "land and goods flow from the dead to the living in several ways—by purchase prior to death, by collateral relatives in the absence of true heirs, by remar-

---

[121] John Cleland, "The Effect of Improved Survival on Fertility: A Reassessment," *Population and Development Review* 27, Supplement: *Global Fertility Transition* (2001), 66. "Assuming a maternal mortality ratio of 1,500 per 100,000 live births and total fertility rate of 6 births, the lifetime risk of dying from maternal causes is nearly one in ten. It would thus hardly be surprising if … reproduction has been regarded not as something to maximize but rather as a mixed blessing."

[122] Cleland, "Effect," 67.

riage of widows."[123] Likewise, for married couples with no children, "there was a ready supply of 'surplus' offspring from other families who could be taken as apprentices, adopted, fostered, or 'loaned.'"[124]

These reflections allow us to see the mortality and fertility transitions from a new perspective—not as separate events, but rather as one event that is temporally extended. Large reductions in mortality, in transitional societies, are experienced as disruptions to patterns of inter-generational resource management. Falling infant and child mortality levels have as their consequence that large families become more frequent. However, having a large family is thus no longer experienced as a blessing: "whatever advantages and opportunities that may have accrued to families with numerous children in pre-transitional settings are eroded by mortality decline."[125] Land holdings are pulverized through subdivision among surviving children, or some children have to be left with no inheritance at all, since there are now fewer families with only one or no surviving children (and thus fewer "unclaimed" resources). Sooner or later, the fear of not being able to support one's children gives rise to a desire to limit family size, and in fact, women in their 20s and 30s with two or more surviving children were often the earliest adopters of new contraceptive methods.[126] That explains why, once mortality begins to fall, the pressure to reduce fertility becomes extreme within two generations, regardless of how much "modernization" has taken place. Falling fertility it is not a matter of an independent adjustment in cultural norms. Instead,

---

[123] Kingsley Davis, "The Theory of Change and Response in Modern Demographic History," *Population Index* 29, No. 4 (Oct., 1963): 353.

[124] Cleland, "Effect," 68.

[125] Cleland, "Effect," 82.

[126] Cleland, "Effect," 78.

it is a matter of responding to social pressures, arising directly from reductions in mortality, that were unraveling the fabric of non-capitalist forms-of-life. This theory helps us to understand why the fertility transition took place across the world, in spite of vast economic and cultural differences, and in the course of a very short period of time. The one thing all regions shared in common was the mortality transition itself. That was enough.

(2) This change of perspective provides us with the other key we need, in order to explain why transitional population growth rates in the LICs were higher than those in the HICs. The mortality transition was the cause of the fertility transition, and in the course of the two centuries after 1820, *the pace of the mortality transition accelerated*. This acceleration follows from the fact that technical innovations in public health and medical care are both historically discontinuous and cumulative over time. Thus, innovations that appeared in an uneven trickle in the course of the earlier transitions came on like a flood in the later transitions. There is, therefore, a distinct process of "late transition," which begins around 1900. That date roughly marks the promulgation of the germ theory, that is, the theory that diseases are transmitted via microscopic viruses and bacteria.[127] On the basis of that theory, people came to understand that harmful materials could be carried not only by foul-smelling air but also by apparently clean drinking water. Before that discovery, that is, in the "early transition" countries, mortality fell slowly, since it was mostly dependent on rising food security, which reduced mortality in the countryside. Meanwhile, in spite of a better nutritional intake, mortality in the HICs' cities remained elevated. That's because in cities, drinking water was more easily contaminated by human waste. As a result, for most of human history, "the urban sector was a demographic sink (i.e. a net destroyer of

[127] National Research Council, *Beyond*, 120.

people)."[128] This situation was only reversed at the end of the 19th century: for the first time in human history, cities began to grow through demographic expansion as much as by means of rural-urban migration (thus, the demographic transition also became an urban transition). Here was the most important consequence of the promulgation of the germ theory: it led to a reorganization of the urban sanitation infrastructure. It also led to crucial innovations in commonsense: isolating the sick from young children and washing one's hands both before and after interacting with sick individuals eventually became routine practices, which were almost costless to adopt.

From this perspective, we can see the mortality transition for what it was, that is, an "epidemiological transition."[129] Human beings—for whom transmissible diseases such as tuberculosis, typhoid fever, smallpox and dysentery were once the most common killers—began to die more frequently from non-communicable diseases, such as heart disease and cancer. While, in the earlier part of the mortality transition, human resistance to communicable diseases increased indirectly, due to the fact that people were eating more and better food; in the later part, it also rose due to medical and healthcare innovations, which helped people to avoid getting sick, particularly in infancy and early childhood, and to recover when they were sick. Because of the historical lateness of this latter set of innovations, mortality in Europe fell very slowly in the course of the 19th century. Over the course of one-hundred years, life expectancy rose from 40 to 53 years, or 0.13 years per year. By contrast, after 1900, life expectancy began to rise more than twice as fast: Europeans' life expectancy rose from 53 years in 1900 to around 70 years in 1960, or 0.28 years

---

[128] Tim Dyson, *Population and Development: The Demographic Transition* (New York: Zed Books, 2010), 24.

[129] Rodrigo R. Soares, "On the Determinants of Mortality Reductions in the Developing World," *Population and Development Review* 33.2 (June 2007): 256. The term was coined by Abdel Orman.

per year. Crucially, rapidly rising life expectancy in the HICs in the first half of the twentieth century was not associated with ballooning population growth-rates, since, by then, Europe's fertility transition was already well underway. As a result, even rapid declines in mortality levels no longer led to rising population growth-rates. That is the effect of the fertility transition: it breaks the relationship between mortality decline and population growth.

By the time the same epidemiological transition began to unfold in the LICs, public health and medicine were far more advanced, but the LIC fertility transition had not yet begun. Indeed, almost all of the mortality reduction in the LICs took place after the discovery of germ theory. Mortality rates began to fall in the low-income countries sometime around the start of the twentieth century but were still elevated as late as 1950, when the first detailed statistics became available. After that point, mortality rates began to fall at an unprecedented pace, due to the accumulation of ever more advanced means of controlling disease vectors and of keeping people alive once they were infected. These included new vaccines and antibiotics, as well as DDT. Before the widespread adoption of these technologies, in 1950, average life expectancy was 41 years in the LICs. Life expectancy then rose to 59 years in 1980—an increase of 0.6 years per year (table 9). In Western Europe gains of this magnitude had taken more than a century. In Germany average life expectancy took 130 years (1820-1950) to rise from 41 to 67; Indonesia made roughly the same leap, from 40 to 66 years, in one third of the time.

Much of this gain in the low-GDP countries (as in the high-GDP ones, in an earlier moment) was due to rapidly falling infant-mortality levels, which fell from 17.4 deaths per 100 births in 1950 to 8.2 in 1980, a fall of 53 percent. The population-multiplying effects of falling infant (and child) mortality were made much larger by the fact, when they occurred in the LICs, fertility levels had not yet fallen. Moreover, as mentioned earlier, fertility levels were generally higher in

the LICs than in the HICs (since the former were mostly located in tropical rather than temperate climates). Fertility levels did adjust to this new reality, in the LICs, rather quickly, after 1960. The average woman gave birth to 5.9 children in 1960, but only 2.8 children in 2000. Increases in life expectancy now cause less and less of an increase in the size of the population. However, in the mean time, the population has grown enormously. In the course of the twentieth century, the population of Africa multiplied by a factor of 4.8, of Asia by a factor of 2.8, and of Latin America by a factor of 5.9. These regions will grow more in the coming decades.

Table 9. Life Expectancy at Birth (years), 1950-2010

	1950-55	1980-85	2005-10
LICs	42	60	67
Africa	37	51	56
Asia	42	62	70
Latin America	51	65	73
HICs	65	73	77

Source: UN, *World Population Prospects*, 2012 Revision.

(3) What will be the pace of the final drop off in LIC fertility levels, in the decades to come? A widely quoted UN projection estimates that total fertility rates will fall to 2.15—near replacement levels—in 2050-55. If so, then the world's population will grow to 9.55 billion in 2050.[130] It will rise further, to 10.85 billion, in 2100. But this "medium-variant" projection is not actually a consensus view among demographers, even if it is understood to be such by non-demographers. It is simply a projection of what will happen if fertility levels eventually stabilize at 2.1 children per woman around 2100. The UN also provides high and low projections.[131] In the

---

[130] United Nations Population Division, *World Population Prospects: The 2012 Revision, Volume I: Comprehensive Tables* (New York: United Nations, 2013), 1.

[131] Ibid.

former case, fertility levels are assumed to stabilize at a level half a child higher, in which case the population will rise to 16.64 billion in 2100. In the latter case, fertility levels are assumed to stabilize at a level half a child lower, in which case the world's population will peak in 2045, at 8.34 billion, and then decline thereafter, to 6.75 billion, in 2100. According to the low-variant projection, the world's population will be smaller at the end of the century than it is at present. Which of these projections is likely to be correct?

Partly, that depends on the rate at which fertility declines in the few remaining countries where fertility levels are high. In some such countries, fertility levels have declined at an extremely rapid pace. For example, in Iran, fertility was as high as 6.3 children per woman in 1975-80. It was widely held that the fertility transition would unfold slowly there, and elsewhere in the Islamic world, due to certain characteristics of Islam. Yet, in Iran, fertility fell by 72 percent in thirty years. Today, Iranian fertility—at 1.8 children per woman—is below replacement levels. Many other populations in the Middle East have undergone similarly spectacular rates of fertility decline. In Oman, the UAE, Algeria, Tunisia, Libya and Qatar, fertility levels have declined by more than 60 percent over the same period (table 10). Of course, there are also regions, mostly in sub-Saharan Africa, where fertility levels have fallen very slowly. In Niger, the DRC, Sierra Leone, Mali, Chad and Somalia, fertility levels remain above 5 children per woman, having declined by less than 10 percent from 1975-80 to 2005-10. It is possible that these countries will undergo a rapid fertility transition in the future. But perhaps these late-transition regions have been "self-selected for their resistance to change."[132] Some scholars cite evidence that the family structures prevailing in sub-Saharan Africa dampen the negative feedback effects that result from hav-

[132] National Research Council, *Beyond*, 120.

ing many surviving children. Yet similar concerns were voiced about role of Islam in Arab countries, which were false.

Table 10. Declining Fertility Levels in Countries with Majority Muslim Populations, 1950-2010

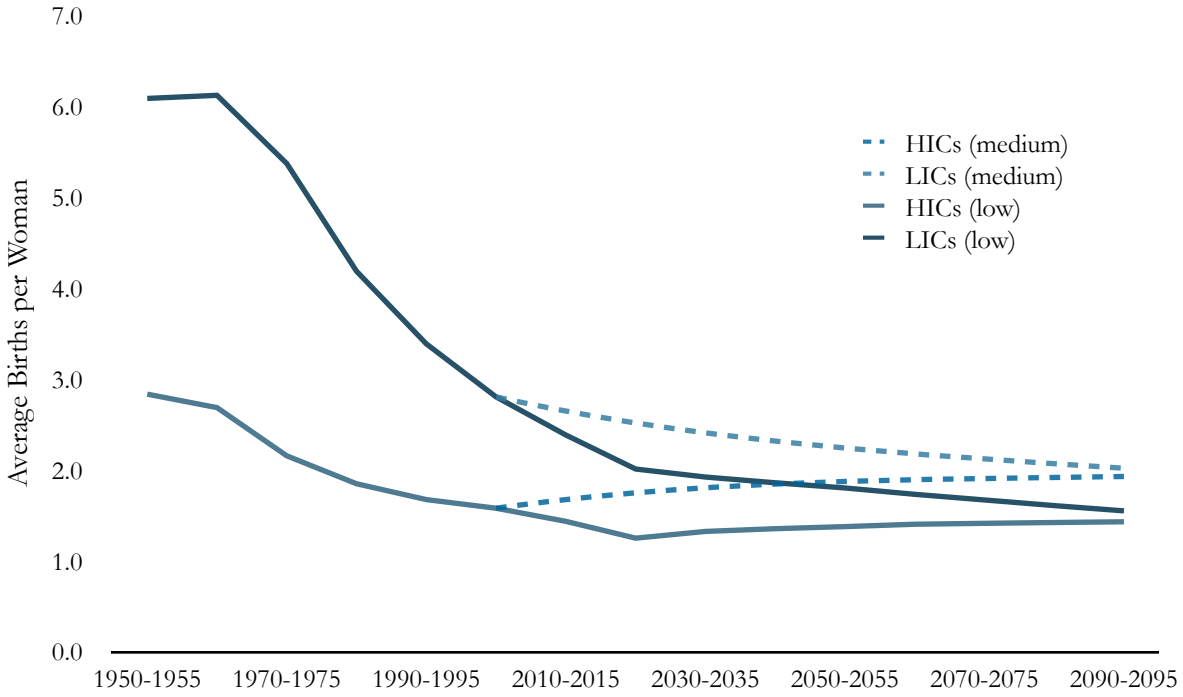
	1950-55	1980-85	2005-10
Iraq	7.3	6.4	4.4
Pakistan	6.6	6.4	3.7
Syria	7.2	6.8	3.2
Saudi Arabia	7.2	7.0	3.0
Algeria	7.6	6.5	2.7
Indonesia	5.5	4.1	2.5
Morocco	6.6	5.4	2.4
Tunisia	6.7	4.9	2.1
Iran	6.9	6.5	1.9

Source: UN, *World Population Prospects*, 2012 Revision.

In any case, much more important that the pace of decline among the very small subset set of present-day high-fertility countries is the level at which fertility settles everywhere else. How likely is it that fertility levels will settle at the post-transition replacement rate of 2.1 children per woman? As it turns out, 47.5 percent of the world's population lives in countries where fertility levels are already below that rate (see Table 8). In order for the medium-variant projection to come true, fertility levels in those countries will have to rise, in the future (chart 3). Meanwhile, everywhere else, fertility declines would have to halt at around 2.1 children per woman, rather than declining below that level—wholly contradicting historical precedents. Few high-income countries (New Zealand, Iceland, and the United States of America) have seen fertility levels stabilize at the replacement level. Meanwhile, in many LICs—among them, China, Thailand, Vietnam, Iran, Lebanon, Costa Rica, Brazil and Chile—fertility levels are already below 2.1 children per woman. The low-variant projection, according to which fertility levels stabilize at 1.6 children

per woman, seems much more likely to be accurate (chart 3). On the one hand, past medium-variant projections have tended to underestimate fertility declines—especially for countries where fertility levels were already below 2.5 children per woman: "in 20-year projections … projected total fertility has been on average 0.39 children to high."[133] On the other hand, 1.6 children per woman is much closer to the already-existing average in income countries, which was below 1.7 children in every year between 1990 and 2010. The demographers' belief that the demographic transition would culminate in the return of relative population stability was nothing but a fantasy of equilibrium. It seems likely that we are now living through the final decades of world population growth, which will be followed by decline.

Chart 3. UN Population Projections, Medium and Low Fertility Variants, 1950-2100



[133] National Research Council, *Beyond*, 46.

Conclusion

In this chapter, I have examined the process of demographic change, not in the typical way—that is, in terms of its positive or negative consequences for economic growth rates—but rather, as a mechanism with social-structural effects. Over the past two centuries, comparatively rapid rates of demographic growth effected an epochal shift in the forms of social existence. Because the world population *grew seven times over, in two centuries*, social forms that had held on tenaciously (although not unchangingly) were forced into dissolution. That's because demographic growth upended inter-generational modes of resource management, "freeing" individuals from customary access to resources. New forms of social mediation had to appear on the scene, which were capable of allocating this freed humanity to productive activities, while giving individuals access to what others had produced and providing those others with information about what to produce. In the absence of alternatives (which were defeated in the course of the twentieth century), demographically expropriated individuals were captured by a single form of social mediation: market relations. A major consequence of demographic growth was therefore that the population was rendered market-dependent as well as labor dependent, since, losing their inheritance on the land, most people lacked access to capital. In that sense, demographic growth was proletarianizing. Newly proletarianized populations were self-sustaining and self-expanding. That is why we no longer live in a world of peasants. Proletarian now names the condition of the majority of the earth's inhabitants.

I have so far enumerated three pathways of demographic proletarianization: (1) rural growth undermines intergenerational patterns of land management, bringing market and labor dependence to the countryside; (2) urbanization moves some individuals into the city, where market and labor dependence are nearly universal; and (3) urban growth augments this urban-

dwelling, market and labor dependent population. To conclude, I will discuss one further way that demographic growth effects a rise in the overall labor supply: (4) transformations in the age structure, which raise the portion of the population that is available for and seeking work. The age structure of the population refers to the distribution of the population in different age groups (e.g., 15-64).

Table 11. Median Age (years), 1950-2013

	1950	1980	2010
World	23.5	22.6	28.5
HICs	28.5	31.9	39.9
LICs	21.4	20.0	26.4
Africa	19.2	17.6	19.2
Asia	22.0	21.0	28.8
Latin America	19.9	19.8	27.3

Source: UN, *World Population Prospects*, 2012 Revision.

The demographic transition alters the age structure over the course of its unfolding, and it does so in stages. First, when mortality falls, the number of surviving youths balloon, generating a youth "bulge."[134] The population becomes younger overall, as measured by a fall in the median age (table 11). In Uganda and Afghanistan, where the fertility transition has hardly begun, half the population was younger than 15 in 2010. Here is a world in which enormous strain is placed on parents, who have to support more dependent children than usual (because more survived past infancy). Once fertility levels fall, this enjuvination comes to an end; the population ages. Whereas in the 1960s, over 40 percent of the HIC population was youth under age 25 (piling into schools and universities); today, less than 30 percent are. The median age has risen from

[134] David Bloom and David Canning, "Global Demographic Change: Dimensions and Economic Significance," *Population and Development Review*, Vol. 34 (2008): 20.

Chart 4. Population ages 65+, 1950-2100

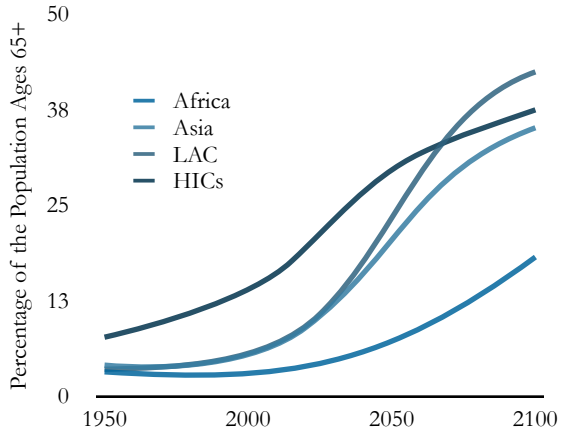
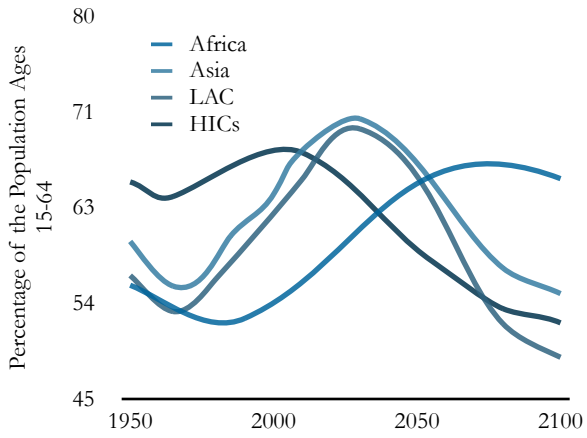


Chart 5. Population ages 15-64, 1950-2100



28 to 40 years or more. In Japan and Germany, with the highest median ages in the world, half of the population was older than 44, in 2010, that is, halfway through their working lives, or finished with work entirely. Approximately the same number of people falls into each age category.

The result is that, today, there are many more older people and relatively fewer younger people than in the past. However, these age groups remain unevenly distributed across the world, since each country is at different phase in the transition (for example, the median age in Israel is over 30; in Palestine it is just 18). Regions now entering the final stages of the demographic transition will see their populations continue to age, even as population growth rates slow and then reverse. Age structures will stabilize within the present century, although the population size may continue to decline, indefinitely. Median ages may already rise above 55 by 2050, across the HICs. One side-effect of this aging process is that an ever rising portion of the population will be at or beyond retirement age, that is, 65 years or older: in 1950, only 8 percent of the population of the HICs was 65 and older; sixty years later, in 2010, that proportion had risen to 16 percent (Chart 4). In the LICs, where the demographic transition was compressed, the aging process will unfold more quickly. In Latin America and in Asia, the 65+ population makes up 8 percent of

the population, today, but it will reach 16 percent in just 25 years (in China, this population will grow particularly rapidly: by 2040, almost one quarter of the population will be 65+).

What will it mean to live in a world where fully one third of the population is 65 and older, as will likely be the case both in Latin America and across the high-income world, in 2070? What sorts of changes in social life will have to take place, in order to make such a world livable, both for old-age dependents and for the shrinking working population that supports them? And what will happen to all these older individuals, if no changes are made? Will mass-produced old-age care actually take care of human beings, or will it simply manage them?

For now, these questions still refer to a far-off future, at least, for most of the world's population. In fact, before the world population grows old, it will face a different problem: not too young dependents or too many old-age dependents, but rather too many people of working age. Here we return to our original theme: *the effects of the demographic transition on the supply of labor*. The transformation in the age structure increases the labor supply because, in its middle stages, it results in a significant albeit temporary rise in the percentage of the population that is between 15 and 64 (Chart 5).

This effect has been more extreme in the LICs, where the transition was more compressed and peak rates of growth much higher. In Asia, the portion of the population of working age rose steadily from 59 percent in 1950 to 69 percent today. A larger portion of an already rapidly growing and proletarianizing population is in need of work (and is most likely supporting dependents as well). This transformation in the age structure has been referred to as a demographic bonus or "dividend:" between the phases of the transition in which there are many young dependents and then many old-age dependents, there is a phase where there are relatively

few dependents overall.[135] This passing transformation of the age structure is supposed to be an economic boon: it supposedly boosted China's growth rates, during the thirty years after 1980. It is now expected to do the same in India, where dependency rates are just falling. However, a rise in the working-age population, and so also, in the labor supply, is not directly an economic boon. It is so, *only if* the demand for labor is there to meet the growing supply. What happens if, instead, there is an imbalance between the supply and demand for labor? In Latin America, dependency ratios fell at the same time as they were falling in China.[136] However, the 1980s were a "lost decade" for Latin America, rather than a period of breakneck growth. As a result, the demographic dividend was more of a demographic penalty. It meant that there were many young people entering the workforce when the demand for labor was low.

[135] Bloom and Canning, "Global Demographic," 27.

[136] Bloom and Canning, "Global Demographic," 28.

Table 12. Adult Literacy Rates of the Adult Population (percent) and Mean Years of Schooling (years), 1950-2010

	Adult Literacy Rates			Years of Schooling	
	1950	1980	2010	1980	2010
Argentina	86%	94%	98%	6.7	9.3
Bangladesh	—	29	57	2.0	4.8
Brazil	49	75	90	2.6	7.2
China	16	66	94	3.7	7.5
Egypt	20	44	72	2.1	6.4
India	19	41	63	1.9	4.4
Mexico	57	83	93	4.0	8.5
Nigeria	12	55	61	—	5.2
South Africa	47	76	89	4.8	8.5
South Korea	77	—	98	7.3	11.6
Tanzania	—	59	73	2.5	5.1
Thailand	52	88	94	3.7	6.6
Turkey	32	66	91	2.9	6.5

Source: Literacy 1950 from N. R. Crafts *The Human Development Index, 1870-1999: Some revised estimates* (2002). Literacy 1980 from World Bank, *World Development Indicators* (for these countries 1980 statistics are taken from different years: Bangladesh, 1981, China 1982, India 1981, Egypt, 1986, Tanzania 1988, Nigeria 1991). Literacy 2010 as well as statistics on years of schooling from UN, *Human Development Indicators.*

What will be the fate of the massive generation of labor entrants, today, who were born in the 1990s and early 2000s, when the absolute addition to the population was at its world historical peak? Today, the world faces up against its global youth maximum . There are more than three billion people who are under age 25—more than the total population in 1950. This youth is very unevenly distributed, across the globe: fully 89 percent of them are coming of age in the LICs. This youth-bulge generation will come of age with massive expectations: they have lived lives relatively free of crippling disease. Few of them have seen their siblings die. Today's youth also have had opportunities unavailable to their parents and grandparents' generations. For ex-

ample, in 1950, only 32 percent of adults in Turkey were literate; today, 91 percent are (table 12). Similar transformations in literacy and in schooling have taken place across the LICs (although less strongly in South Asia). Yet this generation also faces massive obstacles on the job market.[137] As we will see, it is coming of age in a time of slow growth in the world economy and a stagnant demand for labor in most cities and towns across the world.

[137] Because the demographic transition is unfolding at different paces across the globe, the problem of difficult labor-market entry will have divergent consequences, across regions. To take an extreme example: in both Spain and South Africa, roughly 50 percent of youth were unemployed in 2012. Yet, in South Africa, the 15-24 population made up one-fifth of the total population; whereas in Spain, that same age group accounted for only half that.

3. De-Agrarianization

In this chapter, I continue to examine the sources of an expanding global surplus population by looking at dynamics leading to a rising oversupply of labor, in the second half of the twentieth century. Previously, I did this by looking at demographic dynamics. Between 1950 and 2000, the world's population swelled from 2.5 to 6 billion people. It then rose to 7 billion in the first decade of this century. I described the process of *demographic proletarianization*, which followed from this growth: demographic increase directly proletarianized populations; it also caused existing proletarian populations to expand. A larger percentage of a much larger population was thus rendered labor-dependent. That added to the global labor supply, even though a corresponding demand was not there to meet it. Demographic proletarianization took place in both the countryside and in cities, but by the end of the century, urban expansion was the dominant dynamic. Due to population growth, as well as in-migration from rural areas, LIC urban populations in 2010 grew to more than eight times their 1950-size. This was the first source of the late twentieth century's rising labor oversupply. To it, a second source was added. Here, I examine this second source: agricultural dynamics caused *deagrarianization*, a decline in the agricultural share of total employment.

The transfer of workers to non-agricultural pursuits added to the global labor oversupply because it typically involved a phase shift in individuals' mode of employment. Most agricultural producers, historically, were not part of the labor market. Many were peasants who did not sell their labor-power; instead, they produced for their own subsistence needs. Peasants may also have sold crops on agricultural markets, but in any case, they did not compete for jobs. In much of the world, landless laborers who worked on large estates were also not traditionally part of the labor

market. They were tied to their employers by non-market means: debt peonage and other bonds tied families to landowners, over many generations. Individuals could not easily leave landowners' estates in search of other work. Consequently, in countries with high agricultural employment shares, the national labor supply included only a small portion of the working population: it consisted of a share of the rural landless, as well as small urban proletarian populations. Now, people coming from diverse situations have exited from the agricultural sector, or were added to the workforce without ever having been part of that sector. That has resulted in a decline in the agricultural share of employment, adding to the global labor supply in spite of the fact that the demand has not been there to meet it. The mass movement out of agriculture has been enormous, but it is is important to remember, from the start of this investigation, that this movement was largely an effect of people entering the laborforce outside of agriculture, rather than of an actual decline in the worldwide agricultural population. The latter did not begin, on a global scale, until the 1990s. I will now give a brief statistical portrait (Table 1).

As late as 1950, a large remainder of agricultural producers could still be found in almost every country. Only the US and Northern Europe had pushed towards the limits of agricultural exit, with around ten percent of the workforce in agriculture. According to the FAO, 38 percent of the workforce in developed countries (including the USSR) was employed in agriculture in 1950.[138] Meanwhile, 79 percent were so employed in the LICs. After 1950, there was a steady push out of the primary sector in every region, which has continued up to the present. By 2010, only 8 percent of the developed world's laborforce was still engaged in agriculture. In the LICs, the agricultural employment percentage had fallen almost by half, to 41 percent. It should be

---

[138] Food and Agriculture Association of the United Nations, *State of Food and Agriculture 2000* (Rome: FAO, 2000), 143.

stressed that this last statistic hides a significant amount of variation across regions. In Latin America, the Middle East and Southern Africa, only one-fifth of the workforce or less still labors in the agricultural sector. In North Africa and East Asia, around one-third of the workforce is in agriculture. By contrast, in sub-Saharan Africa excluding Southern Africa, as well as in South and South-East Asia, a larger percentage remains engaged in agriculture: around one-half of the workforce or more.

Table 1. Decline in Agricultural Share of Employment, in Selected Subregions (percent), 1950-2010

Subregion	1950	1980	2010
Northern Europe	12%	5%	3%
Northern America	13	4	2
Western Europe	25	7	2
Southern Europe	52	21	6
Southern Africa	43	22	10
South America	51	33	13
Caribbean	57	34	20
Central America	62	39	18
Northern Africa	76	55	29
Western Asia	79	49	18
South Asia	80	69	51
Southeast Asia	80	63	47
Western Africa	83	66	46
East Asia	84	67	33
Middle Africa	87	74	58
Eastern Africa	92	85	75
World	—	50	34

Source: FAOSTAT, except World 2010: from ILO KILM, 2013

In total, one-third of the global workforce—roughly one billion people—labors in the agricultural sector today. Although it is impossible to say exactly what percentage of the global workforce was engaged in agriculture in 1950, it was probably around two-thirds of the total.

Due to this decline in agriculture's share of employment, huge numbers of people who were not labor dependent became so. They lost direct access to land, if they ever had it, and were forced to sell their labor-power in order to buy what they needed to live. People have continued to stream into labor markets regardless of the fact that a demand for their labor has been weak. For that reason, capitalist dynamics leading to deagrarianization have been a *relatively* independent source of the expansion of the surplus population (it is important to stress the term relatively here: the absolute size of the agriculturally engaged population continued to grow, in many low-income countries, even as the agricultural share of employment declined significantly). Yet the role of deagrarianization in expanding surplus populations is even more marked than these statistics suggest.

Observers have long noted the tendency for workers without work to return to the countryside, or to remain there, laboring on family farms. In the 1860s, Karl Marx referred to these workers as a "latent" surplus population: in the event of an economic boom, they would migrate to the cities, adding to the urban labor supply and consequently reducing upwards pressure on wages. Agricultural work thus served as a temporary sink for excess urban workers. Examining a structurally similar phenomenon in the LICs, Arthur Lewis described a portion of the rural population as existing in a state of "disguised unemployment." These covertly unemployed individuals contributed little to farming output, so their out-migration that had little effect on the provision of food. This phenomenon can still be observed, for example, in sub-Saharan Africa and in India, where a sizable share of the workforce remains in agriculture. But everywhere, a strong decline in agricultural employment levels has been associated with the elimination of this outlet for surplus laborers. In that sense, the *latent* surplus population is becoming *manifest.* Once hidden

away in villages, underemployed individuals have now been forced out onto urban and peri-urban streets.

Discussing the causes of the global wave of deagrarianization is difficult to do in a systematic way. In part, it involves the transformation of subsistence peasants, who may have been involved in market production, into capitalist owner-operators, who are dependent on selling in markets for their survival. It is because they came to depend on selling in agricultural markets that producers were subject to a market logic, which eventually ejected most of them from the agricultural sector. Modes of entry into agricultural production for exchange are highly variable. In some times and places, the promise of higher incomes has drawn peasants into market production. In others, the pulverization of holdings through population growth, or expropriation by landlords, has forced them into market dependence. But there are many options besides, which cannot be efficiently catalogued in a global account of deagrarianization. The point, for my purposes, is that many peasants did become market dependent. Once drawn into agricultural markets, they were subject to market competition, which quickly led to a forced exodus from agriculture.

Markets subjected producers to the dynamic laws of capitalist development. They had to innovate and to adopt the innovations of others, issuing in rising productivity, on some farms, and so also in a rising productive capacity across them. In the second half of the twentieth century, this rising agricultural supply confronted a *limited demand for farm products*, which follows from certain specific features of the agricultural sector: due to Engel's Law, the income elasticity of demand for farm products is low.[139] As average household incomes rise, households tend to spend a smaller portion of their overall incomes on food. The demand for food has risen due to popula-

[139] The idea of sectoral specificity is important for this whole study.

tion growth, but there has been relatively little increase in demand per person. That makes agriculture different from industry: in industry, rising productivity does lead to the growth of demand per person, partly as a result of falling prices and partly due to rising incomes. On that basis, a long period of industrialization preceded the onset of deindustrialization. In agriculture, there was no corresponding phase of "agrarianization." When a rising agricultural supply confronted a limited growth of demand, the result was an immense pressure to exit the sector. Few of the agricultural producers who became market dependent, after 1950, remained agricultural producers for long.

The truth, however, is that most peasants, as well as laborers on traditional estates (some of whom also owned small plots), were never able to enter into market-oriented production, in the first place. The same is true, more obviously, of landless laborers engaged in traditional agricultural employment. In the decades after 1950, minimal capital requirements for participation in agricultural markets ratcheted upwards, while prices per unit fell. Some small producers were able to enter into agricultural markets under these conditions, but many more found that they were entirely shut out of agricultural markets. As their access to land was depleted—due to population growth, expropriation, or some other factor—they were forced to shift from subsistence production, or from being ensconced in traditional agricultural labor relations, to non-agricultural labor. Small farmers may have continued to produce for subsistence, insofar as they were able, even though the bulk of their incomes was increasingly derived from non-farm activities. In any case, the consequences were much the same: agricultural dynamics contributed to the increase in the labor-dependent population, and also to the expansion of the surplus population. As a result of these dynamics, *it was possible to feed a rapidly growing population, but not to employ that population in the agricultural sector*.

We could examine these dynamics, historically, from any number of angles. One could look at the role national independence movements played, in ending traditional relations in the countryside. Or one could examine changing national policy frameworks, to study their effects on competition in agriculture. In this chapter, I focus on a set of *discontinuous technical transformations*, which contributed to the rapidity of agricultural exit after 1950. The history of those transformations gives some sense of what Moishe Postone has called the "directionally dynamic character" of capitalist development.[140] This directional dynamic unfolded in spite of so many policies, including rural development policies, that were meant to contain it. Indeed, across changing policy regimes, capitalist development has led to a ratcheting up of agricultural productivity levels and has thus issued in an intense pressure to vacate the agricultural sector.

I see the inclusion of this technological dimension as an important correction to the existing literature. Much of that literature focuses on the near-global economic depression of the 1980s, which took place in the midst of structural adjustment programs (SAPs). Structural adjustment made life substantially worse for poor farmers: SAPs opened national borders, allowing for the importation of cheap food; they forced the removal of agricultural subsidies and the end of rural development programs. These policy changes had the effect of wiping out millions of poor producers. It should be emphasized, however, that many poor producers were barely holding on, before the SAPs came into effect. By the 1980s, an ongoing, global transformation of agricultural production was already advancing rapidly. Rising capital requirements—and after 1973, falling prices as well—had pushed many farms to the brink of collapse and many also over that brink. The decades after 1980 saw the continuation of these dynamics. The fact that these

---

[140] Moishe Postone, *Time, Labor, and Social Domination* (New York: Cambridge University Press, 1996), 184.

dynamics were now unfolding in the context of structural adjustment is notable mostly because SAPs were associated with the adoption of anti-poor policies. Thus, structural adjustment made ongoing agrarian change, centered on rising capital requirements and falling prices, even more difficult for the poor to bear.

Here, I focus on that ongoing, global transformation of agricultural production. Before the mid-twentieth century, the technical transformation in agriculture was limited, even in countries where the capitalist mode of production was dominant. Agricultural production was reorganized, private land rights were affirmed, and average farm-sizes increased. In addition, capitalist agriculture was associated with increased plantings of leguminous crops, as well as the importation of nitrogen- and phosphate-rich fertilizers, such as bat guano and super-phosphates. Even so, capitalist agriculture remained a largely "organic" process, which was not subjected to the logic of the factory system. That limited the growth of productivity in agriculture, as well as the pressure to exit the sector. Then, in the middle of the century, a double revolution transformed farms and feed-lots into *open-air factories*. Synthetic fertilizer ended dependence on organic processes of restoring soil fertility, while motorization made it possible to mechanize and automate the agricultural production process, as in a factory.[141] Agriculture fully industrialized, for the first time in history of capitalism. The result was a rapid rise in supply of farm products per units of land and labor.

This rapidly rising supply kept food prices down and limited the colonization of new farm lands, even as the global population expanded quickly. Between 1961 and 2010, the population

---

[141] Marcel Mazoyer and Laurence Roudart, *A History of World Agriculture: From the Neolithic Age to the Current Crisis* (New York: Monthly Review Press, 2006), 375-6. This understanding of the twin-origins of the transformation of agriculture in the twentieth century is also discussed in Food and Agriculture Association of the United Nations, *State of Food*, 179-81.

increased by 124 percent, but the global food supply grew by 217 percent. Over the same period, land under crops, worldwide, rose by only 12 percent, so that land cultivated per person declined by half. Meanwhile, between 1951 and 2000, real global food prices (deflated by manufacturing unit values) declined by 64 percent. Barring a total transformation in social life—which would have opened up agricultural lands to new, more sustainable forms of production, and made possible a greater degree of nitrogen recycling—these feats could not have been achieved without artificial fertilizers:

> In 1900 the virtually fertilizer-free agriculture (less than 0.5 Mt N were applied to crops worldwide) was able to sustain 1.625 billion people by a combination of extensive cultivation and organic farming, on a total of about 850 [million hectares]. The same combination of agronomic practices extended to today's 1.5 billion hectares would feed about 2.9 billion people, or about 3.2 billion when adding the food derived from grazing and fisheries.[142]

It is through the extensive use of artificial fertilizers—not without terrible ecological consequences—that the Malthusian limits were broken.

Yet there remain many hungry people in the world. In 2010, 870,000 people lived in a state of "chronic hunger"—more than one in eight members of the human population. 44 percent of these live in India and China with an additional 25 percent in sub-Saharan Africa. Since the definition of undernourishment is strict—it includes those who do not eat enough to sustain a minimum of physiological need and who live in this state of calorie deprivation for at least one

---

[142] Vaclav Smil, *Enriching the Earth: Fritz Haber, Carl Bosch, and the Transformation of World Food Production* (Cambridge: MIT press, 2004), 159. That does not set an absolute limit on how many people could be supported without artificial fertilizer. It is impossible to say how much food could be produced (1) using the best organic, sustainable farming practices, (2) on all of the potentially cultivatable land—which would require tearing up the remaining forests, draining the remaining swamps, etc.—and (3) assuming a more or less completely vegetarian diet. However, it appears to be the case that, even then, the limit might be below the present population of seven billion. For a critique of Smil's book, see M. Jahi Chappell, "Shattering Myths: Can Sustainable Agriculture Feed the World?" *Food First Backgrounder* 13, No. 3 (2007).

year—it surely misses many who would otherwise be counted. Paradoxically, three-quarters of these undernourished individuals live in the countryside.[143] How is it possible that a humanity with the capacity to produce food far in excess of our ability to healthfully consume it can still be a humanity of which a substantial minority experience chronic hunger—especially in the countryside, where food is produced? Agricultural dynamics, examined here, explain this apparent paradox. The supply of food exists, at the global level, but the demand for food is not "effective." The rural and urban poor, rendered labor dependent, cannot find employment in rural or in urban areas, due to a massive labor oversupply and a persistent underdemand. Ours is not a Malthusian problem of resource constraints but a capitalist one of distended and broken labor markets.

1. A Limited Transformation of Agriculture before 1940

It is not possible to detail, here, the complex social transformations associated with the origins and development of capitalist agriculture (which are coincident with the origins of capitalism itself).[144] My purpose is merely to explore the technical limits to that transformation before 1940, in order to give some sense of how large a leap was taken after that date. In the middle of the twentieth century, capitalist agriculture was industrialized. Before then, the "organic" nature of the production process limited technical change. In that sense, pre-1940 capitalist agriculture bore a family resemblance to other agricultural systems, going back to the Neolithic Revolution. Plants will only grow given certain conditions: a cycling of sunlight, temperature, rainfall and soil mineral-content. Farmers worked within this complex environment to raise land productivity, but

[143] Food and Agriculture Association of the United Nations, *State of Food*, 190.

[144] See Brenner, 'Property'.

they could not alter the natural conditions of production. That is not to say that capitalist agriculture did not innovate before the mid-twentieth century. Pre-1940 capitalist agriculture took production to its "organic" limits, but it could go no further before the advent of synthetic fertilizers.

The main impediment to the industrialization of agriculture was the one that synthetic fertilizer eventually overcame: the nutrient content of the soil had to replenished before it could be farmed again, and that took a certain amount of time—often a very long time. Of the soil nutrients that plants consume, the most important are nitrogen, phosphorous and potassium. Among these, nitrogen was usually the limiting factor: it is available in large quantities in the atmosphere as nitrogen gas; it is also present in rocks and in chemical mixtures in the soil. But even in these latter forms it is often unavailable to plants' use. Nitrogen has to be present in the soil in a form that plants can absorb. Agricultural systems are largely organized ways of helping make nitrogen available to plants' use and so also to human consumption.

This task was accomplished, historically, in numerous ways. The most common method for restoring soil fertility was to let the land lie fallow. Fallowing allows for mechanical, chemical and bacteriological processes to restore soil fertility by increasing soil nutrient levels: either by breaking down the bedrock or by drawing nutrients out of the atmosphere. Generally, in tropical or subtropical climates, longer fallow periods have been required, sometimes ranging up to twenty-five or even fifty years. Many plots of land were farmed only once in a generation. At that limit, a farmed area may look more like a cultivated forest than a modern-day field.[145] In temperate climates, shorter fallow periods of just one or a few years are possible.

---

[145] Mazoyer and Roudart, *History*, 106.

Since the neolithic era, people have also helped these processes along. They burnt logs and plant matter, distributing their mineral-rich ashes over the land to be farmed. They collected animal dung and spread that over the land, as well. In some regions, they used "night soil," that is, human excrement, as an added fertilizer. The last and most important of these methods for augmenting soil fertility—at least for what followed in the modern era—was the planting of legumes, either interspersed with other crops or in rotation with them. Legumes have nodules on their root systems that contain nitrogen-fixing bacteria, which are able to draw nitrogen gas out of the atmosphere and convert it into forms that plants can consume. Due to the activity of these bacteria, peas and beans, among other legumes, leave behind more consumable nitrogen in the soil than they use for their own growth. Without understanding the mechanism of legumes' action, people have planted them to restore soil fertility since the beginning of agriculture, some ten-thousand years ago. Plantings of peas and lentils have been found in sites dating back to 7000 BCE in Jericho.[146] The problem with planting legumes is that, although they provide a source of protein, their yields are not very high per hectare. Limited space was therefore devoted to them.

The advent of capitalist agriculture was associated with the progressive elimination of fallow lands, which were then planted with legumes in rotation with other crops. That it was possible to increase yields by planting on the fallow was not immediately obvious: encroachment on the fallow to make way for food crops was formerly associated with declining soil fertility. During long waves of demographic growth, populations were sometimes led to reduce fallowing times or acreage and saw their yields fall as a result.

Capitalist agriculture solved this problem in a novel way. In the eighteenth century, in the context of an already ongoing transition to capitalist agriculture, plantings of legumes increased

---

[146] Smil, *Enriching*, 29.

significantly in English counties, most famously in Norfolk: "at around 13 [percent] of the total, the county's area sown to legumes remained fairly constant between 1250 and 1740, but by 1836, the rate reached 26.9 [percent]."[147] However, the composition of legumes shifted: farmers no longer planted peas and beans but rather fodder crops such as clover and alfalfa. In addition to fixing nitrogen in the soil—fodder crops fix more nitrogen per hectare than seed legumes planted for human consumption—these crops made it possible to raise more animals with less pasture.[148] More farm animals, in turn, produced more manure, which was subsequently laid on fields. For this reason, the new agricultural system was known as "mixed farming" or "mixed husbandry." What was ingenious about the new technique was that it did not "consist of searching for an *immediate* increase in food production by directly replacing fallowing with cultivation of grains," but rather, of "indirectly pursuing an increase in cereal yields by replacing fallowing with fodder crops."[149] In rotation with wheat, potatoes, turnips, and other crops, the planting of fodder crops on the fallow led to a substantial rise in yields. The crops used in these rotations tended to differ by region: in the US, there was a Long Island rotation as well as a Virginia one.

The transition to mixed farming was not merely a technical one. It required a thoroughgoing transformation in social organization and therefore took place only on the basis of struggles among class-divided rural populations. Agricultural production in Europe was traditionally organized according to an "open-field" system. Village landholdings were divided into two or three fields called "great fields." Each peasant farmed not a continuous plot, but rather strips of land distributed among these fields. One of the great fields was left uncultivated, in a yearly rota-

---

[147] Smil, *Enriching*, 32.

[148] Smil, Enriching, Appendix C, 237.

[149] Mazoyer and Roudart, *History*, 317.

tion. Farm animals grazed on the fallow. The open-field system ensured the greater safety of farming households, but it made the adoption of mixed farming all but impossible: "no one could cultivate 'his' fallow land for fear of seeing the fruits of his labor trampled and devoured by the livestock of others."[150] Households would have had to agree collectively to any change in method, but they were generally risk adverse, since starvation was always only a few bad harvests away.

In mixed husbandry, the open fields were enclosed. Landholdings were consolidated. Farming families of means and landlords could now dispose of their land as they pleased: they grew fodder crops on formerly fallowed land, on their properties. Over time, these groups amassed increasingly larger landholdings. This transformation took place at the expense of smallholders, who depended on grazing and other rights for their survival. They were forced to supplement farming with wage-labor and, eventually, to abandon many of their farms. For that reason, a deepening of the capitalist transformation of agriculture both resulted in and was finally achieved through a struggle among classes in the countryside. Consequently, its spread was uneven. Mixed farming was still not fully adopted, in France, even at the beginning of the twentieth century. It was rarely adopted further from centers of dynamic growth, in Central, Southern and Eastern Europe.

Where it was adopted, mixed farming was associated with higher yields. West European farms were able to produce twice as much food at the end of the 19th century as at the beginning.[151] That was despite the fact that—after a millennium of cutting down forests and laying down clay pipes to drain swamps—they had run out of additional land to cultivate. By eliminat-

---

[150] Mazoyer and Roudart, *History*, 333.

[151] Mazoyer and Roudart, *History*, 314.

ing the fallow, a major increase in the percentage of farming land that was under crops was achieved in any case: starting with half or two-thirds of the land under cultivation in 1800, almost all was cultivated by 1914, according to the new methods.[152] As a result of this transformation, farms were now producing much more than they could consume themselves. That was key to the spread of mixed husbandry: in the past, farmers marketed a small and variable surplus to the towns. Now, they were producing substantial surpluses every year, which was only worthwhile insofar as it was possible to find buyers. The full extension of mixed husbandry thus took place only where dynamic economic growth also occurred in urban areas: "a society in which workers, artisans, merchants, employees, and persons of independent means made up more than half of the population became not only possible but necessary in order to absorb the surplus of production."[153] The key to the success of this new system was marketing: lots of food had to be transported inexpensively from farms to urban areas.

By the late 19th century, improvements in shipping and overland transportation made it possible to move cereals and even refrigerated meat not only with countries but also across oceans. Inexpensive transoceanic transportation induced a huge increase in export-oriented farming, both in Russia and in white-settler countries, namely the United States, Canada, Argentina and Australia: "In the 1860s, Europe had a fifth more arable land than Russia and these overseas countries combined, but by the eve of the First World War their area was double that of Europe."[154] As grain flooded into European markets, prices fell, eating into the profits of agricultural enterprises. Most continental European countries put up tariff barriers, at some cost to ur-

---

[152] David Grigg, *The Transformation of Agriculture in the West* (Cambridge, MA: Blackwell, 1992), 17.

[153] Mazoyer and Roudart, *History*, 338.

[154] Grigg, *Transformation*, 19.

ban proletarians, in order to preserve a remainder of the peasantry. Small peasants—who accepted much lower rates of return than large firms—survived behind these tariff walls.[155]

However, the surprising fact is that, even as farm output rose substantially in the United States, yields in that country were typically low. At 0.9 metric tons per hectare, they were around 69 percent of the 1.3 metric tons per hectare achieved in Western Europe, in the last years before World War I.[156] The growing farm output of the United States found its basis not in an ever more intense cultivation, but rather in a massive extension of cultivation. The Euro-American population displaced indigenous Americans and settled in the West, occupying land that had never been farmed, with soils rich in nutrients accumulated over millennia. Many farmers adopted methods of continuous cropping, under market pressures that pushed them towards unsustainable farming practices.[157] The result was that, even though soils remained mineral-rich, these minerals were increasingly unavailable to plants' use. Over time, this led to soil degradation.

Meanwhile, across Northern Europe, market-oriented farmers were butting up against the technical limits of what were, at the time, the best farming practices. Plots had been made continuous and ever larger; fallows had been eliminated; crop rotations were refined. In order to increase yields per hectare ever further, farmers resorted to the importation of nutrient-rich soil additives, such as Peruvian guano and Chilean nitrates. In the US, the Great Plains were denud-

---

[155] Only the UK, having repealed the Corn Laws in the 1846, allowed agricultural employment to melt away (other Northern European countries also saw declines in agricultural employment, but where farmers specialized in meat and dairy exports, as in the Netherlands, they avoided the total depredation of their markets). That the West European peasantry survived behind tariff barriers suggests that the maintenance of high levels of agricultural employment in the HICs, as late as 1950, was partly political in nature.

[156] Grigg, *Transformation*, 35.

[157] Grigg, *Transformation*, 40.

ed of the American bison; their bones were dissolved in sulfuric acid to derive a phosphorous-rich soil additive called super-phosphate. But these fertilizers were available in limited supplies, which had been accumulated over long periods of time and were now in the process of being exhausted. In spite of these developments, most of the nitrogen used in agricultural production, in Europe as elsewhere, was still produced on the farm. Even where mixed husbandry was practiced, agriculture remained, at least for the most part, a closed system. What was needed for production in each year had been produced on the farm itself, in previous years. The internal circuit of farm production generated, alongside the conditions of a continued reproduction, also growing surplus of food for the towns. However, there were limits to how large this surplus could be made to grow before the mid-twentieth century.

The difficulty of raising soil fertility beyond certain limits can be seen as one element of a more general set of problems, endemic to pre-1940 capitalist agriculture. Like other activities, farming had been "formally subsumed" by the capitalist mode of production: a growing portion of the yearly crop was produced for exchange rather than use.[158] Farmers derived a profit from their economic activities—even if their returns were lower than those that prevailed elsewhere in the economy—and they used their earnings to accumulate, specialize, and innovate. Yet agriculture remained highly resistant to the "real subsumption" of the production process. Real subsumption refers to the material transformation of that process, in order to make it amenable to regular increases in efficiency. In order to produce a given good ever more efficiently, it is necessary to transform the process by which that good is produced, incrementally. Eventually, that process "looks" nothing like its pre-capitalist predecessors: production is divided into discreet

---

[158] The terms "formal" and "real subsumption" come from the "missing sixth chapter" of Marx, *Capital, Volume 1*, 949-1084.

tasks, which are then mechanized and automated. All sorts of goods are now produced in gigantic factories, which look nothing like the artisanal shops where those goods were once produced, but do look like the factories that produce every other sort of good. Agricultural production remained resistant to this transformation, and that for reason, it lagged behind industry in terms of productivity growth rates.

What was true of land was also true of labor. The transfer of an activity from the shop to the factory is, in part, about smoothing out roughness or variability in the production process and scaling upwards. A factory is an abstract space of production. With the installation of electricity grids in the late nineteenth century, it became possible to arrange and power machines, in factories, in many more combinations. By contrast, the field is a rough and varied terrain, so much so that it was difficult to adapt self-moving implements for use on fields even as these were becoming very common within factories. Innovations in the production of agricultural implements did take place: all-iron ploughs was produced, and in fact, in the late 18th century, roughly one-third of the English iron industry's output went into producing ploughs and other tools, which increased farm-labor productivity.[159] Then, in the 1830s, McCormick in the US invented a steam-powered thresher. However, these threshers were extremely heavy and had to be pulled by horses from field to field. They were not widely in use in the early twentieth century. It was hoped that it would be possible to produce a steam-powered plough, but that proved infeasible.[160] It therefore remained the case that, to plough their fields, farmers depended on draught animals into the twentieth century—even as many other production processes were fully transformed within the space of the electrified factory.

---

[159] Grigg, *Transformation*, 48.

[160] Ibid.

2. A Double Revolution in Agricultural Affairs

In the middle of the twentieth century, the mixed-husbandry system was overcome through a double revolution in agricultural technique. The first revolution involved the production of growing quantities of synthetic nitrogenous fertilizer and the second, the motorization and mechanization of farm implements.[161] These innovations transformed fields and feedlots into open-air factories. As a result, the relatively closed system of mixed husbandry was cracked open and then displaced by industrialized agriculture. Farming was increasingly integrated into a larger food production- and processing-sector, with "upstream" industries producing fertilizer and farm implements, among other inputs, while "downstream" industries processed, packaged and shipped farm products.[162] Due to the industrialization of agriculture, the quantity of land and labor needed for growing crops was minimized—in the case of labor, almost to the vanishing point. However, it should be noted that the minimization of these inputs was not the minimization of all. Farming now absorbs greater quantities fertilizer and pesticides, as well as complex machinery. Like industrial activities more generally, farming has become highly capital intensive. For that reason, the industrialization of agriculture took place only among farmers with the "means to buy [the necessary] inputs and apply the corresponding technical advice."[163] Most farmers were lacked those means; they were shut out of agricultural markets by low-cost competitors and were eventually proletarianized.

---

[161] Mazoyer and Roudart, *History*, 375-6.

[162] Mazoyer and Roudart, *History*, 376.

[163] Mazoyer and Roudart, *History*, 450.

(a) Synthetic Fertilizers

The mid-twentieth-century revolution in agriculture finds its ultimate basis in the annual consumption of millions of metric tons of synthetically generated nitrogen compounds. The process of synthesizing nitrogen compounds directly from atmospheric gases was developed by Fritz Haber in 1908 and then made commercially viable by Carl Bosch. Theirs was a breakthrough of world-historical significance. All of the creatures on earth depend on a ready supply of nitrogen for their growth. It is part of their very composition. Yet the direct synthesis of nitrogen compounds from atmospheric gas was previously achieved only by single-celled diazotrophs. The"Haber-Bosch process" equipped human beings to perform this act for the first time, changing human existence on a massive scale in the course of the twentieth century.

Although the Haber-Bosch process was already "commercially viable" in the early twentieth century, "a rapid increase in average applications of nitrogen fertilizers" would have to wait for two further developments.[164] First, high-yield crops had to be bred, which were capable of absorbing large applications of fertilizer. The problem farmers faced in laying down fertilizers was that the resulting growth of plants was distributed among seed and stalk. When plants grew very tall, they fell over, or "lodged." Hybrid crops were interbred with dwarf varietals, in order to overcome this problem: they remained short, devoting the nutrients derived from fertilization to the growth of seeds. The first hybridized maize was commercialized in the 1920s, but it was not until the 1940s that high-yield, dwarf varietals became available. Wheat was the first to be hybridized in this manner; rice and corn followed. The second development preceding the more intensive use of synthetic fertilizers was war. Synthetic nitrogen compounds were used not only as fertilizer, but also in the manufacture of explosives. In the lead-up to World War II, the "antici-

[164] Smil, *Enriching*, 107.

pated wartime demand for explosives led the U.S. government to embark on a large-scale construction of ammonia plants."[165] When bomb-making plants were decommissioned, markets were flooded with fertilizer.

Attendant on an increased use of synthetic fertilizer, farmers were freed from their reliance on "closed-loop cycles of nutrients and energy and managed diversity."[166] They no longer needed to carefully manage those cycles, as in previous agricultural systems. Instead, farmers are able to lay down fresh nitrogen compounds on fields, each year. By 1961, when the first global statistics become available, North American and European farmers were already using more than 13 kg of fertilizer per hectare, rising to 63 and 46 kg per hectare, respectively, in 2010 (Table 2). In total, North American and European farmers now use an enormous quantity of nitrogenous fertilizers: 26.6 million metric tons in 2010, three times as much as in 1961.

Table 2. Consumption of Nitrogenous Fertilizers (metric tons of N), 1961-2010

Region	1961	2010	Increase
East Asia (excluding Japan)	845	41,608	4825%
South Asia	356	21,797	6018%
North America	3,156	13,287	321%
Europe	5,490	13,273	142%
Latin America and Caribbean	428	7,278	1602%
Southeast Asia	182	7,250	3894%
Middle East and North Africa	344	3,852	1019%
Sub-Saharan Africa	113	1,349	1089%
World	11,588	111,931	866%

Source: FAOSTAT

Table 3. Cereal Yields (metric tons per hectare), 1961-2010

---

[165] Smil, *Enriching*, 115.

[166] Tony Weis, *The Global Food Economy: the Battle for the Future of Farming*, (New York: Zed Books, 2007), 58.

Table 3. Cereal Yields (metric tons per hectare), 1961-2010

Subregion	1961	2010	Increase
Northern America	2.2	6.3	188%
Eastern Asia	1.4	5.5	300%
South America	1.3	4.2	212%
South-Eastern Asia	1.5	4.0	169%
Europe	1.4	3.7	168%
World	1.3	3.6	165%
Southern Africa	1.0	3.6	240%
Central America	1.1	3.2	203%
Southern Asia	1.0	2.8	174%
Western Asia	0.9	2.3	150%
Caribbean	1.2	1.8	56%
Northern Africa	0.8	1.8	117%
Eastern Africa	0.9	1.7	92%
Western Africa	0.7	1.2	84%
Middle Africa	0.7	1.0	36%

Source: FAOSTAT

Due to this increased consumption, cereal yields rose dramatically: in North America, in 1961, farmers harvested 2.2 metric tons of cereal per hectare; by 2010, yields were almost three times larger, at 6.3 metric tons per hectare (Table 3). These are the highest average cereal yields in the world. In Europe, yields also almost tripled, although they are still forty percent lower than in North America, at 3.7 metric tons per hectare. In either case, yields are now far in excess of those achieved without synthetic fertilizers (recall that around 1914, in the US, yields were 0.9 metric tons per ha; in Western Europe, they were 1.3 metric tons). The limited productivity of the land, to which even mixed husbandry had been subject, was overcome. Consequently, it is now possible to feed a larger population using less land. In North America, cereal production rose by one and a half times between 1961 and 2010, but land under crops declined by 10 percent; in Europe, production rose by half, but land under crops declined by a quarter (Table 4).

Table 4. Arable Land and Permanent Crops (1000s of hectares), 1961-2010

Region	1961	2010	Increase
Latin America and Caribbean	102,996	184,529	79%
Southeast Asia	68,111	110,167	62%
Sub-Saharan Africa	135,245	209,087	55%
North Africa and Middle East	73,822	91,034	23%
Eastern Asia	116,307	135,398	16%
Southern Asia	213,204	231,545	9%
North America	235,302	210,856	-10%
Europe	391,294	290,673	-26%
World	1,370,584	1,541,099	12%

Source: FAOSTAT

Initially, the increase in HIC yields associated with the synthetic-fertilizer revolution delayed the adoption of the similar techniques in the LICs. Due to the ongoing revolution, the US government found itself managing an ever larger grain surplus. The government had involved itself in the management of grain surpluses during the Great Depression: programs existed to distribute such surpluses domestically, though food-stamps programs, as well as abroad, to war-torn Europe. After Europe recovered from the war, the US was left with a growing pile of grain, which it disposed of through the 1954 Agricultural Trade Development and Assistance Act, also known as Public Law (PL) 480.[167] The State Department saw food aid as a way to draw poor countries more deeply into the US orbit. Governments in many LICs were more than happy to accept, in spite of the hardship that grain imports caused to rural smallholders (some of whom had sold food crops to cities).[168] LIC governments were trying to promote industrialization, and

[167] Harriet Friedmann, "The Political Economy of Food: the Rise and Fall of the Postwar International Food Order," *American Journal of Sociology* Vol. 88 Suppl. (1982): S262.

[168] Friedmann, "Political Economy," S267.

cheap food was seen as an essential component of that project: wages had to be kept low, in urban areas.

In the mid-1950s, it would have been difficult for LICs to keep urban wages low without such food aid. Urban populations were growing more and more quickly. Yet, outside of certain agricultural-export regions, such as the pampas in Argentina, food production had hardly been transformed along capitalist lines. In the 1950s, *agricultural pursuits still absorbed the vast majority of the working-wage population in poor countries but nevertheless provided only a small surplus to cities*. To meet the needs of what were now rapidly growing populations, particularly in urban areas, more food had be procured. The problem was that domestic food production in many LICs remained dependent on the output of innumerable small farms. To make matters worse, states hoping to expand that output exercised little control over rural areas. The countryside was actually governed by a patchwork of landowners who were unwilling to do anything that might unsettle their dominance in the countryside. For a time, LIC governments relied on PL-480 rather than risk a confrontation with landed elites. At the same time, many of those governments were also trying to defeat or contain movements for land reform in the countryside, mounted by the rural poor. Then, in the 1960s, the so-called "Green Revolution" made it possible to procure more food for the cities, without having to force a resolution of the questions that land-reform movements had posed.

To bring the synthetic-fertilizer revolution the LICs, high-yield crops suitable to sub-tropical and tropical climates had to be bred. Farming research facilities had already opened up in Mexico and the Philippines, in the early postwar period; more opened in the decades that followed. By the mid 1950s, these facilities were breeding high-yield varietals of wheat, rice and maize that were suitable to LIC climates. This first set of crops became available for farmers' use in the 1960s. Many more crops, including cassava and tropical beans, were hybridized in 1970s

and 80s.[169] Alongside millions of tons of synthetic fertilizer, high-yield crops became the basis of a transformation of LIC agricultural systems. In the course of two decades, "almost half the wheat and rice land in developing countries was being sown with the new varieties."[170] However, since small farms—which account for more than 88 percent of all farms in LICs—occupy less than 15 percent of total farm land, it was possible to achieve these results without including very many poor, peasant households.[171] Indeed, in its retrospective account, the FAO notes that "even in green revolution regions, numerous small, poorly equipped and very low-income farms were unable to gain access to the new means of production."[172] I will turn to the fate of the small peasantry, in what follows. For now, I focus on the transformations in agriculture that did take place, noting here that they took place mostly on large farms, or on farms that otherwise benefited from special government dispensations.

In 1961, farms in all of the low-income countries used 2.2 million metric tons of nitrogenous fertilizer (compared to the 3 million tons used in the United States alone). Moreover, much of this usage was concentrated in Latin America and low-income East Asia. In sub-Saharan Africa and South Asia, very little nitrogenous fertilizer was used at all: half a kilogram per person or less, compared to 1.9 kg per person in Latin America and 8.5 in Europe. Because they used very little nitrogenous fertilizer, farmers' cereal yields remained low: 1 metric ton per hectare, and

---

[169] Robert E. Evenson and Douglas Gollin, "Assessing the Impact of the Green Revolution, 1960 to 2000," *Science* 300, no. 5620 (2003): 758.

[170] Food and Agriculture Association of the United Nations, *State of Food*, 120.

[171] Gustavo Anriquez and Genny Bonomi, "Long-Term Farming and Rural Demographic Trends," background paper for World Bank, *World Development Report 2008* (Washington, DC: World Bank, 2007), 34-35.

[172] Food and Agriculture Association of the United Nations, *State of Food*, 188.

less than that in the Middle East and sub-Saharan Africa. Over the next fifty years, these yields rose substantially in every subregion except Middle Africa. In Eastern Asia, South America, and Southern Africa, yields more than tripled. Yields are now higher in the former two regions than in Europe. Meanwhile, yields worldwide amount to 3.6 metric tons per hectare on average—more than double those achieved on the most productive fields in Europe, in 1900. Of course, these gains were possible only the basis of a huge increase in nitrogenous fertilizer use. In 1961, LIC farmers consumed only 20 percent of 11.5 million metric tons of nitrogenous fertilizer in use worldwide. By 2010, LICs consumed 74 percent of the 111.9 million metric tons in use globally. In Southeast Asia, nitrogenous fertilizer use rose by almost 4,000 percent and in South Asia by more than 6,000 percent. Although fertilizer use per person remains lower in sub-Saharan Africa, even there it rose by 1,000 percent.

With more synthetic fertilizer and correspondingly higher yields, it was now possible to produce much more food in the LICs, using less land per person. Total cereal production rose by more than 200 percent, across all low-income regions. In Latin America, cereal production quadrupled; in Southeast Asia, it almost quintupled. However, because populations were growing rapidly, gains in per capita cereal production were much lower (Table 5). In fact, in spite of gains in total cereal production in sub-Saharan Africa and the Middle East, per capita production in 2010 was actually 4 percent lower in the former region and 13 percent lower in the latter, as compared to 1961. In the early twenty-first century, many LICs were "food deficit" countries, including Ethiopia, Kenya and Nigeria, as well as Egypt and Yemen.

Table 5. Cereal Production, per Capita (1961=100), 1961-2010

Region	1961	2010
East Asia	100	193
Southeast Asia	100	177

Latin America and Caribbean	100	156
North America	100	149
Europe	100	134
South Asia	100	118
Sub-Saharan Africa	100	96
Middle East and North Africa	100	87
World	100	126

Source: FAOSTAT

Other regions fared better, although not necessarily the ones where the Green Revolution was trumpeted as a huge success. The term itself is often associated with India, although Indian cereal production per capita rose by only 17 percent, between 1961 and 2010. Achievements were more substantial elsewhere. In world-historical terms, the most important Green Revolution took place in China, a country that had not relied on US food aid after its 1949 Revolution. Chinese agriculture was only able to achieve limited gains in land and labor productivity in the 1950s—even after the landlord class was overthrown and Chinese agriculture was reorganized. That limited the success of industrialization drives during the socialist era and multiplied the fallout of the same: the Great Leap Forward in the late 1950s ended in the Great Famine and a loss of 25-30 million lives.[173] An important shift in the Chinese industrialization strategy took place in the early 1970s, when China re-established ties with the US, marked symbolically by President Nixon's famous handshake with Chairman Mao. What is less well known is that, on that basis that handshake, the Chinese government placed orders "for wartime demand the world's largest

[173] According to Barry Naughton, "every time the system really began to accelerate, it ran into fundamental problems. The economy would overshoot and hit its head on the ceiling. What was this 'ceiling'? The ceiling was the inability of agriculture to rapidly generate adequate food surpluses" (Barry Naughton, *The Chinese Economy: Transitions and Growth* [Cambridge, MA: MIT Press, 2006], 79). Of course, I would not want to suggest that this ceiling was purely technical.

and most modern ammonia-urea complexes, the biggest purchase of its kind ever."[174] China becomes the largest consumer of synthetic nitrogen in the world and then its largest producer. Cereal yields rose by 126 percent, per capita, between 1961 and 2010. The transformation of agricultural production released huge quantities of labor into the non-farm sector, much of which found its way into the factories of the Pearl River Delta.

Before moving on, it is important to note that in no LIC region was this increase in food production associated with a decline in land under crops, as took place in the HICs. In certain regions, vast new lands were colonized at the expense of the forests. In Latin America, arable land cut deeply into the Amazon, increasing the total land under temporary and permanent crops by 79 percent in fifty years. In sub-Saharan Africa, arable land increased by 55 percent, causing soil degradation. Meanwhile, in Southeast Asia, the malaria-eradicating DDT "effectively 'disarmed' the forest, opening up vast areas to clearance and settlement."[175] There, land under temporary and permanent crops increased by 62 percent. By contrast, in Eastern and Southern Asia, the limits of extensive cultivation had been reached before 1960. On the whole, global arable land only expanded by 12 percent between 1961 and 2010.

(b) Motorized and mechanized farming implements

The ever growing consumption of nitrogenous fertilizers took place alongside a second revolution in agricultural affairs, centered on the increased use of motorized and mechanized farm implements, including tractors, threshers, and later, combine harvesters that harvested and threshed at the same time. These machines made it possible to transfer long-standing, labor-sav-

---

[174] Smil, *Enriching*, 170.

[175] Chris Dixon, *The Thai Economy: Uneven Development and Internationalisation* (New York: Routledge, 1999), 159.

ing innovations from the factory to the farmer's field (the electrification of farm buildings occurred earlier in the century, although it was delayed in the US until the 1930s). The advent of motorized and mechanized farm implements rapidly reduced the quantity of labor required for agricultural production, particularly during the harvest.

The major innovation, here, was the tractor. Tractors became commercially available in 1892 but were not widely in use until the middle decades of the twentieth century. At that time, tractors were developed that had more horsepower and were capable of transferring power to the implements they pulled. In the US, the adoption of tractors was hastened by labor shortages during WWII; by contrast, even in 1950, "85 percent of the draught power used in European farming still came from horses and oxen."[176] The use of tractors then increased rapidly (see TABLE 6). By 1961, there were 11.3 million tractors in use, globally. Of these, 90 percent were in Europe and North America. In the US and France, the ratio of agricultural workers to tractors was already low at that time: there was one tractor for every 16 agricultural workers in the US and one for every 27 workers in France.[177] The same ratios were higher in other HICs: in 1961, there was one tractor for every 76 agricultural workers in Italy and one for every 6,400 workers in Japan (less than 7,000 tractors operated in the entire Japanese countryside). In both of these countries, tractor-to-agricultural-worker ratios fell significantly in the decades that followed. By 2000, their ratios matched those of other HICs, at one tractor for every 35 agricultural workers or less. Meanwhile, the total number of tractors in use in HICs peaked in the late 1980s at 20.5 million. There were still 18.4 million in use in the year 2000, even though the agricultural population had

---

[176] Grigg, *Transformation*, 50.

[177] The measure of agricultural workers used here may not be very accurate. It probably includes many more workers than those actually employed on the farm. It is best to view these as rough measures, more useful for comparison than absolute evaluation.

dwindled.

Table 6. Agricultural Workers per Tractor, 1961-2010

Country	1961	2000
France	27	21
Italy	76	15
Japan	6,409	34
United States	16	31
Argentina	14	5
Bangladesh	31,848	6,669
Brazil	191	16
China	5,469	517
Egypt	510	97
India	4,885	136
Indonesia	24,694	487
Korea, South	213,792	12
Mexico	109	27
Nigeria	26,546	516
South Africa	20	25
Thailand	2,274	94
Turkey	260	16

Source: FAOSTAT

A few low-income countries also had a significant number of tractors in use in 1961. Argentina and South Africa had tractor-to-agricultural-worker ratios of one tractor per 14 workers and one tractor per 20 workers, respectively. There were also relatively low ratios in Mexico (104), Brazil (191) and Turkey (260). In total, around 416,000 tractors were in use in these five countries. But they were outliers. More typical were China and India, with around one tractor per 5,000 agricultural workers. There was one tractor per almost 25,000 workers in Indonesia in 1961; a little more than one thousand tractors were in use in the entire country. In total, there were around 800,000 tractors in use in all of the LICs, in 1961 (more than half of them in the first five countries listed above), representing just 7 percent of the world's tractors. The number

of tractors in use in the LICs remained low until around 1970. For that reason, Green Revolution is said to have occurred without reliance on motorized farm implements. Instead, it required a massive human effort, alongside expanded use of hybridized crops, artificial fertilizers, and irrigated water.

However, the use of tractors in LICs rose rapidly after 1970. By 2000, almost eight million tractors were in use across the LICs, roughly one million of them in China and almost two million in India.[178] The LIC total represented some thirty percent of the nearly 27 million tractors in use globally, in 2000. This percentage is very low, given that almost 95 percent of the world's one billion primary sector workers—around 19 in 20—lived and worked in LICs in 2000. Massive inequalities are still present in world food production, across regions. Even so, the rise in LIC tractor use from less than one million to nearly eight million in forty years marks a significant transformation in global farming techniques. Ratios of tractors per agricultural worker fell significantly in some LICs: to one tractor per 16 agricultural workers in Turkey and one per 94 workers in Thailand. Low ratios also prevailed in Egypt (97) and India (136) and were falling in Indonesia (487), Nigeria (516) and China (517). At least on more well-off farms in the LICs, a high degree of mechanization was taking place. However, that was not true everywhere: in 2000, there were less than 150,000 tractors in use in sub-Saharan Africa excluding South Africa (where tractor use peaked at around 170,000 between 1975 and 1985 before falling to 72,000 tractors-in-use in the year 2000).

The tractor is not the only major motorized farming implement, although it is the one for which the most detailed global statistics exist. Next to the tractor, the combine harvester was

---

[178] After 2002, the number of tractors in use in China exploded: having fallen to 900,000 in 2002, levels surged forward to 3 million in 2008. The number of tractors in use in India also continued to climb, though the time series breaks off in 2003 at 2.5 million.

probably the most important innovation: able to harvest and thresh cereals in one motion, these machines significantly cut labor needs. In HICs, few combine harvesters were in use before WWI; they were increasingly common after 1929.[179] Harvesters had to be adapted to work for other crops. For example, root crops have to be dug and then lifted out of the ground; a machine suitable to that task did not come online until the 1940s.[180] Some crops are still hand harvested, since machines that would do the work mechanically are too cumbersome: in the US, fruits such as strawberries are still hand-harvested (in California, largely by undocumented workers).

In conjunction with the consumption of nitrogenous fertilizers, the motorization of farm implements made possible the greater *specialization* of agricultural producers—or at least, of producers with enough capital to benefit from the double revolution in agricultural affairs. Growers of crops no longer needed animals for the manure they produced; nor were animals needed to pull farm implements. As a result, "agricultural holdings located in flat regions that are suited to mechanized farming and with good climatic and soil conditions for cereals, oilseeds or roots and tubers have abandoned fodder and livestock production to focus exclusively on growing field crops with motorized mechanization and use of mineral fertilizer."[181] At the same time, other producers specialized in raising livestock. Animal husbandry was given a boost by the growing availability of cheap grains. As with plants, animals also had to be bred to be capable of consuming ever more massive quantities of inputs (in this case, feed). Between 1961 and 2010, the number of farm animals skyrocketed, globally, from around 7 billion to more than 27 billion. Most of these—some 22.4 billion or 83 percent of the total—are chickens and other poultry; the remain-

---

[179] Grigg, *Transformation*, 54.

[180] Grigg, *Transformation*, 55-6.

[181] Food and Agriculture Association of the United Nations, *State of Food*, 182.

der are mostly cattle, buffalo, pigs and sheep. There are now roughly four livestock animals for every human being on Earth.

This specialization—at the extreme, monocultural production—spread pests. To control pests, producers became ever more reliant on herbicides, fungicides insecticides and rodenticides. Important innovations in pesticides came in the middle of the twentieth century: "the discovery of DDT in Switzerland in 1939 and of 2,4-D during the Second World War" led to increasing chemical applications.[182] However, pesticides have needed constant upgrading, as they encourage the evolution of pests resistant to those chemicals. One surprising consequence of the growing use of pesticides was that it proved possible to forego ploughing where pesticides were already used in massive quantities: "when evidence in the 1940s showed that the principle value of ploughing in autumn or spring is to kill weeds, the availability of herbicides led many farmers in the United States – and to a lesser extent in Western Europe – to reduce cultivation greatly, abandon the moldboard plough, and to till the soil lightly with a cultivator."[183] Consequently, fields were no longer ploughed and planted in rows. Since animal manure was already no longer used, and as farmers were now specialized in the production of just a few crops, this innovation

[182] Grigg, *Transformation*, 44.

[183] Grigg, *Transformation*, 44-45.

meant that "the entire basis of mixed farming had been undermined."[184] By the 1970s, industrialized agriculture reigned.[185]

3. An Expanding Supply Confronts a Constricted Demand

As agriculture industrialized, it used labor much more efficiently—both directly, insofar as motorization and mechanization reduced the quantity of labor needed on the farm, and indirectly, insofar as the increasing use of synthetic fertilizers reduced the total number of farms in operation. After 1950, farming was no longer a *laggard* among economic sectors in terms of annual labor productivity growth rates. On the contrary, it was a leader, and by a sizable margin. In many countries, labor productivity grew much faster in agriculture than in any other sector, including manufacturing. For example, in Italy, agricultural labor productivity grew by more than 2100 percent between 1951 and 2000 compared to 701 percent in manufacturing and 408 percent economy-wide. That represents a major shift, attributable to the agricultural revolution:

---

[184] Grigg, *Transformation*, 45.

[185] The industrialization of agriculture has had ambivalent consequences both for human health and for the environment. Industrialized agriculture has made possible a more secure and more varied diet; however, growing consumption of sugars and unhealthy fats has been associated with rising levels of obesity. Meanwhile, the use of artificial fertilizers limited the colonization of new farm land, but to achieve these results, the nitrogen cycle had to be broken. The use of synthetic fertilizers supports the growth not only of crops but also weeds, the targeted killing of which has required an ever more intense use of pesticides. But that is not all:"no more than about half of the globally applied inorganic nitrogen finds its way into plant tissues" (Smil, *Enriching*, 206). The rest runs off into ground and surface waters, where it leads to *eutrophication*, the overgrowth of algae and other plant-life. When the algae die, that results in the deoxygenation of waters and the generation of hypoxic zones. One of the largest of these zones is located at the mouth of the Mississippi River. The breaking of the nitrogen cycle has also created problems in animal husbandry. Livestock are no longer raised on farms that produce crops for human consumption: "because the volume of fecal matter from factory farms is far greater than what can be sprayed on nearby fields, much gets contained in massive cesspools" which have sometimes leaked into groundwater and sometimes exploded (Weis, *Global*, 34). And all of that is to say nothing of livestock's contribution to the release of greenhouse gases associated with global warming.

farmers broke through pre-existing barriers to the growth rate of supply per person engaged and per unit of land. The result was a piling up of bushels of wheat and rice, of potatoes and beef.

Yet—and this is the key to the agrarian dynamics after 1950—*the agricultural sector still faced age-old constraints on the growth of demand*. According to a tendency discovered by Ernst Engel in 1857, as households' incomes rise, they spend less of their incomes on food. Engel's Law has been shown to apply wherever modern economic growth has taken place. It limits the "income elasticity of demand" for farm products. By contrast, increases in income cause the demand for all sorts of other goods to rise. As populations become richer, they buy more cars and consumer durables, more education and health care. The same is not true of food: even very large increases in income cause only small increases in demand per person. That appears, statistically, as a slower rate of growth of output in agriculture, compared to other sectors. For example, although incomes expanded by 478 percent in Italy, between 1951 and 2000, agricultural output expanded by 163 percent, as compared to growth of almost 900 percent in manufacturing output. These are vast differences. It was difficult to find buyers for all the rice, potatoes and beef being produced.

Stepping back from the compulsions of market-production, it is easy to imagine that—compressed between rising supply, due to the double revolution, and ongoing demand constraints, resulting from Engel's Law—farmers might have come together and agreed to work less. They would thereby have benefited directly from the technical transformation of their craft, producing enough to meet a slowly rising demand, while having ever more time for non-work activities. Indeed, it is easy to imagine a society structured around this principle: as any given activity were performed more efficiently, the people engaged in that activity would work less. In such a world, total economic output would remain relatively stable over long periods of time. Instead of

expanding rapidly, production would become ever more efficient, while total output remained small. Growth would then be accompanied by a steady reduction in working hours. In capitalist economies, it is not possible to take a collective decision of this kind, a decision to "cash out" collective productivity gains as a reduction in working hours (except via legal reductions in the maximum working day).[186] Instead, when a rising productive capacity confronts demand constraints, in any given line, the result is that some of units are expelled from that line, while others continue to be employed to the hilt. This expulsion is usually effected via price competition, which I discuss below. Expelled units are then forced to seek new modes of employment, regardless of whether and where these are available.

That is precisely what happened in agriculture, in the second half of the twentieth century: a rising potential supply of goods crashed up against a hard constraint on the rate of growth of demand. Many farmers suffered as a result; they were pushed out of the agricultural sector (many were also pulled into non-agricultural activities but under conditions of intense competition within agriculture). The upshot was that a major increase in the quantity of food produced per unit of land and labor was accompanied by an exodus from the agricultural sector. Here, I measure agricultural exit as a decline in the agricultural share of total employment, called deagrarianization (Tables 7 & 8).[187] In the decades after 1950, the deagrarianization of world's workforce unfolded quickly—much more quickly than the urbanization of the world's population. It is important to remember that the demand constraint associated with Engel's Law was already in

---

[186] Although workers' bargaining for increased paid vacation has had that effect in some HIC economies, it does not cut against the tendency, and indeed, the imperative, for capitalist economies to grow ever larger.

[187] It is important to remember that a declining agricultural share is possible even where the absolute number of people engaged in agriculture is rising. That is, if the overall workforce is growing quickly. That's precisely what happened in most LICs, into the 1980s.

place, before 1950. Deagrarianization happened quickly after that date due to the boost to productivity growth rates that issued from the industrialization of agriculture (it was also related to demographic dynamics, associated with urbanization). Discontinuous technical change *accelerated* the deagrarianizing trend.

Table 7. Agricultural Share of Total Employment in High-Income Countries (percent), 1950-2010

Country	1950	1980	2010
Austria	34%	10%	3%
Denmark	26	7	3
Finland	35	12	4
France	31	8	2
Greece	55	31	12
Ireland	40	19	7
Italy	44	13	3
Japan	49	11	2
Norway	26	8	3
Portugal	50	26	9
Spain	52	18	4

Source: FAOSTAT

At this point it is worthwhile to pause, in order to consider the pressure towards deagrarianization in broadly comparative terms. That the double revolution issued in deagrarianization is directly related to Engel's Law, which is specific to the agricultural sector. Engel's Law explains why a prior period of *agrarianization* did not precede deagrarianization. A similar law does not apply to industry: high rates of growth of industrial productivity, already common before 1950, were not immediately associated with a decline in industrial employment shares. On the contrary, a long period of industrialization unfolded before deindustrialization set in. In industry, there is no immediate connection between rising productivity and falling employment shares. Industrial output growth does not face a demand constraint analogous to Engel's Law. Instead, rising in-

comes, multiplied by price elasticities associated with falling relative prices for manufactures, boosted demand for all sorts of industrial goods. Industrial output expanded rapidly, at least for a time, in the HICs and in some LICs as well. Later, when industrial output growth-rates fell, industry came to look more like agriculture, with deindustrialization accompanying deagrarianization.

Why does Engel's Law apply only to agricultural production? Agriculture is the "primary" economic sector: for thousands of years—and until the early 1980s—farming absorbed the majority of the global, able-bodied population. Modern economic development has been associated with a *diversification of output* away from primary production. It is therefore also associated with a diversification of employment away from farming. Here is the key difference between agriculture and industry, as economic sectors: the output of the agricultural sector consists of a relatively fixed basket of crops. In fact, over the past few decades, the variety of crops grown has declined significantly: "as many as seven thousand plant species have been cultivated or collected for food in human history;" whereas today, "thirty crops now essentially feed the world."[188] In large part that is because, in order to be grown under industrial conditions, crops had to be hybridized. Few varieties were, since hybridization was an expensive process. By contrast, manufacturing output does not consist of a fixed basket of goods, but rather of an ever-changing basket. The process of diversification that moves employment *out* of agriculture also takes place *within* industry, among industrial lines. Whereas productivity increase in agriculture was associated with diversification away from the sector; even today, productivity increase in manufacturing is associated with a diversification of workers' activities within industry (although total industrial employment is now declining in many countries).

---

[188] Weis, *Global*, 16.

Table 8. Agricultural Share of Employment (percent) and Total Agricultural Employment (in thousands), in Low-Income Countries, 1950-2010

	Percentage			Thousands		
Country	1950	1980	2010	1950	1980	2010
Argentina	25%	13%	8%	1,789	1,384	1,411
Bangladesh	90	73	46	21,640	29,590	38,297
Brazil	62	37	12	11,614	17,480	10,608
China	84	69	37	173,170	291,220	279,305
Egypt	67	57	27	5,557	8,474	8,769
India	80	70	55	135,162	208,765	295,035
Indonesia	79	58	42	25,403	34,728	51,374
Korea, South	77	37	5	5,307	5,767	1,391
Mexico	60	36	16	5,465	7,941	8,223
Nigeria	77	54	25	11,775	15,366	14,682
South Africa	38	17	7	2,122	1,877	1,355
Tanzania	92	87	73	4,021	7,015	13,042
Thailand	85	71	49	9,068	17,312	19,422
Turkey	87	60	39	10,488	11,550	15,080

Source: FAOSTAT, except China from 10-Sector Database. Tanzania 1950=1960.

However, it is important to note that agriculture is not a completely fixed basket of goods. In response to the massive increase in supply associated with the double revolution in agriculture, the sector diversified internally along two lines. First, it diversified into the production of meat. The fatting up of pigs, cows, and chickens involves a relatively inefficient transfer of nutrients: it takes several pounds of, for example, corn and soy to produce one pound of meat. Falling crop prices reduced corresponding feed prices, making meat more affordable. On this basis, a major gastronomic transition is taking place across the world: "as soon as modernizing societies get richer and increased purchasing power enables people to buy more convenient and less risky foodstuffs, they follow one of the most notable universal nutritional shifts and begin reducing

their consumption of legumes."[189] Instead, they are consuming more meat. Even though almost one-billion people worldwide are malnourished, a large and growing fraction of the world's population ingests meat-derived proteins far in excess of what their bodies are capable of processing.

Second, agriculture diversified into processed and packaged foods. These were already available before the double revolution in agriculture (tin canning was commercialized in the early nineteenth century). But the food processing industry was given a major boost by the cheapening of grain, as well as by the substitution of corn syrup for tropical cane sugar and soy-derived oil for tropical palm oil. These are now some of the basic inputs to "durable" foodstuffs. Even as the number of crops grown was shrinking precipitously—from thousands to less than fifty—"the number of items on the typical grocery shelf increased from 800 in 1930 to 12,000 in 1980."[190] The expansion of the processed foods industry has taken place alongside a transformation in how food is purchased, in HICs: at supermarkets rather than open-air markets. This same shift is now taking place across the low-income world. In South America, East Asia, Central Europe, Turkey and South Africa, supermarkets already supply 40 to 60 percent of marketed food.[191]

One could imagine that all these trends would have pushed output growth-rates higher, in agriculture. But the fact is, they did so only to a limited extent. Rates of agricultural output growth remained low. The two diversifying tendencies mentioned above completely transformed the way people eat in the HICs, and increasingly, the way people eat in the LICs as well. Yet they

---

[189] Smil, *Enriching*, 37.

[190] Harriet Friedmann and Philip McMichael, "Agriculture and the State System: the Rise and Decline of National Agricultures, 1870 to the Present," *Sociologia Ruralis* 29, No. 2 (1989): 108.

[191] Thomas Reardon, "Global Food Industry Consolidation and Rural Agroindustrialization in Developing Economies," in *Transforming the Rural Nonfarm Economy: Opportunities and Threats in the Developing World*, ed. Steven Haggblade, et. al. (Baltimore, MD: Johns Hopkins University Press, 2007), 200.

did not reverse Engel's law! The result was a global wave of deagrarianization, with no significant intervening period of agrarianization.

This deagrarianization led directly to a rising oversupply of labor and an expanding surplus population. This is because deagrarianization involved in a transformation in workers mode of employment. Small farmers are technically "self-employed." Insofar as they have "employees," these are usually unpaid family members. For that reason, small farmers, while counted as part of the overall *laborforce* (which includes managers, employees and owner-operators), are not part of the *labor market* as this term is conventionally understood. That is to say, farmers do not compete for jobs with other workers. In light of that fact, laborforce statistics are somewhat deceptive: the transfer of small farmers from traditional agricultural pursuits to industry and services appears to involve merely a change of jobs. In fact, it involves a phase shift in modes of employment. People who were once external to the labor market are now being absorbed by it. A similar phase shift takes place when contributing family laborers and traditional farmhands leave agriculture to engage in non-agricultural pursuits. Traditionally, these workers were tied to their employers by non-market means, including not only family bonds but also debt-peonage. They could not leave the farms where they worked to seek employment elsewhere. Thus, they were not part of the labor market. Traditional social relations have now dissolved, in the countryside, or are undergoing dissolution. Many farm workers are employed in non-agricultural pursuits for at least part of the year. As a result, agricultural wage-employment is itself more clearly integrated into the wider labor market than before.

Hidden within declining agricultural employment shares, a qualitative shift in modes of employment is taking place. A growing portion of the population has been transformed into labor-dependent workers, competing for jobs. As individuals stream out of the agricultural sector,

the labor supply has increased, and it continues to do so regardless of whether there is also a growing demand for labor. For that reason, deagrarianization has contributed directly to the expansion of the surplus population, insofar as latter is an effect of a growing labor oversupply. I will now describe this process statistically as a prelude to a more detailed investigation. Towards that end, I make use of the following equations, which formalize the relations among productivity growth, output growth and employment growth. These same formulas will also be key to my investigation of employment dynamics in other economic sectors:

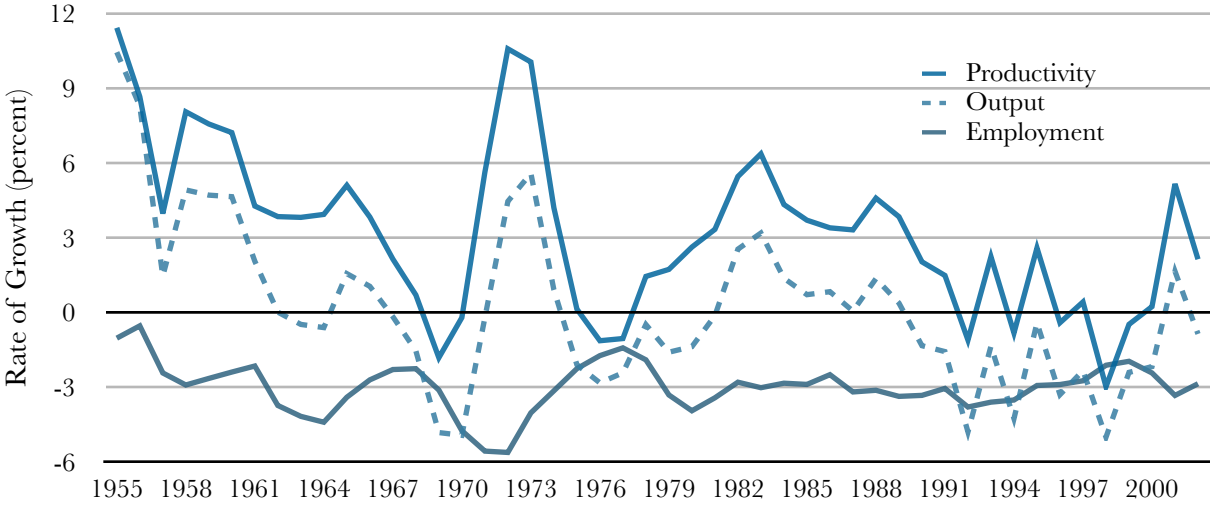
output growth rate = productivity growth rate + employment growth rate,
employment growth rate = output growth rate – productivity growth rate

The rate of growth of employment is equal to the rate of growth of output minus the rate of growth of productivity.[192] Simplifying somewhat—since the relations among these three terms are complex—we can draw the following conclusions. If the output growth rate is equal to the productivity growth rate, then no additional workers will be hired: all of the increase in output can be achieved at existing employment levels. By contrast, if productivity growth is lower than output growth, additional workers will be hired to make up the difference. Finally, if output growth is lower than productivity growth, some workers be expelled from production. This last option is precisely what happened in agriculture, in many countries, after 1950 (see Chart 1).

In the HICs, deagrarianization took place rapidly, in the first few decades of the postwar era (Tables 9 and 10). Annual rates of productivity growth in agriculture were far in excess of annual rates of output growth. For example, in the US, agricultural productivity grew at an average annual rate of 4.0 percent per year between 1950 and 2000, while output grew at only 2.3

[192] That leaves aside a remainder, known as the "small term," which is the product of productivity growth and employment growth. We can ignore it in this study, but its absence explains why the statistics provided below sometimes add up only approximately.

Chart 1. Agricultural Employment, Productivity, Output in Japan, 1955-2002



percent per year. Consequently, employment declined by 1.6 percent per year. In Japan, agricultural productivity growth-rates were somewhat lower, at 3.6 percent per year, but output growth rates were much lower, at 0.5 percent. Employment in agriculture thus declined by 2.9 percent per year. The same pattern can be found across HICs. Productivity growth rates exceeded output growth rates, leading to an expulsion of labor. The result was a precipitous decline in overall agricultural employment levels. In the US, the agricultural workforce was 57 percent smaller in 1950 than in 2000. In Japan, it was 75 percent smaller and in Italy, 88 percent smaller. In all these countries, around 5 percent of the workforce or less remained in the sector in 2000. These statistics put the transformations in agricultural technique, discussed in the previous section, into sharp relief. Whereas 5 million people accounting for 25.5 percent of the French workforce were employed in agriculture in 1950; less than one million were so employed in 2000, accounting for 3.9 percent of the workforce. Nevertheless, this much smaller French agricultural workforce in 2000 produced 146 percent more than the larger workforce had.

Table 9. Average Annual and Total Growth of Agricultural Employment, Productivity and Output (percent), 1950-2000

USA	Employment	Productivity	Output
annual change	-1.61%	3.96%	2.30%
total change	-57	459	151
Germany	Employment	Productivity	Output
annual change	-3.69	5.94	2.01
total change	-79	907	115
France	Employment	Productivity	Output
annual change	-3.23	5.45	2.00
total change	-81	1,182	146
Italy	Employment	Productivity	Output
annual change	-4.28	6.67	2.08
total change	-88	2,168	163
Japan	Employment	Productivity	Output
annual change	-2.92	3.57	0.54
total change	-75	386	20

Source: 10-Sector Database

Table 10. Agricultural Employment (thousands) and Agricultural Share of Employment (percent), 1950-2000

USA	Thousands	Percentage
1950	5,703	9.1%
2000	2,477	1.7
Germany	Thousands	Percentage
1950	4,837	23.7
1991	1,031	3.3
France	Thousands	Percentage
1950	5,004	25.5
2000	961	3.9
Italy	Thousands	Percentage
1951	9,517	47.2
2000	1,103	4.8
Japan	Thousands	Percentage
1953	17,084	43.9
2000	4,233	6.4

Source: 10-Sector Database

Table 11. Average Annual and Total Growth of Agricultural Employment, Productivity and Output (percent), 1950-2000

Argentina	Employment	Productivity	Output
annual change	-0.86%	2.91%	2.00%
total change	-39%	304%	148%
Brazil	Employment	Productivity	Output
annual change	0.57	3.24	3.64
total change	25%	349%	461%
Mexico	Employment	Productivity	Output
annual change	0.60	2.13	2.71
total change	33%	177%	269%
South Korea	Employment	Productivity	Output
annual change	-1.99	5.15	2.99
total change	-54%	482%	170%
Thailand	Employment	Productivity	Output
annual change	1.14	2.99	4.06
total change	53%	212%	376%

Source: 10-Sector Database

Table 12. Change in Agricultural Employment (thousands) and Agricultural Share of Total Employment (percent), 1950-2000

Argentina	Thousands	Percentage
1950	1864	27%
2000	1145	9%
Brazil	Thousands	Percentage
1950	10799	63%
2000	13496	21%
Mexico	Thousands	Percentage
1950	4808	59%
2000	6400	16%
South Korea	Thousands	Percentage
1963	4837	63%
2000	2243	11%
Thailand	Thousands	Percentage
1950	9063	78%
2000	13830	44%

Source: 10-Sector Database

The same trends of rising productivity and falling employment in agriculture played out in some low-income countries (Tables 11 & 12). As the double revolution in agricultural technique raised productivity levels, the potential growth of supply slammed up against a limited demand for farm products. That was true even in spite of the fact that rapid population growth provided a boost to the demand for agricultural products. In South Korea and Argentina, productivity growth rates in agriculture exceeded output growth rates, on average. As a result, employment declined, in South Korea by 54 percent and in Argentina by 39 percent. By 2010, the agricultural share of employment had dropped below 10 percent, in both countries.

However, these two countries were outliers. In most LICs, agricultural employment did not fall in absolute terms until recently, if it has fallen at all: agricultural output growth rates were higher than agricultural productivity growth rates. The most obvious reason is that LIC populations have expanded rapidly, tripling in the course of five decades. That has increased the demand for food, even if the demand per person is not rising in line with the growth of income. However, that is not the only reason why the agricultural workforce failed to decline. In poor countries, many agricultural producers are not producing for exchange. They continue to produce for subsistence, although they are increasingly forced to supplement their incomes by selling labor power. As the number of these smallholders increases, demographically, they have been forced to try to squeeze more food from the earth—even though this added production often involves ecological degradation and self-starvation. Since they are producing more using only the most meagre of tools, their added activity depresses *average* rates of productivity growth, in agriculture.

Even in this case, the ongoing transformation of agriculture is forceful enough to reduce the employment share of agriculture, significantly. Hidden within low average rates of productivity growth, a transformation in technique is taking place on large farms. Capital requirements are ratcheting upwards and prices are falling. That exerts pressure on smallholders to leave agriculture, particularly as their numbers increase and plot-sizes decline. The result is a *relative* decline in the agricultural employment share, tipping over into an *absolute* decline in the number of agricultural producers only in the past two decades. For example, in Brazil and Mexico, agricultural productivity grew, on average, by 3.24 percent and 2.13 percent, respectively between 1950 and 2000. But output grew by slightly more, so that agricultural employment rose by about 0.6 percent per year, in both countries. As a result, agricultural employment in Brazil was 25 percent

higher in 2000 and 33 percent higher in Mexico than it had been in 1950.[193] But because *total* employment expanded by much more than total agricultural employment, the agricultural employment share declined in both countries. In Brazil, the agricultural employment share declined from 63 percent in 1950 to 21 percent in 2000, in Mexico, from 59 percent to 16 percent. Both economies therefore produced substantially more food, while employing a much smaller share of the workforce in agriculture.

Similar trends played out across other LICs, although more strongly in Southern Africa, Latin America, the Middle East, and East Asia than in the rest of Sub-Saharan Africa, Southeast Asia and South Asia: agricultural employment expanded, but by less than total employment, resulting in a significant drop in the share of the workforce employed in agriculture. Where agricultural employment entered into an absolute decline, this absolute decline did not begin until the late 1980s or early 90s, in the context of an agricultural price depression and structural adjustment. In any case, declines in agricultural employment, whether relative or absolute, took place in almost every country. The important point to remember is that, in spite of declining employment levels, output in the sector remains high and rising. More food is produced, but in a manner that limits and then eventually also reduces overall agricultural employment.

Before turning to a brief history of deagrarianization, there is one more theoretical matter to resolve. Due to the double revolution in agricultural affairs, labor productivity has risen rapidly in agriculture. Under the constraint of Engel's Law, that issued in a global wave of deagrarianization. The question is: how was this decline in the agricultural share of employment actually effected? Why did some farmers lose their land, while others remained? Why were some

---

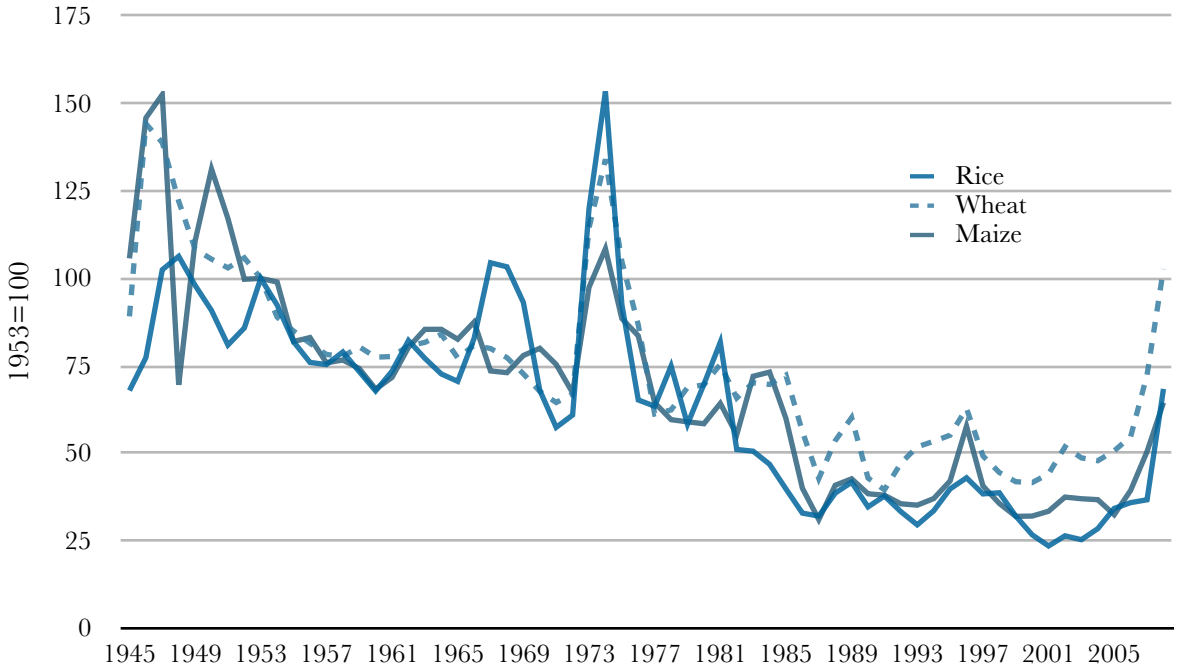
[193] Looking at the trends in more detail, one finds that in Brazil, agricultural employment actually plateaued in the mid 1970s and then declined starting in the early 1990s, while in Mexico, agricultural employment rose until the late 1980s and then declined thereafter.

farmhands left without work, while others are still employed? At the most general level, deagrarianization is affected via the *price mechanism*. Only some farms benefited from the industrialization of agriculture; as those farms expanded output in line with their growing productive capacities, that pushed down market prices. Agricultural prices thus declined over the long term in line with falling costs of production that were achieved on some farms, but far from all farms.

Farmers who had not adopted the new techniques found that they counted as increasingly high-cost producers: market prices fell towards or even below their costs of production. These farmers were forced either to catch up to the technological leaders or to leave their lines of production; many were forced to leave agriculture entirely. Insofar as it is effected via this unplanned price mechanism, deagrarianization is a structural process. Within this context, governments may pick winners by providing preferential financing or by concentrating development projects in certain areas. Governments may also speed the process along by encouraging the adoption of new seeds, or by subsidizing the use of synthetic fertilizers. Nevertheless, the overall process of agricultural exit unfolds relentlessly as the increasing productive capacity of farms slams into the demand constraint. The price mechanism is the juggernaut of this market process.

It is possible to chart the workings of the price mechanism by measuring the decline in world agricultural prices, since 1950. To see how the real prices of various crops evolved, their nominal prices are deflated by the unit price of manufactures. It may be objected that world-market prices do not necessarily correspond to local prices, and that is true, to some extent. However, this correspondence has increased, over time. In 2007/8, steeply rising world market prices issued in cost-of-living protests around the world. The steep rise in food prices that ignited these protests had begun in 2003, globally, with price increases also reflected in localities around the world. The price spike of the mid-2000s was actually the third spike since 1945: the first corre-

Chart 2. Real Prices of Wheat, Rice and Maize (MUV-deflated), 1945-2007



sponded to the Korean War boom of the early 1950s, the second to the Vietnam War boom of the early 1970s, and the third to what might be called the Iraq War boom of the mid 2000s.[194]

In spite of these periodic spikes, it is clear that the overall trend in agricultural prices has been downwards, for almost all crops. Three cereal grains provide much of the world with sustenance: wheat, rice and maize. Since World War II, the prices of all three have fallen significantly. Comparing average prices between 1945 and 1955 to averages price in 1995 to 2005, one finds that the price of wheat fell by 55 percent, of rice by 64 percent, and of maize by 66 percent. The same trend of falling real prices unfolded across many tropical commodities markets, as well. The price of coffee fell by 52 percent, of cocoa by 51 percent, and of tea by 55 percent. The prices of cane sugar, palm-oil and rubber also fell by between half and two thirds, over the course of the postwar era. Fibers, which are produced in many regions of the world, were subject to particularly steep price declines: the prices of cotton and wool fibers fell by 73 and 77 percent, respectively.

[194] The booms are conventionally named in this way, although it is unclear whether the wars themselves acted as an efficient cause

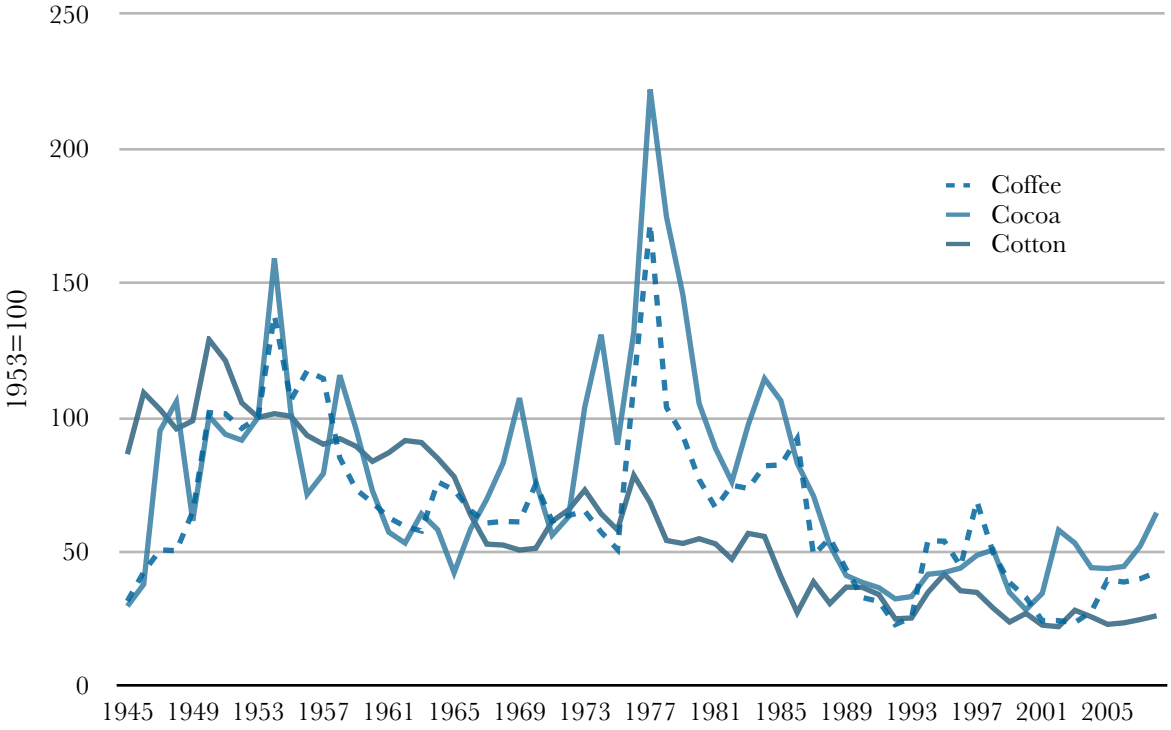
The price of jute fell by 64 percent. It is important to note that not all commodities saw such strong price declines. The price of bananas fell by 35 percent over the period, while the price of tobacco fell by only 6 percent. Timber prices rose by 30 percent, while beef and lamb prices rose significantly, by two-to-three-hundred percent. Yet these remain exceptions to the rule: agricultural food prices, as a whole, show a 52 percent decline, over the period, while non-food prices fell by 37 percent. Prices were also highly volatile, on a year-to-year basis. Looking at differences between maximum and minimum prices, 1950-2000, would yield much more severe overall declines as compared to decadal averages.

This pattern of falling real prices for primary commodities was discovered independently by two theorists in the mid-twentieth century: Raul Prebisch and Han Singer.[195] They ascribed the pattern to multiple causes. The primary cause was one that I have already discussed: the income-elasticity of demand for agricultural goods is lower than for manufactures. Supply tends to run ahead of demand, more severely for agriculture than for industry, and that results in steeper price declines. Prebisch and Singer also discussed secondary causes, centered in labor market dynamics. Singer claimed that manufactured workers in high-income countries were able to capture some of the gains of rising productivity as wage increases rather than falling prices. Meanwhile, none of the gains of rising productivity went to agricultural producers in poor countries; those gains were entirely captured as falling prices. Signer suggested that workers in the high-income countries thus benefited from trade more than workers in low-income countries (that was the basis of so many theories of dependency, a discussion of which is beyond the scope of this study). Prebisch, by contrast, argued that the source of this problem was localized in poor countries:

---

[195] For a summary of these positions see Bilge Erten and José Antonio Ocampo, "Super Cycles of Commodity Prices since the Mid-Nineteenth Century," *World Development* 44 (2013): 14.

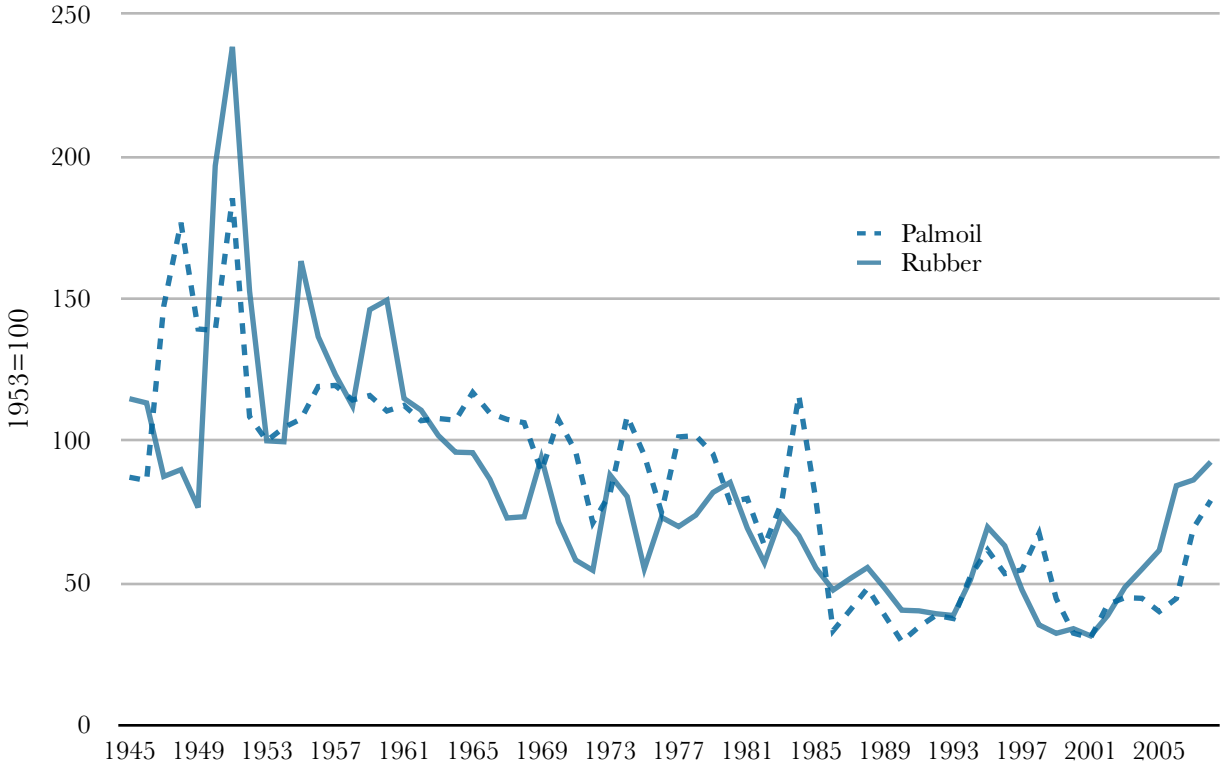
Chart 3. Real Prices of Coffee, Cotton and Cocoa (MUV-deflated), 1945-2007



since those countries had not industrialized, they suffered from a massive labor oversupply, which tended to depress incomes in those countries, and so also, agricultural prices. On the basis of this latter theory, many developmentalists concluded that it would be necessary for LICs to swim against the tide of market pressures and to industrialize. Otherwise, as a result of falling terms of trade for primary commodities, poor countries would be forced to export more and more, in order to import the same quantity of manufactures.

The Prebisch-Singer hypothesis sparked a long running debate: were real commodity prices, deflated by unit manufacturing values, actually falling over time, or did they tend to rise and fall without a trend? Based on a data series established by Enzo Grilli and Maw Cheng Yang in 1988, the basic facts are no longer in doubt: real prices fell across many individual commodi-

Chart 4. Real Prices of Palmoil and Rubber, 1945-2007



ties and for whole commodity groups.[196] They may have begun falling as early as the 1880s. A scholarly debate still rages as to whether these price declines counts as real trend, rather than as a long, random walk, and whether it is possible to describe them as a trend using sophisticated econometric tools (structural breaks, unit root processes, etc.). Such a level of statistical certainty is probably unnecessary, here.

More important are certain causal mechanisms that Prebisch and Singer overlooked. First, both theorists wrote too early in the postwar period to see that the agricultural revolution of the middle of the twentieth century would issue in rapidly rising agricultural productivity levels. The result of that revolution was that, in a reversal of earlier trends, productivity rose more

[196] Enzo R. Grilli and Maw Cheng Yang, "Primary Commodity Prices, Manufactured Goods Prices, and the Terms of Trade of Developing Countries: What the Long Run Shows," *The World Bank Economic Review* 2, No. 1 (1988): 1-47.

quickly in agriculture than in industry. Relative price declines in agriculture now reflected changing relative costs of production across sectors. That amplified the workings of Engel's Law, causing real agricultural prices to decline more severely than before. Writing in the mid-twentieth century, these theorists missed another, related causal mechanism. The innovations that gave rise to synthetic fertilizer, and so to the revolution in agricultural affairs, were part of a more general petrochemical revolution. Until the mid-twentieth century, industrial production remained dependent on many inputs that, like cotton and rubber, had to be *grown* or mined, many of them in tropical or sub-tropical climates. Due to the petrochemical revolution, it became possible to manufacture all sorts of materials from oil-derivatives rather than plants or other minerals. Plastics replaced wood and metals. Synthetic fabrics and dyes replaced plant-derived fibers, animal hides, and natural dyes. A similar substitution process took place with regard to food additives, which previously had to be produced in tropical climates. Sugarcane was replaced with with sugars made from corn and beets. Palm oil was replaced with an oil derived from soybeans. These substitutions led to massive declines in the prices of some inputs to modern industrial production, and also to meat and processed foods production, as well.

Yet prices fell even among crops for which there was no substitute, and which could not be produced outside of tropical regions. These included coffee, cocoa, and tea. Partly, price declines for these crops were due to the fact that peasants continue to enter and to remain in these lines of production in spite of falling prices. Their options were even worse in other lines, where they may have had to compete with industrialized agricultural producers in high-income countries. However, it is also the case that some producers in tropical areas were benefitting from double revolution in agriculture. They were able to apply large quantities of synthetic fertilizers to their land and to obtain access to irrigation, tractors, etc.

Indeed, across high and low-income regions, a small portion of producers was able to industrialize because they were able to stay ahead of the curve of falling prices. These producers generally had higher levels of capital per worker. Their costs were below average costs. As a result, they continued to earn sizable returns, despite falling prices. The consequence was that, compounded over time, "initial inequalities were thus magnified," resulting in a process of "cumulative unequal development."[197] At the end of a long sequence of incremental changes, these few successful producers transitioned from mixed husbandry or traditional forms of agriculture to the new, industrialized agriculture. Some farmers made it part of the way down this path, but then end up falling behind the leaders. As they were unable to earn high enough returns in spite of falling prices, they were no longer accumulate, and thus tended to fall further and further behind. Many more farmers started off so far behind that they were almost shut out of agricultural market. They survived only by reducing their incomes and failing to renew the capital invested in their farms. Eventually, these producers had to abandon their farms altogether. All of these sorts of farms—that is, farms that were market dependent, accumulated capital, updated techniques, and specialized in certain lines of production—could be said to have undergone a process of *rural differentiation*, in which winners ran further and further ahead of losers, who were, by contrast, eventually forced out of agriculture. Of course, the vast majority of farms, globally, never tried to produce for markets. Using manual tools and owning little land, returns to market production would have been very low. These farms were unaffected by falling market prices, since they continued to engage in subsistence production. Yet many of these farms, too, were eventually abandoned, often under a combination of demographic and ecological pressures.

---

[197] Mazoyer and Roudart, *History*, 433.

4. The End of the Peasantry

I now conclude with a historical account of deagrarianization. The key point, here, is that before the industrialization of agricultural production took place, economies to scale in agriculture were much less extreme than they are today. Differences in productivity between farms with a lot of capital and those with very little were not especially large: "The ratio in 1950 between the least efficient system (manual farming) and the most efficient system (motorized mechanization) was 1:30."[198] Under these conditions, family farms in the high-income countries that had *some* capital—some land, some farm implements and a few animals—were able not only to enter into markets for agricultural products, but also to compete successfully in those markets. As long as farming families were willing to accept low incomes (and indeed, farmers' incomes were often lower than those urban wage-workers), they were able to out-compete larger enterprises that relied on wage-labor rather than family labor. At prevailing prices and wages, those large enterprises could not lower their costs enough to earn an average rate of profit. Consequently, they stayed out of the business of growing of crops, specializing instead in upstream and downstream industries. Growing crops remains the purview of family-owned operations, using little hired labor. When the industrialization of agriculture took place in HICs, it was these family operations that industrialized. Rural differentiation sped up—very few farms succeeded in fully industrializing—while the rest were abandoned.

That was not all: in the course of this transformation, *the prevailing competitive balance between small and large farms completely reversed itself*. The double revolution in agricultural affairs definitively put an end to the era in which small farms with little capital were able to displace large, highly capitalized operations in market competition. Industrialized farms—whether they rely on wage

---

[198] Food and Agriculture Association of the United Nations, *State of Food*, 177.

labor or not—can now achieve huge economies of scale. By 2000, the productivity ratio between manual and industrialized farming had risen to 1:500, "almost a twentyfold increase" in fifty years.[199] Under these conditions, highly capitalized farming operations can beat prices that even the most self-exploiting small growers can offer, if those growers are under-capitalized. Today, it is the pace of technological innovations on those capital-intensive farming operations that drives the movement of prices in most agricultural markets, worldwide: "Being under-equipped and under-productive, most [small] farmers are unable to invest and progress sufficiently to withstand the continuing and generalized decline in real agricultural prices." In that sense, agricultural production today is much more like industrial production: economies of scale are paramount.

This reversal explains why, in recent decades, "those economies that depend less on agricultural trade have generally made the largest gains in agricultural market share, while economies that are more firmly based on agriculture have not only lost market share, but, in many cases, have also seen their agricultural trade balances deteriorate."[200] The countries that have done well in international agricultural markets are those that are have well-developed industrial sectors, capable of producing all the inputs to agricultural production (fertilizers, pesticides, farm implements, etc) as well as of processing crops for sale. These countries include not only the club of high-income countries, but also, the rapidly growing low-income countries in East Asia. According to the FAO, the fact that "Asia and the Pacific has actually increased its share in world agricultural exports since the mid-1970s is all the more remarkable given that this is also the region that has been most successful in diversifying its export base away from agriculture."[201] This fact is not

---

[199] Ibid.

[200] Food and Agriculture Association of the United Nations, *State of Food*, 130.

[201] Food and Agriculture Association of the United Nations, *State of Food*, 132-3.

remarkable at all, given what I have explained above: agriculture is now just another industrial line.

I focus on this point because it is still common, today, to believe that inequalities in international agricultural markets are merely the result of subsidies and tariffs that protect agriculture in high-income countries. In fact, the removal of those subsidies is unlikely to help poor farmers in the LICs. Food First explains that "two linked misconceptions pervade the present subsidy debate: that subsidies are a principle … cause of overproduction and falling prices; and hence, that removing subsidies (and cutting tariffs) will significantly boost incomes for poor farmers in the developing world."[202] On the one hand, subsidies and tariffs protect only a subset of the agricultural products for which prices have fallen severely. On the other hand, the removal of those subsidies is unlikely to result in massive changes in prices, to the benefit of small farmers. Industrialized farms in Australia and New Zealand are already doing well following "the almost complete end of formerly high protectionist policies" in those countries.[203] The same is likely to be true of industrialized farms in other countries: the only farms worldwide that stand to benefit from the end of subsidies in the high-income countries are those farms that are already highly capitalized.

This point is crucial because the capitalist transformation of agriculture in the LICs took place in the course of the worldwide transition to industrialized agriculture; that is to say, it took place at a time when the competitive balance between small and large firms was in the process of

---

[202] Karl Beitel, "US Farm Subsidies and the Farm Economy: Myths, Realities, Alternatives," *Food First Backgrounder* 11, no. 3 (2005): 2.

[203] Bruce Gardner and Daniel A. Sumner, "US agricultural policy reform in 2007 and beyond," in *Agricultural Policy for the 2007 Farm Bill and Beyond*, eds. Bruce Gardner and Daniel A. Sumner (Washington: American Enterprise Institute, 2007), 12.

reversing itself. With few subregional exceptions, there was no prior period in which family farms turned towards market production, adopted new methods of farming, improved and expanded their landholdings, and displaced large agricultural enterprises by self-exploiting. That had two major consequences. First, in most LICs, the industrialization of agriculture took place under conditions of massive, pre-existing inequalities in terms of landholdings. There was no question as to which farms would flourish, in this era: it was a *foregone conclusion* that very large farms, with access both to land and capital, would be the ones to industrialize successfully. Small peasant farms with very little capital were very quickly ground down when they attempted to compete in capitalist markets. That led directly into the second consequence. Unlike in the high-income countries, a large portion of the agricultural population in the low-income countries was not already market dependent, when agriculture industrialized. Smallholders were mostly subsistence producers. Insofar as they were able to hold onto their plots, they mostly responded to the capitalist transformation of agriculture by continuing to produce for subsistence. When that was not enough for households to survive, they were forced to rely on wage labor, often in non-agricultural sections of the rural economy.

The patterns I am describing here did not apply across all LIC subregions. In some subregions, deagrarianization unfolded in and through a process of differentiation among small peasant farms with relatively equal levels of capitalization. That was particularly true where peasants grew tropical cash crops for export, as "among the cocoa producers in southern Ghana and western Nigeria, in the palm oil regions of coastal West Africa, in the peasant basin of Senegal [where groundnuts were grown], and in the coffee producing highlands near Mount Kiliman-

jaro in Tanganyika."[204] Initially, these producers may not have invested their returns in expanding production, muting the differentiation process. Instead, they "cultivated supporters as well as crops, sponsored ceremonies and otherwise strove to turn wealth into prestige."[205] However, as the limits of extensive cultivation were reached and as prices began to fall, planters were subject to a ruthless process of differentiation. In the groundnut sector in Senegal, one study found that "land and wealth concentration" are now "very marked and growing:" "the top 20 percent with the largest holdings control over 50 percent of the land and production; whereas the bottom 20 percent with the smaller holdings only use about 4 percent of land and produce 5-6 percent of total output."[206] A similar process of rural differentiation took place in areas where new land was colonized: in the Amazon basin, as well as in the clear-cut forests of Thailand and Indonesia. It also took place in East Asia, in Japan, South Korea and Taiwan, where land inequalities were drastically reduced by land reform.

The US government hoped to export the family farm model—brought to East Asia via land reform—to the rest of the world. As it turned out, that was flatly impossible, given prevailing land distributions. In most LIC subregions, vast inequalities existed among landholders; in addition, in some regions, a large percentage of the rural-dwelling population was landless. These land inequalities formed the basis of rural class structures, most of which predated the colonial era. Pre-existing systems of domination were sometimes reinforced by colonization, as on the In-

---

[204] Frederick Cooper, *Africa since 1940: The Past of the Present* (New York: Cambridge University Press, 2002), 21.

[205] Ibid.

[206] Carlos Oya, "Large- and Middle-Scale Farmers in the Groundnut Sector in Senegal in the Context of Liberalization and Structural Adjustment," *Journal of Agrarian Change* 1, No. 1 (January 2001), 129.

dian subcontinent; sometimes, they were wholly reinvented, as in Latin America. In sub-Saharan Africa, colonial powers did both: they took over the best land for themselves, while reinforcing "traditional authorities" in native reserves. As it suited their needs, colonists reinterpreted African traditions, sometimes inventing tribal "chiefs" and "laws" from whole cloth.

Table 13. Share of Small Farms in Total Farms and as Share of Small Farms in Total Farm Land (percent), 1990s-2000s

	% of farms	% of farmland
East Asia and Pacific	94.7	15.9
Latin America and Caribbean	27.5	0.7
Middle East and North Africa	77.6	16.1
South Asia	81.4	35.8
Sub-Saharan Africa	89.6	14.9
LICs	87.6	14.9

Source: Gustavo Anriquez and Genny Bonomi, "Long-term Farming and Rural Demographic Trends," background paper for World Bank, *World Development Report 2008* (Washington, DC: World Bank, 2007) 34-35. Small farms are measured as farms of less than 1 or 2 ha.

Vast land inequalities survive down to the present day (Table 13). In South Asia, small farms of up to 1 or 2 hectares account for 81 percent of farms but occupy only 36 percent of farmland. In the Middle East, small farms account for 78 percent of all farms but occupy only 16 percent of the land. Overall, across LICs, small farms make up the vast majority of farms, some 88 percent, but occupy only 15 percent of farmland. Large farms therefore account for just 12 percent of farms, while occupying 85 percent of the land. These statistics on land inequality are corroborated by surveys of farmers' access to capital in other forms: "even today, more than 80 percent of African farmers and 40 to 60 percent of those in Asia and Latin America continue to work with strictly manual tools."[207] In most poor countries, disparities in access to resources increased in the course of the postwar period, due to the effects of rapid population growth: land-

[207] Mazoyer and Roudart, *History*, 442.

holdings were pulverized as plots were subdivided and passed down from generation to generation. In Indonesia, landholdings per person in agriculture declined by 24 percent, in spite of a massive colonization of new land. In India and Pakistan, where opportunities for colonization were almost entirely exhausted by 1960, landholdings per person fell by 40 percent, between 1960 and 2000. These statistics on subdivision give only a rough sense of the transformations underway, since they refer to average rather than median landholdings. This situation stands in sharp contrast to trends in the HICs, as well as in a few LICs, where landholdings per person tended to increase in size, as farmers were ejected from the sector. In Italy and Spain, for example, landholdings per person in agriculture almost tripled in size, between 1960 and 2000.

Table 14. The Fragmentation of Holdings: Arable and Permanent Crop Land per Person Engaged in Agriculture (Ha/Person), 1960-2000

Country	1960	1980	2000	Change 1960-2000
Brazil	2.06	3.02	4.92	138%
Korea, South	0.41	0.38	0.81	97%
Argentina	11.65	19.49	20.00	72%
South Africa	5.26	7.06	8.59	63%
Egypt	0.39	0.29	0.39	0%
Thailand	1.00	1.06	0.93	-7%
Nigeria	2.17	1.98	1.99	-8%
Mexico	3.89	3.11	3.18	-18%
Philippines	1.07	1.00	0.86	-20%
China	0.37	0.25	0.29	-20%
Turkey	2.27	2.47	1.79	-21%
Iran	3.66	2.96	2.75	-25%
Indonesia	0.93	0.75	0.68	-26%
Viet Nam	0.42	0.35	0.29	-30%
Colombia	1.78	1.38	1.22	-31%
Bangladesh	0.37	0.31	0.23	-38%
India	1.06	0.81	0.64	-40%
Pakistan	1.45	1.13	0.88	-40%
Congo, DR	1.18	0.86	0.59	-50%
Ethiopia	1.06	0.86	0.43	-59%
Germany	2.41	4.82	11.87	392%
France	4.91	9.59	21.85	345%
Japan	0.41	0.87	1.74	329%
Italy	2.44	4.37	8.34	242%
Spain	4.28	7.93	13.71	220%
United States	36.28	49.00	58.79	62%
United Kingdom	7.56	10.04	11.33	50%

Source: FAOSTAT

Under these conditions, the question of which farms would survive the competitive transition to industrialized farming was a foregone conclusion. Large landowners had access to the best land and also to other resources, including physical resources such as water, and intangible ones,

such as credit. Some of these large landowners chose to participate in markets more deeply. Others were pushed deeper into production for exchange by governments who threatened to appropriate land that was not used productively. In any case, once they were oriented towards market production, they increasingly adopted the methods associated with industrialized agriculture (they did so alongside large plantations, which were already competing in international markets but often relied on unfree labor). Vast disparities, which already existed in the 1950s, were then locked in place as capital per worker rose on large farms. There was very little chance for smallholders to compete: the poor would be driven out by the already affluent. The poor face all sorts of problems of access: even when they were wanted to adopt the new methods, they could not afford them.[208]

Rural development programs did exist to try to remediate this situation. They subsidized access to fertilizers, seeds and machinery and provided cheap credit. They also engaged in infrastructure building projects, involving the construction of roads and schools. However, many of these programs merely kept smallholders afloat, as they fell further and further behind. Meanwhile, rural development programs "tended to benefit the larger commercial farms," who were the only ones able to take advantage of the incentives on offer.[209] Recognizing this fact, the rural poor of India refused to participate in many governments projects purportedly designed to improve village life:

> White richer farmers generally could contribute cash to village projects, subsistence cultivators and landless laborers, of necessity, were asked to donate labor.

---

[208] Francine R. Frankel, *India's Political Economy, 1947-1975: The Gradual Revolution, Second Edition* (New York: Oxford University Press, 2005), 19.

[209] Food and Agriculture Association of the United Nations, *State of Food*, 115. In many countries, these programs were specifically targeted at rich landowners, encouraging them to transition to new methods of agricultural production.

> Local officials quickly discovered it was not possible to mobilize idle manpower for unpaid work on a "community" projects in minor irrigation or soil conservation when the benefits were disproportionately skewed towards large landowners. Difficulties arose even with respect the use of manpower for the construction of social amenities projects, such as approach roads, drinking-water wells, community centers and libraries. Cultivators [that is, the comparatively wealthy] were also the greatest beneficiaries of new roads linking the village to nearby markets; and in situations of social discrimination, lower castes might be excluded from the full enjoyment of a community center, panchayat house, or a drinking water-well. Poorer families were also illiterate; they had no need for libraries…[210]

For these reasons, rural development programs did not meet their goal of keeping the poor in the countryside. Instead, they sped migration to the cities by giving poor rural dwellers access to education, or even just by constructing roads along which rural dwellers were able to walk, making their ways to the rural towns.

These processes transforming agriculture in the low-income countries were already underway in the Green Revolution era, that is, before structural adjustment programs were adopted in the 1980s. They can be measured by the rising consumption of nitrogenous fertilizers and the increased use of tractors, as well as in the tendency of real agricultural prices to fall, which put pressure on any undercapitalized producers who were trying to sell in agricultural markets. Such pressures increased rapidly in the course of the 1970s, before peaking in the structural adjustment era of the 1980s and 90s. This is because in the 1970s, agricultural producers the world over were confronted with double crisis. On the one hand, after spiking in the early 1970s, real prices of almost all crops entered into a severe and long-lasting period of decline. From their mid-1970s peaks to their end-of-the-century troughs, real prices of wheat, maize and rice fell by 69, 71 and 85 percent, respectively; those of cocoa, coffee and cotton fell by 86, 87 and 72 percent respectively (see charts 2-4, above). Sugar and palm oil, as well as jute and wool, saw similar

---

[210] Frankel, *India's Political*, 189.

declines. At the same time, OPEC constrained international oil supplies, causing real oil prices to rise, in two rounds: first, they tripled in 1973; then they doubled in 1979. Real oil prices remained very elevated, compared to prevailing postwar averages, until the mid 1980s. That price spike was associated with increases in costs for market-dependent farmers, not only because fertilizer prices were closely correlated with oil prices, but also because farmers needed to get goods to markets. Highly capitalized large producers were able survive and even prosper, in the 1970s, in spite of falling prices and rising costs. Meanwhile, small farmers were caught between the two: they faced increasing pressure to leave agricultural markets altogether.

Market-dependent small producers where thus already up against the wall when the structural adjustment programs intervened, in the mid-1980s. Insofar as they were still holding on, they did so only because of government crop-purchasing programs and the provision of cheap credit. In addition to wiping out subsidy programs, the SAPs then swept these away as well.[211] Without support, small market dependent producers were devastated. That devastation was made even worse insofar as SAPs issued in "consumer goods inflation and cutbacks in public funding for hospitals, schools, and other social services," increasing "peasant cash needs as they were squeezed between declining returns and rising costs of basic services."[212] The latter also affected those peasant producers who were merely market-involved, but not market-dependent.

The result was a lasting agricultural depression. It is no coincidence that, in some LIC countries, in the 1980s and 90s, what had been a relative decline in agriculture's share of total

---

[211] Government purchasing programs had initially been designed as a tax on growers. A portion of the income that would have gone to growers was instead channeled into government coffers, supposedly intended for government programs, but often lining the pockets of government officials. In any case, it is difficult to imagine that these programs would have survived for long, even if structural adjustment programs had not forced their closure.

[212] Bryceson, "African Peasants," 54.

employment finally became an absolute decline in the number of people engaged in agriculture. Rates of malnutrition among peasant farmers were high. However, "since a significant portion of these peasant farmers and other rural inhabitants migrate each year to overpopulated urban areas, and since the number of chronically undernourished peasant farmers remains constant year after year [in the 1980s and 90s], this means that the poor farmer population is constantly being renewed."[213] Here are the paradoxical consequences of an agricultural revolution that has made food and other crops cheap and plentiful: falling real prices mean that the farmers who formerly produced that food cannot themselves purchase enough to prevent malnutrition.

Yet the point remains that this devastation wreaked on poor farmers only hastened a tendency that was already well underway. The price mechanism, that juggernaut of the capitalist mode of production, smashed its way through the agricultural sector, irrespective of the policy regime in place. Steep falls in prices, which set in after the early-1970s boom, had already begun before the SAPs were put in place. It is true that in 1960s and 70s, industrialization of agriculture in LICs was not yet very advanced. It was starting to spread from HICs to LICs, in the context of the Green Revolution. Large producers had begun to adopt new crops and new methods of production, often in response to a combination of government coercion and incentives.[214] However, this transformation was part of a worldwide transition, which took place in every region. Now, the global industrialization of agriculture is significantly more advanced. More efficient produc-

---

[213] Food and Agriculture Association of the United Nations, *State of Food*, 190.

[214] In this context, rural struggles unfolded, as small growers who had voluntarily become market dependent during the era of high prices, in the early 1950s, now found themselves at risk of losing their livelihoods. Poor rural dwellers fought against direct expropriation, as elites maneuvered to escape what meagre land reform programs were on offer, while expanded holdings to take advantage of new opportunities. Struggles for real land reform—which were widespread in the middle of the twentieth century—might potentially have changed the framework of rural development in the LICs. However, were generally unsuccessful.

ers are able to produce and even to expand production, when market prices are so low that they have fallen below poor peasant formers costs. Meanwhile, as processed foods replace fresh foods, and supermarkets replace open-air markets, distributors are increasingly bypassing poor peasants, who cannot meet production standards. All of these developments are closing the door to small, non-industrialized farms, in a way that cannot be resolved by a simple redistribution of land. In industrialized agriculture, inequalities of production are no longer simply a matter of the distribution of land, but of capital.

What is most surprising in this context is that, in spite of all the pressures on smallholders in low-income countries, deagrarianization remains far from complete. Globally, one third of the world's workers are engaged in agriculture, most of them in East, South, and Southeast Asia, and sub-Saharan Africa excluding Southern Africa. The number of agricultural producers entered into an absolute decline, globally, only around the turn of this century (as I mentioned, in Latin America, as well as the Middle East and Southern Africa, this process began earlier, in the 1980s and 90s). In other words, until recently, it was only the agricultural share of employment that was declining; the total agricultural population continued to grow.

That is because the vast majority of peasant producers in LICs were not already market dependent when the double revolution began to transform agricultural production. Peasants were insulated from what was happening as long as they continued to produce for their own consumption. It is important to note that not all smallholders in the LICs remained subsistence producers: during periods of high prices, particularly during the Korean War boom, many small farmers voluntarily rendered themselves market dependent, chasing the dream of a better life that seems to be contained in high coffee, cotton and cocoa prices. Most of these then lost their land during the ensuing price depressions, attendant on the industrialization of agriculture. At the same time,

many of the people engaged in agricultural production, in poor countries, were laborers on large estates, rather than land-possessing peasants. The former could not insulate themselves from the capitalist transformations of the market as the latter did: they were expropriated to make way for new export crops. And yet, that still left a large remainder of subsistence peasants, worldwide. In this context, modernizing sectors rise like volcanic islands out of an ocean of traditional agricultural practices. The simultaneity of extremely different modes of production distorts the statistical picture of agriculture in these countries. There has been a massive increase in fertilizer use, in the total number of tractors in use, and so on. But that is occurring only on modernizing farms, which make up a small minority of all farms.

The huge remainder of subsistence farmers, worldwide, has been caught in a scissors trap, equally implacable as bad as the one facing market-dependent small producers. Consequent on the unfolding revolution in agricultural technique on modernizing farms, crop prices were generally low and falling. Peasant producers could not earn enough by selling cash crops to buy everything they needed to live. At the same time, they could not live comfortably via waged work, because food prices were yet too high with respect to the meagre wages on offer: in thin rural labor markets, the demand for labor was simply too low compared to the huge supply (poverty among the landless is extreme). This trap explains why low agricultural prices have been associated with high degree of malnourishment in rural areas. Given these all around bad choices, many small farmers continue to produce for their own consumption, insofar as they are able. But at the same time, subsistence production has itself been undermined by trends I discussed in the previous chapter, as well as above: that is, above all by demographic proletarianization. Additional factors are at work, as well: on the one hand, land grabbing, often by rural elites, and on the other hand, the loss of meagre social safety net, if it ever existed, due to structural adjustment.

On this basis, the world is seeing "the most dramatic and far-reaching social change" of the second half of the twentieth century, which "cuts us off forever from the world of the past," namely, "the death of the peasantry."[215] Small farmers produce either for sale or for own consumption, on the plots they have. That provides for some of what they need to live. But at the same time, farming households are *diversifying* into non-farm activities. This diversification is peculiar, from a historical perspective. Typically, as capitalist development takes place, people come to *specialize*, either in farm or non-farm activities, with the latter coming to represent a growing portion of total output, over time. That does happen in some areas, in the LICs: where agricultural modernization is taking place, there is this dynamic of specialization, which is like the one that played out in the HICs in an earlier phase of development. But in many areas, there is no dynamic growth-engine. Instead, there is a sort of agricultural "involution." Diversification of income takes place, at the household level, partly as an attempt to mitigate against risk, in a thin and unsure market. It is also, more simply, a matter of taking whatever happens to come along. When opportunities are rare, one takes whatever one can get.

The result is that the total extent of deagrarianization is hidden to a large extent. Many people may be small farmers, in terms of reported occupation. Looking at the actual sources of their income, however, reveals that a growing share is earned from non-farm activities. These farmers are transitioning from subsistence production, including some degree of market involvement, to full labor dependence. This transition is taking place more or less slowly, since rural households hold on to their tiny plots for as long as they can. For those who have some land, some subsistence farming remains an important piece of a jigsaw puzzle, of how to earn enough

---

[215] Eric Hobsbawm, *The Age of Extremes: A History of the World, 1914-1991* (New York: Vintage Books, 1994), 289.

income to survive. Alongside the rural landless, this population exists as a dispersed surplus population—a counterpart to the concentrated surplus population in the cities.

As I discussed in the last chapter, many members of the rural surplus population are unable to migrate permanently to the cities. There are already too many city-dwellers who need jobs but cannot find steady work. Lacking any savings—or any special skills or connections—the rural poor cannot stay in the cities long enough to gain a toehold there. Given these barriers to permanent rural-to-urban migration, rural populations are now circulating around the countryside, in novel ways. Many low-income countries in Asia and Africa are still majority rural. Rural-rural migration remains more common in those countries than rural-urban migration. But these migrants are not moving around in a wholly traditional countryside. Rural areas have been partially transformed: they are connected to rural towns via roads and telephone wires, and increasingly also via cell phone towers. That has provided the material conditions for an organized movement of so many poor bodies across vast distances, to wherever there is work to be had.

Conclusion

If it were not for the Haber-Bosch process, agricultural production would not have become so intensive; it would have had to become much more extensive, instead. A growing demand for agricultural production would have necessitated that all potentially cultivatable land be turned into farmland. Even then, it might not have been physically possible to feed everyone, given the limited availability of nitrogen compounds in the soil. But such Malthusian fantasies did not come to pass, in the twentieth century. Instead of catastrophic global famine, real food prices fell steeply, from 1953 to 2003, despite a gigantic increase in the size of the human population.

Today, there is an ongoing commodity boom, but like the ones in the past, it will likely end in a new price slump.

Yet, in spite technical achievements in farming, rural poverty remains widespread. Hundreds of millions of people, most of them living in the countryside, are malnourished, not due to the high price of food, but rather due its low price: they are suffering from agricultural overproduction, not underproduction. That is the key: capitalist agriculture can feed more people, but not working the land. Under conditions of capitalist competition, a rising agricultural supply has issued in a pressure to abandon small farms. Due to that pressure, a world historic transformation took place sometime in the early 1980s: for the first time in millennia, less than half of the world's laborforce was engaged in agricultural production. This transformation was little remarked, but it was enormous milestone, taking place decades before the world's population became majority urban.

That de-agrarianization is happening more quickly than urbanization is highly suggestive: the latent surplus population is becoming a manifest surplus population. There is no more labor sink in the countryside. Instead, there is this massive pressure on the labor markets coming from a more or less rapid push out of agriculture, occurring alongside the demographic transition, which makes it worthwhile to speak of a demographic-agricultural transition: one combined phenomenon, which has caused the non-agricultural labor supply to multiply many times over, far in excess of what non-agricultural labor markets could handle. We now live in a world that is really and truly regulated by capitalist social relations, even if in many places, these relations are very thin.

It is of course possible to see the global labor-oversupply, which I have described in this chapter and the last, as a temporary shock to labor markets, if a long-lasting one. After all, both

the demographic transition and de-agrarianization one are "one-off" shocks, associated with the worldwide rise of capitalist social relations. Will the resulting global surplus population eventually be absorbed into the formal economy? In the next chapter, I look at the labor-demand aspect of the problem, to show why this is not the case.

4. De-Industrialization

Over the past sixty years, the world's labor-dependent population has expanded rapidly. As I argued in the previous two chapters, this trend has had two main sources: first, demographic growth, particularly in urban areas, and second, de-agrarianization, attendant on the industrialization of agricultural production. Due to the industrialization of agriculture, it proved possible to feed the world's growing population without bringing much more land under production (and also, without drastically transforming social relations in the countryside). However, the same technologies that increased the food supply also drastically reduced the demand for agricultural labor, whether of owner-operators or farmhands. The result has been a large increase not just in the world's population, but also, more particularly, in its labor-dependent population—a phenomenon signaled by the outsized growth, over the past six decades, of the non-agricultural share of the workforce. This newly labor-dependent population is without any possibility of returning to the peasant production that sustained its parents' generation, whether or not it finds work elsewhere in the economy. Is the trouble with labor in the world economy simply due to this unexpected shock to the global labor supply?

Surely, that alone would have been enough to push a portion of the world's workforce into un- and underemployment. Richard Freeman makes this sort of argument in his work: he claims that the problems in the "new global labor market" are largely supply driven, having to do with the entry of Chinese, Indian and formerly Soviet-state workers into the global laborforce. Mike Davis offers a more complex view: he, too, argues that global labor market problems are largely labor-supply driven—having to do with an IMF-forced migration from the countryside to the cities (although in Davis's account, labor demand in the low-income countries was severely

depressed, as well). I contested the origin stories of both authors in the previous chapters, but what about their conclusions? Davis suggests that it will now prove impossible for labor markets to return to equilibrium, without a massive change in international policies: "The labour-power of a billion people has been expelled from the world system, and who can imagine any plausible scenario, under neoliberal auspices, that would reintegrate them as productive workers or mass consumers?"[216] By that measure, Freeman's argument seems sanguine. He argues that the world economy will now enter into a long period of rapid growth, centered on high rates of investment China, which will result in the absorption of global surplus populations as capital stocks rise. Freeman estimates that it will take "about three decades to restore the global capital/labor ratio to what it had been before China, India, and the former Soviet bloc entered the world economy."[217] In this chapter, I ask, is the world economy in the process of repairing the shock to the labor market, caused by the massive proletarianization of the world's population? I argue that, in fact, the world economy faces an implacable problem of global labor under-demand, in addition to its problem of labor oversupply.

This problem of labor under-demand derives primarily from the fact that most economies, the world over, are *deindustrializing*—that is, the manufacturing share of employment, in those economies, is falling. Thus, the industrial sector, which once absorbed a growing fraction of the workers either born in cities or expelled from the countryside, is no longer absorbing as much labor. In the high-income countries and in some low-income countries, industry is actually expelling labor (like the agricultural sector). In most other low-income countries, however, industrial employment is still growing, in absolute terms. Yet, since industry has failed to absorb labor

---

[216] Davis, "Planet of Slums," 27.

[217] Freeman, "The New Global Labor Market," 2.

in line with the growth of the overall workforce, its share of employment is still falling. These tendencies represent a major transformation in global employment patterns: between 1870 and 1950—and for some decades after that—the non-agricultural workforce divided more or less evenly, in the high-income countries, between industrial and service sectors (see Table 1.6). Now, in all countries, the non-agricultural employment structure has tipped decisively towards services. Service workers outnumber industrial workers, globally, by a two to one margin. In the rich countries, as well as in Latin America and sub-Saharan Africa, the ratio is four to one. In practice, that has meant the expansion of a vast reserve army of low wage service workers, as well as, in the poor countries, of the informally self-employed (a substantial minority of these workers are employed in industry, inflating industrial employment numbers, see Table 1.8).

In this chapter, I tell the story of labor under-demand, as the story of how a seemingly unstoppable, global industrialization drive—gathering steam in the aftermath of WWII—furtively but then decisively tipped over into a global wave of deindustrialization, after only a few decades. Deindustrialization began in the US in the late 1960s, moving to Europe and Japan by the early 1970s. It then spread across the world in the 1980s and 90s. In many ways, the fate of postwar industry was similar to that of postwar agriculture: more and more producers entered the market; at the same time, levels of productivity and so also of productive capacity rose, across firms. Once markets saturated, output growth rates slowed, falling toward and, in some cases, even below rates of productivity growth. As a result, industrial employment growth slowed, stagnated, or went into reverse. As is the case in deagrarianization, deindustrialization is not a matter of falling levels of output. In fact, output continues to expand; however, since it expands at a slower pace than productivity, it is accompanied by a decline in manufacturing employment growth.

Yet, industry differs from agriculture in a key respect. In agriculture, Engel's Law limits the growth of output. When supply rises, that quickly tips the entire sector towards expelling rather than absorbing labor. That's because agriculture consists of only a small basket of goods, whose markets are quickly saturated. Output growth in agriculture is typically limited. Industry, by contrast, consists of an ever changing basket of goods, with new ones always added to the old. Output growth in industry thus tends to be faster, at least before deindustrialization set in. For that reason, over a long period of time, the industrial sector absorbed labor—although rarely without interruption—throughout decades of industrialization. Labor productivity growth was higher in manufacturing than in any other sector, with the postwar exception of agriculture; however, output growth rates were even higher, so employment growth rates rose to fill the gap. The postwar industrialization drive was called a "Golden Age", because it matched this pattern: it combined growing output, growing labor productivity, growing employment, and growing wages. Looking at that Golden Age gives us a sense of the overall growth rates that would have been required to absorb the global workforce that was being born or expelled from agriculture (of course, if the world had continued on that path, its present ecological troubles would be even worse than they already are).

As it turned out, the golden age was not sustained. It was self-undermining. In the late 1960s and early 1970s, growing production became overproduction, which spread like a plague across industrial lines. Output growth rates fell abruptly. Industry thus came to look more like agriculture, with productivity growth generally faster than output growth. The result was, in the first instance, deindustrialization in the high-income countries. It is often argued that the deindustrialization of the HICs has been caused or at least accompanied by the industrialization of the LICs. In what follows, I show that, since the LICs faced the same world market, they tended to

see the same tendential decline in labor demand in industry. At this point, all internationally tradable goods (both agricultural and industrial) are, on balance, facing the same problem of slow output growth and are expelling labor.

1. Import Substitution Yields Limited Results

In the middle the twentieth century, industrialization presented immense challenges to governments in low-income countries—many of which had won their independence only recently. That was not only because domestic firms found it difficult to compete with imported goods produced by high-tech firms in Europe and the US. Having achieved independence, states were able to raise tariff barriers or to impose quantitative restrictions, in order to protect local firms from outside competition. Still, once the home market was protected, domestic firms actually had to produce the goods that had previously been imported. The difficulty of achieving this goal was usually underestimated. According to Alexander Gerschenkron, late developers are supposed to benefit from the fact that "a backlog of technological innovations" already exists; late development is then a matter of getting hold of the blueprints—under the proper institutional conditions—and setting to work.[218] This is a feat that, in itself, already presents immense engineering challenges. But as it turns out, late development was more difficult even than that, for the "late late" industrializing countries of the middle of the twentieth century.[219]

By the mid twentieth century, industrial production was a complex endeavor. It involved many firms operating in concert, on massive scales. Indeed, many of the technologies in use in

---

[218] Alexander Gerschenkron, *Economic Backwardness in Historical Perspective: A Book of Essays* (New York: Praeger, 1962), 8.

[219] Albert O. Hirschman, "The Political Economy of Import Substitution Industrialization," *Quarterly Journal of Economics* 82, No. 1 (1968): 8.

the high-income countries were viable only when production was taking place in large volumes.[220] For example, it might be possible to make inexpensive steel, but only in huge quantities. There had to be a large market for steel, already in existence, before it could be produced cheaply. However, if steel was not already available at low prices, it would be impossible to produce cars and other consumer durables at economically viable prices. That, in turn, would limit the demand for steel in the domestic market. In essence, many industries must already exist and must already be producing in large volumes in order for the technologies they use to make sense, economically. In addition, modern production relies on an extensive infrastructure, which has to blanket an entire country: including electricity, road and rail networks, sanitation infrastructure, schools and universities, etc. For these reasons, it is very difficult to build a modern industrial apparatus from scratch even if one has all of the blueprints in hand (and even if one did have a reasonably strong institutional framework, for industrialization). Few of those blueprints would be useful during the decades-long, intermediary stages of growth.

High-income countries did not face such obstacles in the course of their own economic development. New technologies came online in succession. In the late 19th century, countries in continental Europe, as well as the white-settler colonial states (the US, Canada, Australia and New Zealand), tried to catch up to the UK. But the income differentials they had to overcome were relatively small, compared to those that emerged later: per capita income levels in the US were 73 percent of those in the UK, in 1870. Fifty years later, the high-income countries had grown much richer, and the infrastructures required for industrial production had grown much more complex and interdependent. The gap between high and low-income countries opened up

---

[220] Robert C. Allen, *Global Economic History: A Very Short Introduction* (New York: Oxford University Press, 2011), 128ff.

considerably, making catch-up much more difficult. In 1870, per capita incomes in Mexico and Brazil were only 28 and 29 percent, respectively, of what they were in the US; by 1950, those percentages had fallen: slightly in the case of Mexico, to 25 percent, and substantially in Brazil, by 17 percent. Per capita incomes were even lower in India, China, Thailand and Egypt: in 1950, all had incomes less than one tenth of the level prevailing in the US.

In this context, low-income countries' tried to attain catch-up growth, guided by an industrial policy called "import substitution industrialization" (ISI). In 1950, low-income countries were integrated into the world market almost exclusively as exporters of primary commodities. The foreign exchange earned from those exports was used to finance the purchase of industrial goods, produced in the rich countries. According to the proponents of ISI, low-income countries could achieve catch-up rates of growth by raising barriers to the importation of finished industrial goods from the rich countries. They would use the foreign exchange earned via the export of primary commodities to import industrial machinery and intermediate inputs. These would facilitate the production of finished goods in the LICs, behind tariff walls. Eventually, ISI would also lead to the domestic production of machinery and intermediate goods, as well.

As is often pointed out, ISI replicated elements of the late development strategies pursued in rich countries, in the 1870s. Low-income countries put up tariff barriers, provided preferential financing, built transportation infrastructures (insofar as they were able) and increased spending on education (also insofar as they were able).[221] Governments in low-income countries did make a more conscious effort at industrial planning than their predecessors; states also owned industrial enterprises, outright. That was an important addition to the late-development repertoire: state-owned enterprises were able to ignore the fact that, since they lacked the requisite economies of

---

[221] See Allen, *Global Economic History*, 114.

scale, their businesses were generally unprofitable. However, there is another crucial difference between the late development strategies of the late nineteenth century and those of the mid twentieth, which is key for what follows. Governments in the low-income countries, in the 1950s, did not encourage the export of manufactures. Producing for export allows firms to overcome the limited scale economies afforded by domestic markets. But it does so only if international markets are expanding and if local firms can gain access to them. Governments in the LICs doubted the former.

In the early 1950s, when Raul Prebisch and the economists at the UN Economic Commission for Latin America laid out the basic framework of ISI, they did not anticipate that international markets would grow quickly, in the postwar era. They were responding to the economic conditions that had prevailed before. During the World Wars and the intervening Great Depression, world markets growth rates were unstable. LIC economies suffered when, during the Depression, commodity prices collapsed and industrial goods could not be imported (it was at this time that industrial firms began to come online in some low-income countries, in an *ad hoc* version of ISI). After 1950, developmentalists were aiming to insulate their economies from the vagaries of the world market. In addition, they wanted to achieve independence from their former direct or indirect colonial overseers.

(a) Rapid industrialization in the high-income countries

As it turned out—unlike in the 1930s and early 1940s—world markets expanded quickly in the years after World War II. Between 1960 and 1974, when growth rates were peaking, international trade expanded by 7.7 percent per year (Table 1). These rapid rates of growth were predicated on the success of the General Agreement on Tariffs and Trade (GATT), itself adopted in the context of the Cold War. The latter encouraged a tighter integration among capitalist

economies, under the watchful eye—and often under the thumb, as well—of the US security state. LICs ended up insulating themselves from a booming trade in manufactures, which mostly took place among already rich countries.

Table 1. Growth Rates of World Output and Trade, 1960-2009 (annual percent growth)

	Output	Trade
1961-64	5.4	6.3
1965-69	5.6	8.4
1970-74	4.3	8.2
1975-79	3.6	4.4
1980-84	2.3	4.0
1985-89	3.8	5.5
1990-94	2.2	5.5
1995-99	3.2	7.1
2000-04	3.0	6.6
2005-09	2.2	3.3

Source: World Bank, World Development Indicators, various years

On account of that boom, high-income countries experienced an economic "Golden Age." For example, in France, between 1950 and 1973, output expanded by 4.8 percent per year. The Italian economy grew by 5.2 percent per year over the same period. The key to rapid growth in this era was certainly the rapid growth of manufacturing, which outpaced growth in the economy overall. In France and Italy, manufacturing output expanded by 6.6 and 7.5 percent per year, respectively (that is, 38 percent faster that total output in France and 44 percent faster in Italy). Because manufacturing was growing so quickly, its share of output rose. Thus, these economies industrialized, in terms of their output structures. In 1950, industry as a whole accounted for 25 percent of the French GDP; by 1974, that percentage reached what would turn

out to be its peak level: 32 percent. In Italy, the industrial percentage rose from 23 percent in 1951 to 32 percent, as well, in 1974.

This industrialization in terms of output was sometimes accompanied by industrialization in terms of employment. Manufacturing accounted for 23.6 percent of French employment in 1950. It rose meagerly to 25.5 percent in 1974 but did not fall. In Italy, this trend was more impressive: manufacturing's employment share rose from 20.0 percent in 1951 to a peak of 29.1 percent in 1979. To understand this trend more fully, it is necessary refer back to the decomposition of employment growth, from the last chapter: the employment growth rate is equal to the output growth rate minus the productivity growth rate. When one decomposes manufacturing employment growth according to this equation, one discovers that manufacturing productivity growth rates were very high: they rose by about 6 percent per year in both France and Italy, from the mid 1950s to 1973. Manufacturing productivity growth rates were only slightly below those achieved in postwar agriculture. One might expect that, as in agriculture, manufacturing employment levels would shrink rapidly, given high productivity growth rates. However, manufacturing employment levels rose (Table 2). That was because manufacturing output growth expanded at an even more rapid pace than productivity did: it rose by 6.9 percent per year, in France and by 7.7 percent per year in Italy. Manufacturing employment increased, as a result, by about one percent per year in France and 1.6 percent in Italy.

Table 2. Growth Rates of Manufacturing Employment, Productivity, and Output during Periods of Industrialization (percent), 1950-73

Country	Output	Productivity	Employment	Years
Denmark	4.7	3.4	1.2	1950-1970
France	6.9	5.9	1.0	1957-1973
W Germany	7.7	5.7	1.8	1950-1973
Italy	7.7	6.0	1.6	1953-1973
Spain	10.0	7.2	2.6	1957-1973
UK	3.3	2.6	0.8	1950-1966
USA	4.1	2.5	1.5	1951-1968
Japan	12.6	8.4	3.9	1954-1973

Source: GGDC, 10-Sector Database

Here is the key difference between agriculture and industry. In industry, Engel's Law does not apply. There is, therefore, no automatic limit to the growth of industrial output: rising incomes are associated with growing markets for manufactures. Industrial production benefits not only from this "income elasticity" of demand, but also from an additional "price elasticity" of demand. Productivity growth in manufacturing is high, relative to the rest of the economy. That differential is partially captured as falling relative prices, in industry. As goods become cheaper, the market for those goods expands. Meanwhile, more and more activities are drawn into the manufacturing sector: they are transformed into goods that can be produced in factories (e.g. washing clothes becomes a washing machine, driving a carriage and keeping a stable of horses becomes an automobile). Since more and more activities are really subsumed as industrial production processes, there is no fixed basket of goods in industry, as in agriculture. Instead, there is a growing basket; each good becomes cheaper over time.

(b) Mediocre industrialization in the low-income countries

Low-income countries saw employment-generating industrial growth during the ISI period, which I date from around 1950 to 1965 (in sub-Saharan Africa, it both starts and ends later). Detailed statistics going back to 1950 are only available for Latin American countries, where there has been substantial growth of industrial output and of employment. However, in Latin America, the manufacturing *share* of employment did not tend to rise by much, since total employment was also rising quickly. The exception here was Mexico, where manufacturing employment grew significantly, from 11.8 percent in 1950 to 16.5 percent in 1965. By contrast, in Brazil, the manufacturing share of employment rose by little more than one point, from 12.3 percent to 13.5 percent, over the same period. Results were similar in other Latin American countries: in Colombia, the manufacturing share of employment rose from 11.3 to 13.0 percent. In Chile and Argentina, which were already more industrialized, employment did not rise by much, either: in the former, from 19.2 to 20.5 percent, and in the latter, from 23.6 percent to 25.0 percent.

The problem LICs faced was that, inside their protected domestic markets, the growth of demand for manufactures was limited. World market demand was growing, rapidly; yet industrial firms in the LICs were not able to benefit from booming international trade in manufactures. Overvaluation of currencies was part of the ISI strategy: overvaluation acted as an implicit tax on traditional exports (meanwhile, it favored importers of industrial machinery and intermediate inputs). For the very same reason, it made manufactured exports uncompetitive. That did not appear to be a problem at first: low-income countries were already importing industrial goods when they raised tariff barriers against imports; some demand for industrial goods was thus already present in their domestic markets. It was simply a matter of substituting domestic production for

foreign production. However, in largely agrarian societies (as the LICs were), this pre-existing demand for industrial goods was relatively small. It was limited to a landlord class in the countryside and a small population of urban elites and government functionaries.

That created numerous problems as industrial drives were pushed forward. The lackluster demand for industrial goods, in low-income countries, was a symptom of a larger problem: inequality levels in LICs were high, having risen significantly in the colonial era. Nor did inequality levels fall during the post-colonial era, since, outside of East Asia, post-colonial states either refused or were unable to implement substantial land reform programs.[222] High levels of inequality acted as a brake on the growth of demand: most individuals, particularly in the countryside (where sixty to eighty percent of the population lived) were very poor: "participation in the money economy" was limited to a "small fraction of the population."[223]

Developmentalists expected that, as economies in low-income countries industrialized, more people would nevertheless be pulled into the modern sector as employees, stimulating the demand for industrial output. However, fewer people were pulled in than expected. In part, that was because "for late starters, the industrialization process tends to be more capital-intensive."[224] However, it was also due to the skewed nature of demand in low-income countries. Even before the start of ISI, demand came from the wealthy and from the state. It was skewed towards the sorts of goods that they tended to purchase. These were mostly capital-intensive rather than la-

---

[222] See Rehman Sobhan, *Agrarian Reform and Social Transformation* (New Jersey: Zed Books, 1993) and King, *Land Reform.*

[223] Thiesenhusen, *Broken Promises*, 14.

[224] UNCTAD, *Trade and Development Report, 2003* (New York: United Nations, 2003), 93-4.

bor-intensive manufactures: Cadillacs rather than bicycles, scotch rather than beer.[225] For these reasons, industry was less employment enhancing than it might have been, had it been oriented towards meeting the needs of the poor, who lacked effective demand.

Thus, growth rates tended to slow, once import substitution, in the strict sense, had ceased (that is, once pre-existing demand for industrial goods was fulfilled by replacing imports with domestic production). At that point, industrial expansion was dependent on the growth of domestic demand, which was more limited. Precisely because growth was constricted, owners of industrial firms tended to orient towards defending their market positions—which were based on substantial tariffs and other protections—rather than risking new investments. In the early 1960s, GDP growth slowed. In Brazil, where this tendency was most pronounced, per capita growth rates slowed from an average of 4.4 percent per year between 1952 and 1961, to 1.3 percent between 1961 and 1965.

2. Under Pressure to Promote Exports

Import substitution industrialization might have continued, in this less dynamic form, for decades. Scholars who focus on the later "neoliberal" period often suggest that it did, claiming that ISI remained in place until the debt crisis of 1982, when widely adopted structural adjustment programs forced LICs to open their economies to trade. The idea is that—on account of import substitution—the low-income countries had successfully insulated their economies from world-market pressures. Thus, they had to be forced to reintegrate into the world market. In this account, LICs' insularity was supposedly punctured by a double shock. First, the OPEC embargoes of 1973 and 1979 caused oil prices to spike. LICs had to borrow from external sources to

[225] To paraphrase King, *Land Reform*, 52.

cover the cost of oil imports. Then, in 1979, Volcker shock caused interest rates to rise. As a result, poor countries could not repay debts they had accumulated in the 1970s. That set off the debt crisis, which led to the IMF's fateful intervention into the economies of so many low-income countries.

Table 3. Manufactured Imports as a Share of Merchandise Imports (percent), 1965-85

Country	1965	1973	1985
Argentina	62	68	75
Brazil	50	65	38
Egypt	54	57	61
India	58	54	54
Indonesia	86	83	72
Israel	65	72	66
South Korea	52	56	57
Malaysia	52	64	72
Mexico	82	74	75
Morocco	47	56	42
Nigeria	80	84	75
Thailand	74	70	60
Tunisia	72	64	62
Turkey	74	79	54

Source: World Bank, World Development Indicators

In truth, ISI did not significantly reduce low-income countries' dependence on imports (table 3). It merely changed the *character* of LICs' industrial imports. Before ISI, low-income countries imported finished consumer goods. As ISI progressed, they reduced those sorts of imports. However, "intermediate and capital goods had to be imported, even if consumer goods could be eliminated."[226] Due to ISI, LICs also found that they needed to devote increasing quantities of

[226] Victor Bulmer-Thomas, *The Economic History of Latin America since Independence, Second Edition* (New York: Cambridge University Press, 2003), 276.

foreign exchange earnings to the payment of licensing fees, as well as to cover the repatriation of multinational's profits. The latter had been brought in by LIC governments to undertake industrial production behind tariff walls. In a sense, these transformations made countries adopting ISI more dependent on trade, rather than less. Before ISI, balance of payments constraints might reduce purchases of consumer goods; after ISI, the failure to import capital goods would shut down sections of the economy.

Taken another way around, the problem LICs faced was that it proved difficult for them to advance from "easy ISI," the production of finished goods from imported materials and machinery, to "hard ISI," the production of those materials and machines themselves. Part of the problem was technical: producing goods of high quality is a complex feat of precision engineering. But it was also an economic problem. As discussed above, advanced production techniques are only efficient under specific conditions. Input prices have to be low enough to make their use economical. Electricity, steel, and plastics all have to be available at low prices, in order to make consumer goods production economically viable. Firms throughout the economy have to achieve massive economies of scale, which were all but impossible to achieve in the constricted markets of LIC economies. For that reason, LICs were unable to complete the ISI process and actually reduce industrial imports.

LICs' failure to reduce their dependence on imports became problematic long before the 1982 debt crisis. Part of the justification for ISI was the Prebisch-Singer hypothesis, formulated in 1950, which argued that the prices of primary commodities tend to fall relative to the prices of manufactures. As we saw in the last chapter, that was true: terms of trade for primary commodities declined significantly, although not secularly, in the second half of the twentieth century. By 1971, agricultural food and non-food prices had fallen off of their 1951 peaks by 30 and 49 per-

cent, respectively (see Charts 3.2, 3.3 and 3.4). One study, which separated out tropical agricultural commodities, found that their terms of trade fell by 50 percent over the same period.[227] Thus, poor countries had to export more and more primary commodities in order to import the same number of manufactures. That made it especially difficult to increase or even to maintain imports, as well as to pay licensing fees and cover the repatriations of MNC profits. Nor could poor countries resolve their growing trade deficits by encouraging inflows of foreign direct investment; those were mostly taking place between rich countries.

Even though LICs had industrialized to some extent, by the early 1960s, their trade balances still depended, almost in their entirety, on primary commodity exports (table 4). Brazil continued to export coffee and cotton; Malaysia exported rubber, tin and wood; Turkey exported dates, cotton and tobacco; and Thailand exported rice, rubber and non-cotton fibers. In 1962, manufactures accounted for less than one-twentieth of exports in all of these countries. Only Mexico and India were substantially engaged in the export of manufactures (in India, these consisted of traditional textiles and rugs). South Korea appears to be another exception, with 18 percent of exports in manufactures. But South Korea exported very little: in 1965, South Korean exports were worth only one tenth of Brazil's, or half of Ghana's. The country mostly depended on US aid to cover its imports. In sum, the composition of LICs exports essentially remained unchanged from the colonial era, even if some countries had diversified into what were, for them, new primary commodities (that was a trend that only adding to the general tendency of agricultural prices to decline, in the face of growing overproduction). Under these conditions, declining terms of trade for primary commodities led to severe balance of payments crises, which became increasingly common as those terms of trade fell: "The lack of dynamism of exports, coupled

---

[227] Bilge and Ocampo, "Super cycles," 20.

with the need for rising imports, produced an almost endless series of balance-of-payments problems in the inward-looking countries."[228] Imports periodically had to be restricted.

Table 4. Main Exports, Selected Low-Income Countries, 1965

Country	Total (millions)	Main exports
Venezuela	2,894	Petroleum 92%, Iron ore 5%
India	1,691	Textiles, rugs, and tapestries 35%, Tea 14%
Brazil	1,595	Coffee 44%, Cotton 6%
Argentina	1,493	Wheat 25%, Meat 22%, Maize 10%, Wool 8%
Iran	1,303	Petroleum 87%
Malaysia	1,234	Rubber 39%, Tin 23%, Wood 7%
Mexico	1,006	Cotton 15%, Sugar and Honey 8%, Maize 8%, Coffee 7%
Philippines	766	Oilseeds and vegetable oil 31%, Wood 20%, Sugar 19%
Nigeria	737	Oilseeds and vegetable oil 30%, Petroleum 26%, Cocoa 16%
Chile	688	Copper 67%, Iron ore 11%
Indonesia	681	Rubber 44%, Petroleum 31%
Peru	666	Animal feed 24%, Copper 16%, Cotton 13%
Thailand	621	Rice 34%, Rubber 15%, Non-cotton fibres 9%
Egypt	604	Cotton 56%, Yarn and fabric 14%
Colombia	539	Coffee 64%, Petroleum 16%
Bangladesh	528	Jute 34%, Textiles 27%, Cotton 13%
Turkey	459	Fruit and nuts 23%, Cotton 22%, Tobacco 20%
Morocco	430	Fruits, vegetables and nuts 36%, Fertilizer 25%
Sri Lanka	409	Tea 62%, Rubber 16%
DR Congo	336	Copper 52%, Vegetable oil 8%
Ghana	292	Cocoa 72%, Wood 12%
South Korea	175	Clothing and fabric 27%, Plywood 10%, Fish 9%
Low-Income Countries	38,353	Percentage of world total 21%

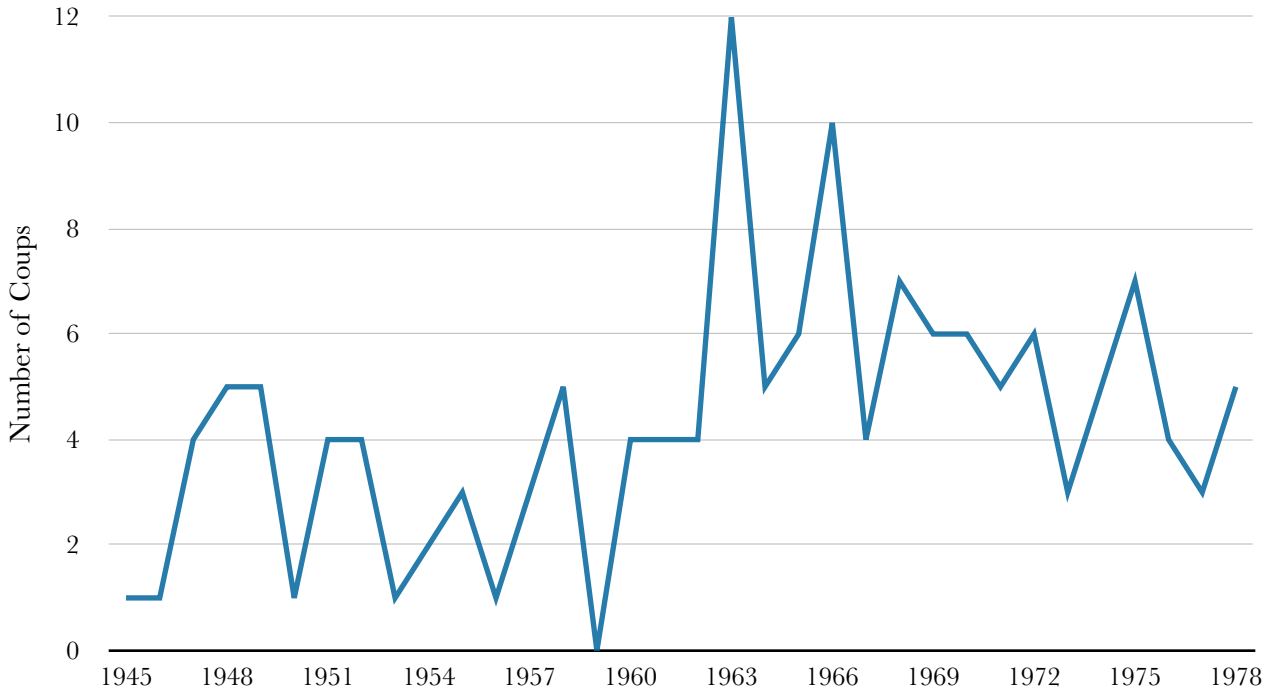
Source: UN COMTRADE database

These balance of payments crises came at a bad time, particularly in newly independent, post-colonial countries. Declining export prices hit small farmers particularly hard. Meanwhile, rates of population growth were peaking, across many regions in the low-income world. Families

[228] Bulmer-Thomas, *Economic History,* 276.

found that their good fortune—many surviving children—was becoming a burden, as it was difficult to support them. Now, in addition to everything else, the economy was growing only haltingly, rattled as it was by periodic restrictions on imports, which were increasingly necessary to keep new urban economies humming. Urban employment growth stagnated. Protests broke out, or intensified. In the mid-1960s, a wave of military coups swept across the low-income countries (Chart 1). They would become common, in the two decades that followed. It was in this environment that governments in some low-income countries—across Latin America, the Middle East and North Africa, and Asia—decided to alter their industrialization strategies, to promote the export of manufactures. In essence, ongoing overproduction in the agricultural sector pushed them into a new industrialization strategy, starting in the mid-1960s.

Chart 1. Successful Coups in the Low-Income World, 1945-1978



Initially, countries switching tacks to promote exports did so only as a means of resolving balance of payments problems. Governments devalued currencies and preventing them from

revaluing. That required an active policy orientation as well as capital controls.[229] This policy shift put states at odds with importers, who had benefited from overvalued currencies and other protections, but manufactured exports could not be promoted in any other way. At the same time, states waived tariffs on the importation of goods used by export industries. Some also opened export processing zones (EPZs), where goods could move freely in and out of a country, and businesses were exempted from taxes, as well as compliance with labor and environmental regulations. EPZs first opened in Taiwan and South Korea. However, crucially, no LIC governments removed capital controls, or import constraints.[230] In that sense, this policy shift differed significantly from the one that followed in the 1980s, when IMF and World Bank intervened to promote their own version of export-led industrial development: they advocated trade liberalization in order to "get prices right." In the mid 60s, LIC governments were not trying to get prices right, but rather, to get prices wrong—if differently than before—in favor of exporters.

This partial about-face in trade policies was not achievable in all countries. In India, it was difficult to secure a sustained devaluation of the rupee. When it was devalued in 1966, the government faced an immediate political backlash, in part because this move was seen as a slight to national pride. Meanwhile, in Brazil, policy changes in favor of export promotion took shape only after a military coup: the military took power in 1964, after President João Goulart came out in support of "base reforms" including "the extension of the franchise, land reform, and nation-

---

[229] For a fuller account of specific policy shifts, see G.K. Helleiner, "Introduction," in *Trade Policy and Industrialization in Turbulent Times*, ed. G.K. Helleiner (New York: Routledge, 1994), as well as the essays collected in that volume.

[230] G.K. Helleiner, "Introduction," 13-14.

alization of important resources."[231] Instead of implementing reforms, the military opted for the suppression of democracy and the peasant movement (as well as the labor movement) and then turned to export-led industrialization. A military coup also preceded the policy shift in South Korea. But there, newly installed president Park Chung Hee tried ISI for another few years, before leaping sideways in the direction of export promotion.[232] Of course, many coups took place in this period, and many were oriented towards renewing the development project. Only some of these new military regimes were associated with export promotion.

Yet, it seemed worthwhile, to some governments, to attempt this policy shift, in spite of the disruptions it caused. That was not only because their economies faced balance of payments problems. To this push factor was added the pull of the world market. International economic conditions had changed since the early postwar period. International trade in manufactures increased significantly, in the twenty years after WWII. LIC governments had tried to insulate their economies from markets that was now booming rather than shrinking. States realized that, if they could reorient their economies away from traditional commodity markets, where prices were falling, and towards manufactures—if they could capture a little slice of this growing trade—then they could solve their balance of payments problems. In fact, they might even be able to achieve catch-up rates of growth. Since their economies were so much smaller than those of the HICs, obtaining a small slice of growing international markets would result in rapid growth.

Yet the export promotion strategy faced immediate obstacles. It was difficult, if not impossible, for firms in low-income countries to compete with producers in the high-income coun-

---

[231] Gay Seidman, *Manufacturing Militance: Workers Movements in Brazil and South Africa, 1970-1985* (Los Angeles: University of California Press, 1994), 52.

[232] John Lie, *Han Unbound: the Political Economy of South Korea* (Stanford, California: Stanford University Press, 1998), 43-44.

tries, even when the former benefited from export promotion schemes. Firms in the HICs used the most advanced technologies and benefited from huge economies of scale. Their higher levels of labor productivity compensated for higher wages. Meanwhile, firms in the LICs were working with imported, outdated machinery. To make matters worse, many of the firms operating in the LICs were subsidiaries of multinational corporations in high-income countries. These multinationals had been convinced to operate behind tariff walls, producing for more or less captive markets in the LICs. They were unlikely to turn around and produce for export when that meant competing with their own parent companies. The one place where local firms might be able to compete was in markets for labor-intensive consumer goods. But in the early 1960s, these markets were still heavily protected, precisely in order to prevent infiltration by low-cost producers from other countries. As G.K. Helleiner noted in 1973, in the midst of this transition: "Only where there are powerful interests from the developed countries involved in this type of exporting is there likely to be much relief from the heavy protection now found in the markets of Europe and North America."[233]

Such difficulties overwhelmed the few countries that tried to transition too early. For example, in the 1950s, ISI ran up against its limits in the new semi-state of Taiwan: domestic markets had saturated and growth rates were declining. Meanwhile, even as "ISI was running down … foreign exchange controls acted as a disincentive to export."[234] With the help of US-AID, the Taiwanese government designed a reform package, meant to promote the garrison state as an

---

[233] G.K. Helleiner, "Manufactured Exports from Less-Developed Countries and Multinational Firms," *The Economic Journal* 83, No. 329 (1973): 28. That East Asian firms, through the intermediary of Japanese trading companies, were able to break through these barriers will be considered in a later study, as one of the keys to East Asian exceptionalism.

[234] Thomas Gold, *State and Society in the Taiwan Miracle* (Armonk, NY: M.E. Sharpe, 1985), 70.

attractive location for the low-cost production and assembly of goods, destined for foreign markets. This transformation in policy took place in the late 1950s and early 1960s. The Stanford Research Institute was contracted to study Taiwan's suitability as a site for different industries, while US-AID actively promoted the country's attractiveness to US multinational firms; yet, in spite of these efforts, "Taiwan's allure for FDI did not really emerge until global conditions matured in the mid-1960s."[235] As it turned out, the mid-1960s were a turning point in global economic history.

Between 1947 and 1965, the high-income countries experienced simultaneous and rapid economic growth, the "Golden Age" described above. Continental European countries and Japan did grow faster than the US and UK: technology transfers from the latter countries allowed firms in the former ones to construct new industrial enterprises using the latest techniques. Yet all of the rich economies, including the US and UK, grew quickly during those first couple of postwar decades, compared to later. Then, around 1965, the basis of this economic boom began to unravel. The catch-up economies of Europe and Japan had incubated industries that produced the same sorts of goods as US and British firms. Benefiting from undervalued currencies and low-wage labor—and now, having achieved the requisite economies of scale—these firms invaded the US domestic market:

> Until this point, the twentieth century US economy had been remarkably self-enclosed, a reflection of its superior competitiveness … But change came suddenly and dramatically from the mid 1960s. Between 1965 and 1970, manufacturing imports grew at an average annual pace of 19.1 percent … The manufacturing import penetration ratio, still averaging only 6.9 percent over the years 1959-66, grew to an average of 11.9 percent in 1966-69 and to an average of 15.98 percent in 1969-73.[236]

---

[235] Gold, *State and Society*, 77.

[236] Brenner, *Economics of Global Turbulence*, 113.

Here was the beginning of the end of the Golden Age. But the beginning of the end was not the end itself. US firms responded to the infiltration of the US domestic market by digging in their heels. They started to look abroad for countries with low wages and strong infrastructures, where they could launch a counter-attack: "Low-priced Japanese textile, plastic and electronics products" sent "American manufacturers scampering abroad in search of production sites with costs so low that they could compete with the Japanese in US markets."[237] Taiwan was one of the first countries where they set up shop, but it was not the only one to benefit from changed global conditions.The transformation that took place in Taiwan also took place in other low-income countries, across the world.

US firms started to produce labor-intensive components and perform final assembly in factories all over the world. Such factories churned out "semi-conductors, valves, tuners, and other components," sewed together "gloves, leather luggage, and baseballs," and assembled "braking equipment" and electronics.[238] In Mexico and Brazil, these operations took place in MNC-owned subsidiaries that were already operating in Latin America. Based on new economic incentives, recently put in place by LIC governments—and now facing existential threats from competitors entering the US market, as well—subsidiary firms pivoted away from LIC domestic markets and towards the US market: "although US controlled manufacturing subsidiaries produced in 1966-68 less than 10 percent of Latin American gross manufacturing value added, they accounted for over 40 percent of Latin American manufactured exports" at that time."[239] MNCs had previously imported second hand machinery into LICs, in order to produce for what were com-

---

[237] Gold, *State and Society*, 77.

[238] Helleiner, "Manufactured Exports," 29.

[239] Ibid.

paratively small domestic markets. Now, they import the latest models, which were geared towards the lowest-cost production of specific components for export.

Tabe 5. Imports under US Tariff Items 806.30 and 807.00 (in millions of dollars), as well as Growth Rate (percent), 1966-1980

Year	807.00	806.30	Total	Growth
1966	890	63	953	Rate
1967	932	104	1035	8.6%
1968	1432	122	1554	50.2
1969	1646	193	1839	18.3
1970	2004	204	2208	20.1
1971	2566	199	2766	25.3
1972	3091	318	3409	23.2
1973	3785	463	4247	24.6
1974	4828	544	5372	26.5
1975	4708	455	5162	-3.9
1976	5248	474	5722	10.8
1977	6723	465	7189	25.6
1978	9337	398	9735	35.4
1979	11559	379	11938	22.6
1980	13762	237	13999	17.3

Sources: Imports under items 806.30 and 807.00 of the tariff schedules of the United States, 1984-87 (1988)

NOTE: these are US imports of goods produced in the US but assembled abroad. These statistics do not include parts that were produced abroad and then imported into US.

On this basis, imports into the US that originated from LICs rose significantly. Many of these entered US markets under special tariff schedules. US Tariff items 806.30 and 807.00 partly exempted imports into the US from tariffs, if those goods were assembled from components produced in the US. Imports under these schedules grew almost fourteen times over, between 1965 and 1980, from just under one billion dollars to just under 14 billion (Table 5). Even that captures only a portion of the manufactured imports from LICs, occurring within the framework of MNC production (namely, those imports that consisted of goods produced in the US but as-

sembled abroad). Here was the beginning of the complex linkages that would come to be known, in later decades, as "global supply chains."

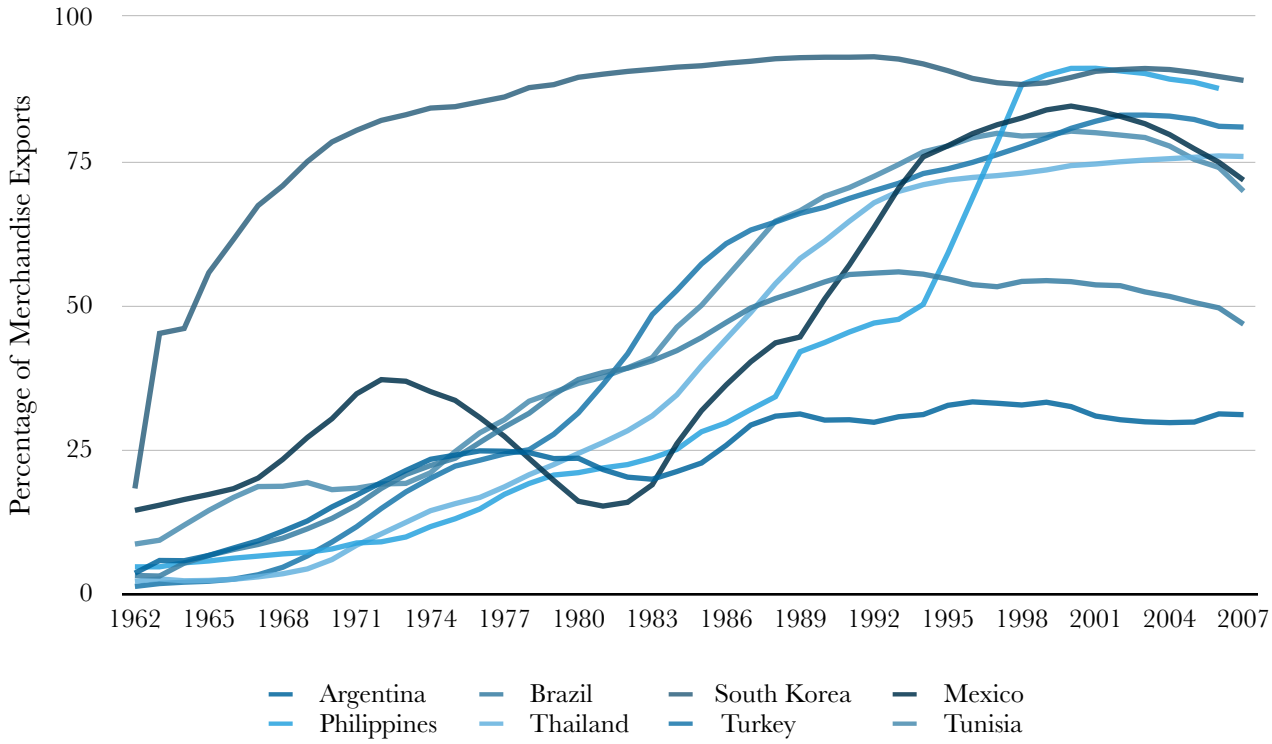
Other countries quickly copied the US in order to remain competitive. They were spurred on, not only by the need to find low-cost sites of assembly or component manufacture, but also by rising US trade barriers against their exports. Japan accepted so-called "voluntary export constraints" under pressure from the US; Japanese firms then went looking for new export platforms, especially in nearby countries with a geopolitical significance to the US.[240] Taiwan and South Korea signed normalization treaties with Japan, in 1965, under pressure from the US government (and under internal pressure arising from the limits of ISI).[241] They were then rapidly integrated into the Japanese export machine.

---

[240] For an account of this, within the textile industry, see Ellen Israel Rosen, *Making Sweatshops: The Globalization of the US Apparel Industry* (Berkeley: University of California Press, 2002), 50ff.

[241] These events are recounted in Lie, *Han Unbound*, and Gold, *State and Society*.

Chart 2. Manufactured Exports as a Percentage of Total Exports (5-Year Moving Average), 1962-2007



The result of rising competition between HIC firms in the late 1960s and early 1970s was a far-reaching transformation in the composition of exports, in low income countries. A rapid rise in manufactured exports, both absolutely and as a percentage of total exports, simultaneously took place across LICs spanning the entire world (Chart 2). In South Korea, as in Taiwan, manufactured exports rose especially rapidly, accounting for 84 percent of exports by 1973 and 91 percent by 1985. The shift in export composition was less complete in other LICs, but it was still substantial: by 1985, manufactures accounted for more than a quarter of exports in Malaysia and the Philippines, almost half in Tunisia and Brazil, and more than half in Turkey. This transfor-

mation took place more or less steadily after 1965 (except in Mexico, where it was less secular). In any case, it took place before the opening of IMF's Structural Adjustment Facility, in 1985.[242]

That this shift took place across regions and at the same time is suggestive of the global nature of the transformations underway. On the one hand, this shift responded to a pervasive situation of overproduction and over-competition in international agricultural markets, caused by the agricultural revolution of the postwar era and made worse by the workings of Engel's Law. These two forces pushed down agricultural prices, leading to balance of payments problems in LICs. In spite of partially industrializing, the LICs remained entirely dependent on the exports of primary commodities. In this context, governments in some LICs were able to switch gears, to promote the export of manufactures. However, the fact that some LICs successfully shifted their export composition at the same time cannot be reduced to the effect of national policy decisions. Those decisions were made in a specific international context, in some cases involving overt pressure from the US.

Export promotion policies were successful because, in the mid-1960s, international markets for manufactures were themselves entering a phase of heightened competition and tendential overproduction. This new phase was signaled by the rapid entry of low-cost manufactures into previously impervious US markets. On that basis, US firms went searching for even lower-cost locations, to perform labor-intensive manufacturing; European and Japanese firms were forced to follow suit. The meeting-up of LIC government interests with the needs of firms in the HICs led to a rapid transformation in LIC export compositions. As a consequence, *the fates of LIC economies*

---

[242] An important caveat is necessary, here: these transformations were partially an effect of relative price movements. As the terms of trade for agricultural commodities fell relative to manufactures, that would have been reflected in the value composition of exports (which probably shifted more significantly than the volume composition). However, that in itself pushed the real transformations that were taking place.

would now be tied ever more securely to the vagaries of the world market for manufactures, due to their growing reliance on manufactured exports.

This changed framework finally put some low-income countries on the road to catch-up rates of growth that western and southern European countries, as well as Japan, had taken in the early postwar era. Low-income countries benefited from one last burst of high-speed global growth. Between 1965 and 1969, world GDP grew at an average annual rate of 5.5 percent, faster than in any other five-year period over the past sixty years (see above, table 1). Global trade set a similar record, growing at 9.3 percent per year between 1969 and 1973. These were the final years of the postwar Golden Age, in the high-income countries. Now, some low-income countries experienced their own shorter "Golden Age." Miracle growth rates were achieved between the years 1965 and 1973. In Brazil, GDP per capita grew at 8.5 percent per year, between 1967 and 1973, faster even than Israel and South Korea, which grew at 7.7 and 7.6 percent per year, respectively (Table 6). Per capita growth rates in Tunisia, Algeria, Malaysia, Thailand and Indonesia were somewhat slower, but still faster than in the US, in spite of the fact that population growth in LICs was more rapid. These countries temporarily achieved catch-up rates of growth, as well. If these rates had been sustained, these countries would eventually have become high-income themselves (in fact, they were sustained only in East Asia and in Israel, a fact which I will consider more closely in a later study).

Table 6. Low-Income Countries with GDP per Capita Growth faster than the High-income countries Average (percent), 1968-73

Country	Growth Rate
Botswana	15.6%
Singapore	11.0
Nigeria	9.3
Iran	8.7
Brazil	8.5
Israel	7.7
South Korea	7.6
Dominican Republic	7.5
Puerto Rico	6.7
Hong Kong	6.7
Gabon	6.4
Indonesia	6.0
Tunisia	6.0
Zimbabwe	5.9
China	5.7
Kenya	5.6
Algeria	5.1
Malaysia	5.0
Costa Rica	4.7
Thailand	4.5
High Income Countries	4.1
United States	3.1

Source: World Bank, World Development Indicators

The global boom after 1965 did not only affect countries that were successfully transitioning to manufactured-export-led growth. Buoyed by Vietnam War, a commodity boom unfolded at that time. It affected metals more than agricultural goods, but terms of trade did stabilize for the latter. That took pressure off of the current accounts of many countries in sub-Saharan Africa. Following decolonization, those countries were able—on the basis of temporarily favorable terms of trade in the later 1960s and early 1970s—to undertake a partial industrialization, if

beginning from very low levels of industrial employment. Economies in Botswana, Nigeria, Zimbabwe, and Kenya all grew rapidly, but without a simultaneous transition in their export profiles.

Yet, even in spite of higher rates of growth, in some cases based in a boom in manufactured exports, a major transformation in employment structures did not take place outside of East Asia (see below, for a more detailed statistical portrait). In South Korea, the manufacturing employment percentage rose rapidly from 9.4 percent in 1965 to 22.9 percent in 1979, peaking at 28 percent in 1988. This shift was even more impressive in Taiwan: already standing at 16.3 percent in 1965, the manufacturing percentage rose to 33 percent in 1980, peaking at 35 percent in 1987. Like the city-states Singapore and Hong Kong, these two countries achieved levels of industrialization that were common in the high-income countries.

Other low-income countries were less successful. Mexico and South Africa were the two that came closest to replicating the East Asian pattern: in Mexico, the manufacturing employment share rose from 16.2 percent in 1965 to 19.3 percent in 1974—a surprising transformation since, in spite of its dynamic export sector, the Mexican economy experienced no miracle growth rates in this period. In South Africa, the manufacturing employment percentage rose from 15.2 percent in 1965 to a peak of 19.8 percent in 1976. Thailand also saw a some transformation in manufacturing employment shares, but starting from very low levels: the manufacturing share was 5.6 percent in 1965, rising to 9.6 percent in 1979. Elsewhere, manufacturing employment growth was limited: in spite of miracle growth rates, manufacturing employment share in Brazil was stable at 13.5 percent between 1965 and 1980 (rising slightly to 14.2 percent in 1970 and then falling back). In India, where there was no transformation in the export composition, the manufacturing employment share actually fell from 10.0 percent in 1965 to 9.1 percent in 1980. Manufacturing employment did grow in all of these countries but not by enough to compensate

for the growth of the overall workforce. Consequently, a growing portion of the workforce, exiting from agriculture, was ending up in the service sector. Even at this time, the service sector consisted for the most part of informal activities, although many people were also employed in civil service jobs.

I will explore the reasons behind the East Asian divergence, in a later study. For now, I simply note the proximal cause of East Asia's success in the late 1960s and early 1970s. In East Asia, local firms were able to take over entire, labor intensive industries: In its crucial early years, 1966-1972, South Korea's manufactured-export-led industrialization was based on a winning combination of just three of labor-intensive goods: clothing, wigs and plywood accounted for "close to one half of the total South Korean export of $622 million" in 1969.[243] South Korean and Taiwanese companies gained access to US markets for labor-intensive industries (as well as what were often highly polluting industries), by way of Japanese trading firms, which had been built up in the 1950s and steadily acquired growing access to US markets. They formed relations with US retailers, particularly in the southern states, which then benefited South Korean and Taiwanese firms. These East Asian countries also became important sites for the assembly of electronics.

Export-led growth outside of East Asia generally took a different form.[244] In Latin America, for example, manufactured exports mostly consisted of labor-intensive components, or the assembly of products from those components, taking place within the internal economies of

---

[243] Lie, *Han Unbound*, 69.

[244] For a detailed account of this distinction, see Gary Gereffi, "The Organization of Buyer-Driven Global Commodity Chains: How U.S. Retailers Shape Overseas Production Networks," in *Commodity Chains and Global Capitalism*, ed. Gary Gereffi and Miguel Korzeniewicz, 95–122 (Westport: Praeger, 1994).

large, multinational corporations. What was labor-intensive for these corporations was still capital- and skill-intensive from the perspective of LIC economies, given their overall lower levels of literacy and education. Moreover, since this production was mostly geared towards re-export to the US domestic economy—in context of a heightening competition between US MNCs and European and Japanese firms—MNC subsidiaries in Latin America tended to use the most up-to-date machinery, imported from the US. That, too, reduced the demand for labor. In large economies with large and growing workforces, the resulting boost in economic growth generated meager employment growth.

The period of rapid growth, which started in the mid-1960s, was then interrupted by the oil crisis in 1973. LICs that were able to weather the oil crisis did so in part because the transformation in the structure of their exports took some pressure off of their balances-of-payments. Moreover, backed by rising export levels, they were able to borrow dollars from international banks. These countries would continue to grow, and even to achieve catch-up rates of growth, for another decade. That was not true of all LICs: countries in sub-Saharan Africa, which remained dependent on traditional exports, did poorly when oil prices rose dramatically and agricultural prices collapsed in 1973/4. Industrialization ended early, for them.

3. The Onset of Deindustrialization

Yet, even before the first oil crisis, in 1973/4, the global boom of the late 1960s was taking place on a self-undermining basis. Firms from the US and other high-income countries had gone into the low-income world seeking opportune sites—that is, sites with low wages and strong infrastructures—from which to launch re-export operations. They did so as an expression of heightening global competition, which became ever more intense. That the boom in the high-in-

come countries had become a global boom was therefore a symptom of the fact that the era of high-speed growth was reaching its limits; it would not resume in later decades.

There were other symptoms of this transition, as well: concomitant with rising European and Japanese imports, the US trade surplus starting falling sharply, from 1965. In 1971, the US "experienced its first trade deficit of the twentieth century."[245] In response to the speculative attacks on the dollar that followed, the US government suspended gold convertibility. The stakes of the Bretton Woods agreements, which had undergirded the postwar boom, were pulled. This measure may have seemed temporary, in 1971: the Smithsonian Agreements effected a partial devaluation of the dollar against the German mark and the Japanese yen, at exchanged rates that were still technically fixed, even if convertibility was not restored. Two years later, these new exchange rates had to be revised, again. The US decided to allow the dollar to float. The international monetary order that had prevailed over the preceding decades was dismantled. Attendant on growing trade imbalances, the currency float resulted in a more substantial devaluations of the dollar: between 1969 and 1973, the mark appreciated by 50 percent against the dollar, while the yen appreciated by 28.2 percent, between 1971 and 1973.[246]

Dollar devaluations effected a sort of leveling of the playing field, in international competition: it partially undid European and Japanese firms' advantages. The mark and the yen had been undervalued at the start of the postwar era as a means of stimulating their economic recoveries. Undervaluation also served as an incentive to engage in trade: it encouraged European and the Japanese economies to produce for export. Growing trade meant a greater imbrication among countries in the "free world," orbiting around the United States in the context of the

---

[245] Brenner, *Economics*, 125.

[246] Brenner, *Economics*,128.

Cold War. By the early 1970s, this incentive could no longer be maintained, and in any case, its purpose had been served. The consequence of the dollar devaluation was to transmit the difficulties suffered by firms in the US to the rest of the HICs. Now, they all suffered the effects of overproduction in industry: industrial growth rates fell, and with them, overall rates of economic growth.

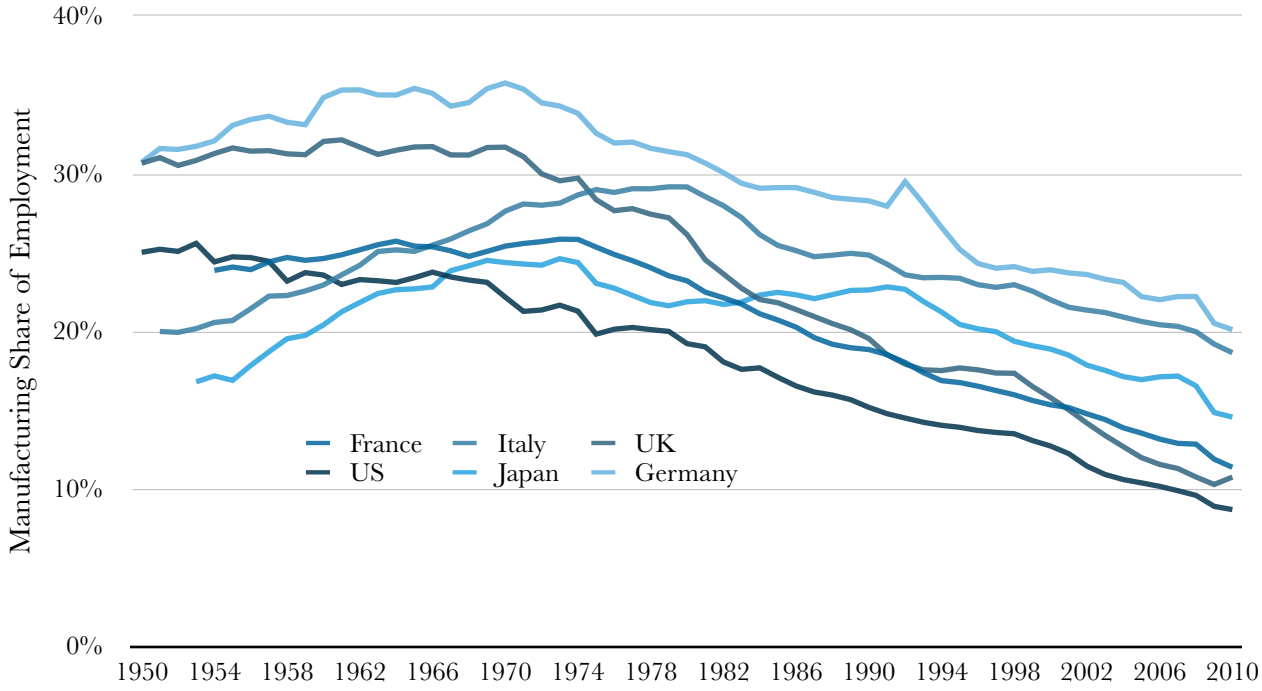
1973 thus marked another important turning point in global economic history. Indeed, economic growth rates after 1973 were substantially lower. In the US, this downturn was somewhat muted: GDP growth measured 3.9 percent per year between 1950 and 1973, falling by one-quarter to 2.9 percent between 1974 and 2000. The decline was more substantial in Europe and in Japan. For example, in France, growth rates declined by half, from 4.8 percent per year, 1950-73, to 2.4 percent per year, 1974-2000. In Japan, the downturn was even more severe. Growth rates averaged 8.4 percent between 1954 and 1973, falling by almost two-thirds to 3.0 percent per year, between 1974 and 2000. Some see the earlier period of rapid growth, from 1950-73, as an exceptional period: a few decades of abnormally high growth-rates followed a period of abnormally low growth rates, during the thirty years of war and depression that preceded the Golden Age. That growth slowed after 1973 would therefore represent a return to normality. But what era of normality, in the history of capitalism, saw decades of deindustrialization?

Table 7. Manufacturing Share of Employment in High-Income Countries (percent), 1950-2010

Country	1950	1960	1970	1980	1990	2000	2010
United States	25	24	22	19	15	13	9
Germany	31	35	36	31	28	24	20
Spain	—	19	22	23	20	18	13
France	24	25	25	23	19	15	11
UK	31	32	32	26	20	16	11
Italy	20	23	28	29	25	22	19
Netherlands	—	26	24	20	17	13	11
Japan	17	20	24	22	23	19	15

Source: 10-Sector Database, Germany after 1990 from BLS comparative; France 1950=1954, Italy 1950=1951, Japan 1950=1953

Chart 3. Deindustrialization in the High-Income Countries, 1950-2010



Deindustrialization unfolded across the high-income countries (Table 7). It began slightly earlier in the US. After remaining relatively stable in the 1950s and 1960s—although dipping, somewhat between 1956 and 1958—the US manufacturing employment shares began to decline, steadily, starting in the late 1960s. In the US, that share fell from 23.5 percent in 1968 to 19.4

percent in 1980. It then declined, sharply to 13.0 percent in the year 2000 (and even further in the decade that followed). Other HICs went down the same path. In the UK, the manufacturing employment share declined from 31.7 percent in 1970 to 25.6 percent in 1980, dropping off severely to 14.9 percent in the year 2000. In West Germany, that share fell from 35.8 percent in 1970 to 23.4 percent, in the reunited country, in 2000; in France, from 25.5 percent in 1974 to 15.0 in 2000. These trends were associated with sustained negative employment growth in the sector.

Turning to the formula for decomposing the rate of employment growth in manufacturing, one finds the following (Table 8; Charts 4-6). Negative employment growth in industry was not simply a matter of production moving offshore, as is sometimes suggested. Output growth rates declined, but they were rarely negative. In fact—outside of the UK—the trend was for manufacturing output to continue to grow, just at a slower pace than before. Production may have moved offshore, but not quickly enough to effect an overall decline in manufacturing output.

Table 8. Average Annual Growth Rates of Manufacturing Employment, Productivity, and Output during Periods of Deindustrialization (percent), 1974-05

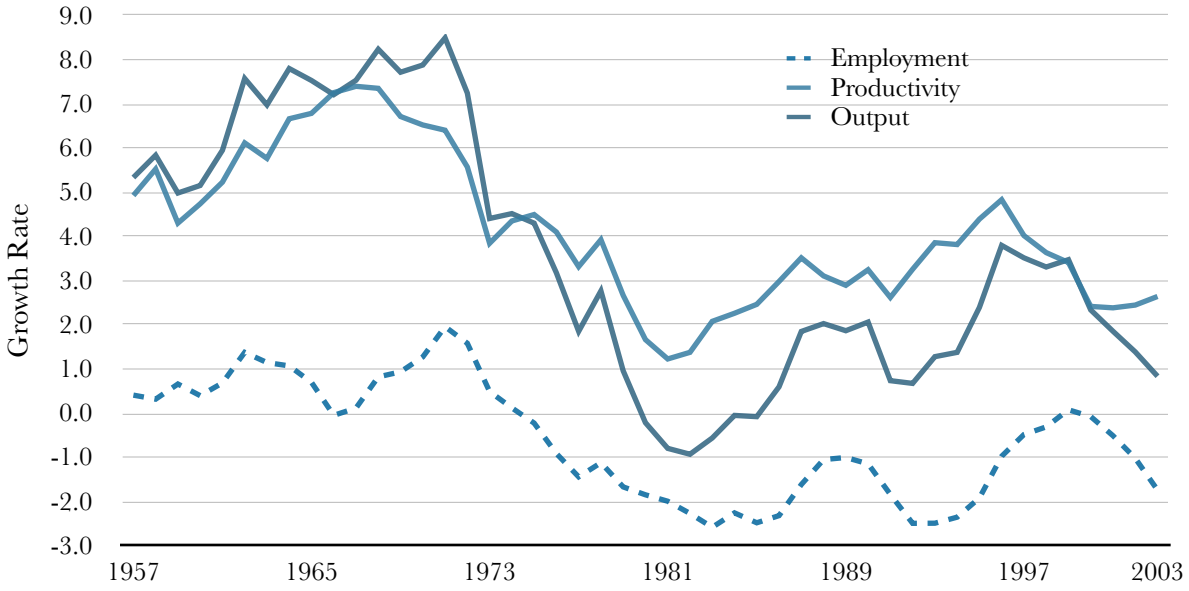
Countries	Output	Productivity	Employment	Years
Denmark	0.5	2.0	-1.4	1974-2005
France	1.5	3.1	-1.5	1974-2005
W Germany	1.8	2.1	-0.3	1974-1991
Italy	2.1	2.5	-0.4	1974-2005
Spain	2.1	1.9	0.2	1974-2005
UK	0.3	3.1	-2.5	1974-2005
USA	2.7	3.4	-0.7	1974-2005
Japan	2.7	3.6	-0.9	1974-2005

Source: GGDC, 10-Sector Database

Nor was deindustrialization the result of some new set of technological innovations, e.g. computerization, leading to a more rapid automation of the production process. In that case, one

would expect to see rising rates of productivity growth, which would have had to become so high that they overtook output growth rates. In fact, productivity growth rates did not rise. They continued to grow apace, in the US, while falling to some extent in Europe and Japan. In fact, deindustrialization was associated with declines in *both* output growth rates and productivity growth rates. However, the former fell more than the latter. As a result, output growth rates ended up below productivity growth rates, effecting an overall negative rate of growth of manufacturing employment.

Chart 4. Growth Rates of Manufacturing Output, Productivity and Employment (5-year Moving Average), in France, 1957-2003



These trends fit with a story about international overproduction and rising competition, in industry, as was also suggested by the history of HIC firms moving to LIC locations. Worsening international overproduction limited the growth of output, in any one region. Initially, this limitation was suffered exclusively by US firms. However, once the dollar was devalued against the mark and yen, these troubled were shared out among all high-income countries. At the same time, in spite of slower output growth, firms could not afford to reduce the pace of technical in-

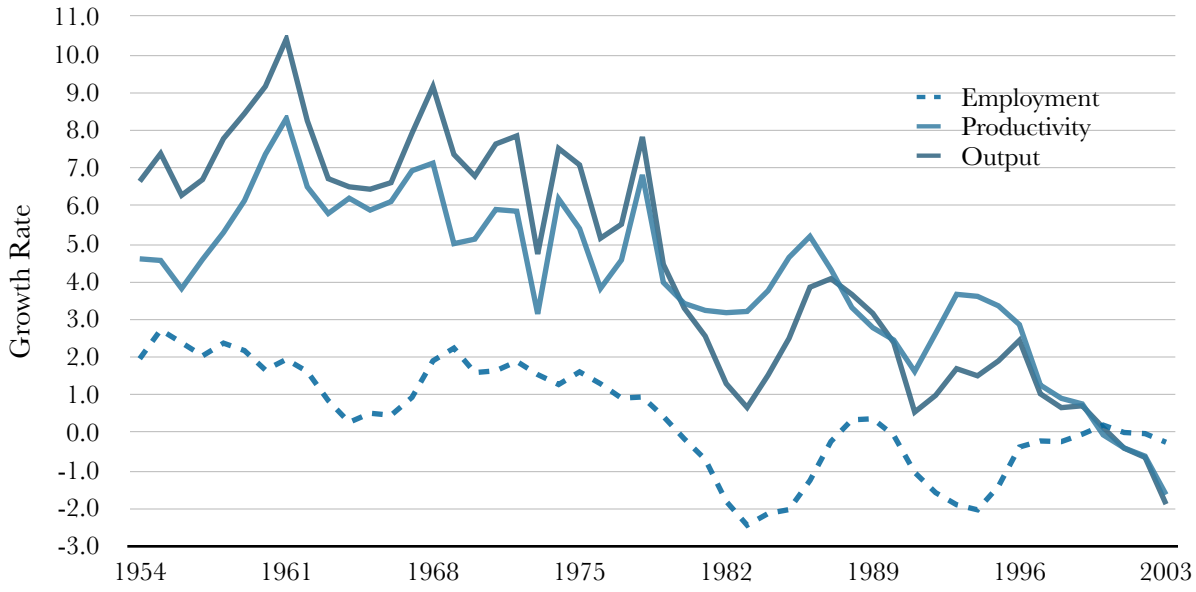
novation. In a time of heightened competition, it was imperative to reduce costs and thus to increase productivity as fast as possible (although, given slower rates of output growth, achieving high rates of productivity growth was becoming more difficult).[247] In this situation, for any one region to grow more quickly, others would have to see sharp reductions in output growth. That is precisely what happened in the late 1980s and early 90s, when the US forced its competitors to agree to a further devaluation of the dollar. On that basis, US manufacturing partially recovered, while German and Japanese industry experienced worsening crises. Before 1973, there had been space in international product markets for more firms to grow; simultaneous, rapid rates of growth were achieved across a number of countries. Increasingly, after 1973, industrial expansion became a "zero-sum game": "The advanced capitalist economies could not … escape the grip of a kind of hydraulic dynamic in which the export-based growth spurts of one major country or group of them, secured largely through the devaluation of its currency, found its counterpart in the manufacturing downturns and rapid rises in asset prices of those which revalued."[248] A similar "hydraulic dynamic" took place in the low-income world, as East Asian countries grew by taking market share from countries in other regions.

---

[247] That also provides some evidence against more recent theories of a decline in technological innovation. Actually, productivity is growing relatively quickly, given the decline in output growth rates. Productivity growth is itself partially the result of static and dynamic economies of scale, an effect of output growth as much as a cause.

[248] Brenner, *Economics*, 286.

Chart 5. Growth Rates of Manufacturing Output, Productivity and Employment (5-year Moving Average), in Italy, 1954-2003



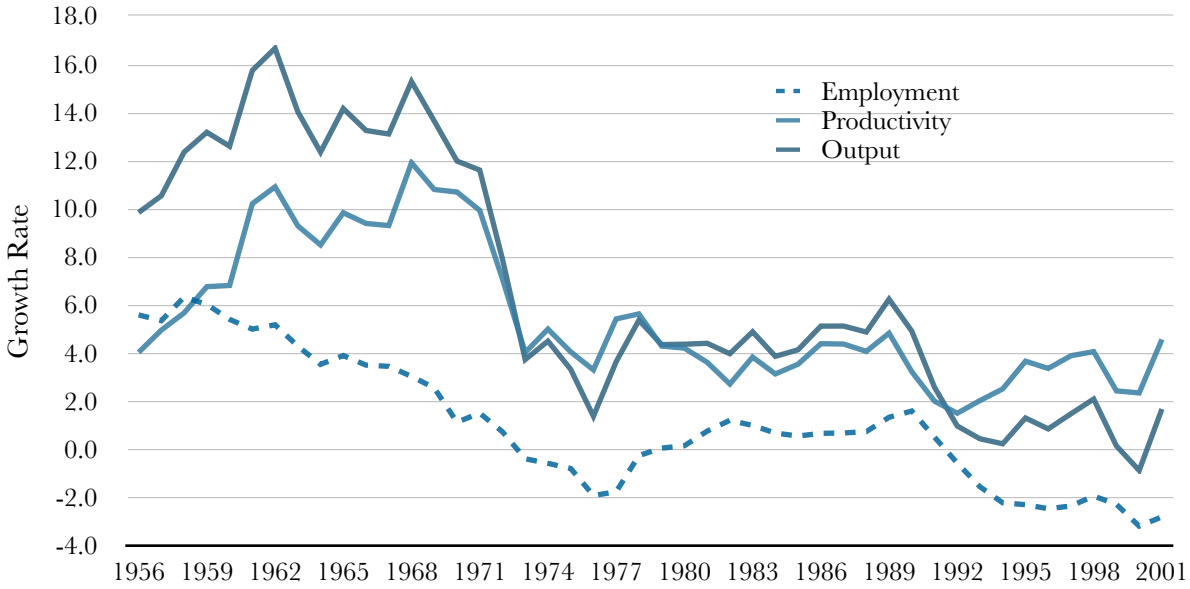
The story of declining output growth in manufacturing is sometimes told, not as a story about international competition, as rather, as a story about changing income elasticities of demand.[249] That is, it is described as an evolutionary trend, rather than a conjunctural one: upon reaching a certain level of GDP per capita, consumers supposedly reduce spending on industrial goods. In other words, further increases in income no longer generate outsized increases in the demand for manufactures. Instead, consumers increasingly demand services. What took place in industry would thus be similar to what had happened in agriculture, in decades prior. Some economic historians have tried to identify a turning point, in terms of the level of GDP per capita at which this transformation takes place.[250]

---

[249] See, for example, Robert Rowthorn and Ramana Ramaswamy, "Growth, Trade, and Deindustrialization," *IMF Staff Papers* (1999): 18-41, as well as Eileen Appelbaum and Ronald Schettkat, "Are Prices Unimportant? The Changing Structure of the Industrialized Economies," *Journal of Post-Keynesian Economics* (1999): 387-398.

[250] Victor Fuchs, "The Rise of Service Sector Employment," in *Services and Employment: Explaining the U.S.-European Gap*, ed. Mary Gregory, Wiemer Salverda, and Ronald Schettkat (Princeton: Princeton University Press, 2007), 44-5.

Chart 6. Growth Rates of Manufacturing Output, Productivity and Employment (5-year Moving Average), in Japan, 1956-2001



Such a turning point can be found, if one allows for a little suspension of disbelief and focuses solely on the high-income countries (Table 9a-d). Yet, even among these, some significant variation is be found in terms of GDP per capita levels at the start of deindustrialization. France and West Germany had relatively high levels of GDP per capita: 12,824 and 11,934 in 1990 Geary-Khamis PPP $ (GK$), respectively. Countries with relatively low levels of GDP per capita at the onset of deindustrialization include, for example, Spain with a GDP per capita of 9,068 GK$, that is 71 percent of the French maximum. The pattern can possibly be extended to Japan, and later, to South Korea and Taiwan, although the latter two countries, with GDP per capita levels of 7,621 and 8,598 GK$, respectively, are even lower than in Spain (South Korea had an income only 59 percent of French level). However, this theory does not work at all when extended to other low-income countries, where GDP per capita at the time of deindustrialization was usually less than half of what it was in France in 1973. In Brazil, for example, GDP per capita at

the onset of deindustrialization was 5,202 GK$; in South Africa, it was 4,480 GK$, that is, 35 percent of the French maximum level.

Table 9a. Deindustrialization and Levels of GDP/Capita, in High-Income Countries

Country	Deind.Begins	GDP/Cap	Peak.Emp	2010.Emp
Denmark	1962	9749	28.1	12.8
France	1973	12824	25.8	11.4
W Germany	1970	11934	20.1	20.1
Italy	1979	12064	29.2	18.6
Netherlands	1963	8795	26.4	10.5
Spain	1979	9068	23.6	13.1
Sweden	1961	9137	30.7	14.3
UK	1970	10767	31.7	10.7
US	1966	14134	23.8	8.7

Source: 10-sector database for manufacturing employment, Total Economy Database for GDP/Cap (in 1990 GK$ PPP), ILO for informality, Deind.Begins = year of peak manufacturing employment share, GDP/cap = GDP/capita in that year, Peak.Emp = manufacturing employment share in that year, 2010.Emp = manufacturing employment share in 2010, Informal = share of manufacturing employment that was informal, where available. In the UK, US, Argentina, Chile, and Colombia, there was a peak in an earlier year, but it was followed by a recovery, so the last peak is used.

Table 9b. Deindustrialization and Levels of GDP/Capita in Latin America

Country	Deind.Begins	GDP/Cap	Peak.Emp	2010.Emp	Informal
Argentina	1961	5862	27.2	12.0	42.9
Bolivia	2002	2551	14.0	13.4	81.7
Brazil	1986	5202	15.4	12.1	31.7
Chile	1973	5034	22.1	9.6	--
Colombia	1991	4840	13.6	11.2	54.7
Costa Rica	1992	5056	20.5	12.4	35.0
Mexico	1990	6085	20.0	15.6	42.9
Peru	1996	3594	13.6	8.9	66.6
Venezuela	1986	8725	16.7	9.8	39.9

Sources: See above, 9a.

Table 9c. Deindustrialization and levels of GDP/capita in Africa

Country	Deind.Begins	GDP/Cap	Peak.Emp	2010.Emp	Informal
Egypt	1995	2696	15.0	11.1	49.0
Morocco	1995	2490	18.7	12.5	--
South Africa	1981	4480	16.3	11.9	19.4

Sources: See above, 9a.

Table 9d. Deindustrialization and Levels of GDP/Capita in Asia

Country	Deind.Begins	GDP/Cap	Peak.Emp	2010.Emp	Informal
Hong Kong	1976	7906	45.3	3.9	--
India	2002	1997	12.5	11.6	87.1
Indonesia	1995	3374	13.5	12.1	56.5
Japan	1973	11434	24.6	14.5	--
Malaysia	1997	7955	24.9	17.7	--
Philippines	1971	1808	12.0	8.9	61.8
Singapore	1981	9450	30.4	17.8	--
S Korea	1988	7621	28.1	18.2	--
Taiwan	1987	8598	33.7	27.3	--
Thailand	2004	7740	14.9	14.1	21.2

Sources: See above, 9a.

Could it be that in each of these countries, the level at which people feel rich enough to stop purchasing so many industrial goods varies significantly? It seems more likely that the thesis of an evolutionary transformation in income elasticity of demand for manufactures is incorrect and should be rejected as an explanation of deindustrialization. The reason why GDP per capita levels were similar at the time of deindustrialization, in the HICs—while being wildly different, between the HICs and the LICs—has to do with timing. *Deindustrialization took place in the late 1960s and early 1970s across high-income countries that had recently seen their GDP per capita levels converge, strongly*. It makes sense that, since they began to deindustrialize at roughly the same time—with poorer countries holding out a little longer than richer countries, due to greater competitiveness—they would have had similar levels of GDP per capita, at the time of deindustrialization's onset. As we will see, the LICs deindustrialized only a decade or two later: theirs was part of the same global wave of deindustrialization, which was sweeping the world in the context of oversupplied markets for manufactures. With the exception of the East Asian tigers, these countries generally had not seen their GDP per capita levels converge with those of the leading economies. Their levels of GDP per capita at the time of deindustrialization were substantially lower. It was thus matter of a phenomenon occurring more or less globally and within a relatively short period of time, some twenty years.

There is an even deeper problem with the story about deindustrialization as an evolutionary phenomenon. If deindustrialization were simply a matter of a transformation in demand profiles—with demand switching from industry to services—then one would expect there to be no reduction in overall rates of GDP per capita growth, associated with deindustrialization. Instead, one would expect a shift in terms of the sectors that saw higher rates of output growth: services would see faster rates of growth, while those achieved in agriculture and industry would

fall or remain low. In fact, *declines in rates of manufacturing output growth were associated with an overall slowdown in rates of GDP per capita growth*, across economies in high-income countries (Table 10). In each G7 country, as well as across the high-income countries, there was a decade-by-decade slowdown in rates of GDP per capita growth, with growth generally slowing in each decade from the 1960s to the 2000s.[251]

Table 10. GDP per Capita Growth Rates in the G7 Economies (percent), 1961-2009

Country	1960s	1970s	1980s	1990s	2000s
France	4.4%	3.4%	1.7%	1.5%	0.6%
Germany	3.5	3.1	1.9	1.7	0.9
Italy	5.0	3.5	2.5	1.4	0.0
Japan	9.1	2.9	3.7	1.2	0.5
United Kingdom	2.3	2.3	2.3	2.4	1.3
United States	3.3	2.5	2.2	2.0	0.9
Canada	3.6	2.6	1.8	1.3	1.1
HICs	4.4	2.9	2.3	1.8	1.3
World	3.5	2.1	1.3	1.2	1.4

Source: World Bank, World Development Indicators, except Germany 1960s, from GGDC Total Economy Database

High rates of overall output growth were correlated with very high rates of output growth in manufacturing. When manufacturing output growth rates declined, so did GDP growth rates. By the 1980s and 1990s, service sector growth rates were generally higher than manufacturing growth rates. However, that is not to be explained by a shift in demand: in that case, one would have expected service sector growth rates to have risen from their levels in the 1960s and 70s, sustaining high rates of overall GDP growth. Instead, service sector growth rates fell, only by less than manufacturing growth rates. This slower deceleration in services can easily be explained by

[251] The exceptions were Japan in the 1980s, due to a massive property and financial bubble taking place there, and the UK in the 1970s-90s, due to the financialization of London.

the fact that services are generally non-tradable. That acted as a natural barrier to over-competition in global markets.[252]

This overall decline in economic growth rates eventually spelled doom for the economic miracles unfolding across the low-income countries. LICs had been able to achieve miracle growth rates in the late 1960s and early 1970s by taking a growing share of world markets that were themselves expanding rapidly. As growth rates in the high-income countries slowed down, that reduced world market growth rates: the high-income countries' economies were so large that their growth rates had disproportionate effects on world rates of growth. That could not but eventually have knock-on effects on low-income countries' economies. When industrial output growth rates fell in LICs, in the 1980s and 90s, that transferred the already ongoing crisis of overproduction from the HICs to the LICs. It is often thought that the deindustrialization in the HICs was a cause and consequence of the industrialization of the LICs. But really, what took place was a *global wave of deindustrialization*, caused by increasingly intense competition for slowly growing markets.

4. Deindustrialization and Structural Adjustment

That this wave was to be global was not immediately apparent in the 1970s. It is true that rapid growth in the LICs was temporarily undermined by two episodes of economic turbulence in the early years of the decade: first, the end of fixed exchange rates in 1971, and second, the oil crisis in 1973. However, in spite of these shocks—and even as growth rates started to fall significantly in the HICs—the LICs' economic boom powered forward. That was for two reasons. (1)

[252] Service sector growth rates also fell over this period, since, as I will show in a later study, the growth of the demand for services is largely dependent on the growth of income, originating from outside of the service sector itself.

The US initially responded to slowing growth by stepping up Keynesian counter-cyclical spending. That acted as a support for demand, and so also, for still rapidly-growing imports. And (2), as a side-effect of the oil crisis, some low-income countries were able to borrow in international markets to cover growing deficits, both of trade and of government spending. The source of this borrowing was an ongoing, global transfer of wealth to oil-exporting nations. "Petrodollars" made their way into international banks, which then found themselves badly in need of new international borrowers. Because these banks were willing to lend to poor countries—in need of dollars first and foremost to pay for oil imports—LICs were able to continue on with their export drives. Lenders assumed that global turbulence and slowing economic growth were temporary, having to do with the oil price spike, rather than signaling any deeper transformation in the structure of global markets for manufactures. They would prove very wrong, in the late 1970s and early 1980s. However, this lending also had a wider significance, for low-income countries.

Given how important this explosion in lending was for what followed, it is worth pausing to consider its origins. Those origins lay, not in the midst of the oil crisis, but rather earlier, in the 1960s. At that time, many governments in low-income countries were trying to encourage import substitution industrialization. As described above, they faced two main obstacles: on the one hand, effective demand for industrial goods was initially limited to the wealthy; on the other hand, as ISI progressed, the demand for industrial goods did not rise by much, due to constraints on the growth of employment in the industrial sector. There was one more obstacle that states faced, in attempting to encourage ISI. They were hampered by a lack of funding: that is, they lacked the tax revenues to support infrastructure-building and other developmental projects, since the wealthy elites generally refused to pay taxes on their wealth. Indeed, the wealthy in low-income countries generally had an "*adversarial* as opposed to cooperative relationship" with the tax-

collecting function of the state.[253] Consequently, state revenues tended to come from import and export taxes, as well as sales taxes, which fell disproportionately on the poor. The development of state-run enterprises was hampered by this lack of funding, across the low-income world. It was in this environment that, in the mid 1960s, Latin American states began to borrow money from international banks. At that time "the formation of the eurodollar market" created "a huge pool of international liquidity under the control of international banks and for which new borrowers had to be found."[254] Foreign banks set up branches in Latin America and invented new financial instruments, including syndicated loans and variable interest rates, to limit their exposure to risk. Those instruments played a key role in the lending storm of the 1970s and the debt crisis that followed.[255] For a time, however, they allowed Latin American countries—as well as other low-income countries—to sustain high rates of growth, through massive spending campaigns.

Why were international lenders so confident that their loans would be repaid? The key was that manufactured exports from low-income to high-income countries were rising. That gave LICs the foreign-exchange earnings they needed to repay ever larger loans. Lending was, therefore, based in the changed mode of integration of low-income countries into international markets, taking place since the mid 1960s. This lending relationship broke down in 1979-82, when, in the midst of a second oil price-hike—and in the context of rising rates of US inflation—there was a sudden about-face in US policy. Instead of supporting demand with a further increase in Keynesian spending, the US Federal Reserve shrank the money supply, causing interest rates to

---

[253] John Di John, "The Political Economy of Taxation and Tax Reform in Developing Countries," *United Nations University–World Institute for Development Economics Research*, 74 (2006): 10.

[254] Bulmer-Thomas, *Economic History*, 347.

[255] These instruments also played a large role in the financial crises of 2007/8.

rise rapidly. Under these conditions, one might have expected a recession in those low-income countries that were exporting to the US. But in reality, borrowing in these countries went into overdrive. There was a rapid accumulation of debt, at both the public and private levels. Since few avenues for productive investment were available, asset-price bubbles expanded rapidly. Inflation rates rose. Yet public utilities held down prices, in spite of inflation, in order to prevent domestic unrest among the poor. As a result, they accumulated massive debts. At the same time, there was massive capital flight. When Mexico announced that it was unable to repay its debts, in 1982, lending to LICs halted.

A debt crisis then swallowed much of the low-income world. Unsurprisingly—and following a well-established protocol for countries experiencing payments problems—LICs turned to the IMF for help. In order to handle the resulting increase in demand for its services, the Fund created a new program: the Structural Adjustment Facility, created in 1986, became the Enhanced Structural Adjustment Facility (ESAF) in 1987. The ESAF aimed at comprehensive reform, but it did so only by ignoring local specificities.[256] Many countries entered into arrangements with the IMF, and they tended to do so again and again. But ESAF policy prescriptions had a wider effect: in the 1980s and 1990s, it was increasingly the case that countries had to comply with IMF prescriptions to qualify for any sort of large-scale foreign aid, whether public or private. The Fund's package of reforms became the standard model of what all countries needed to do in order to integrate—or in the aftermath of a crisis, to reintegrate—themselves into the global economy.

---

[256] In 2005, the World Bank conceded that market mania had led it astray: "In retrospect, it is clear that in the 1990s we often mistook efficiency gains for growth. The 'one-size fits all' policy reform approach to economic growth ... proved to be both theoretically incomplete and contradicted by the evidence." World Bank, *Economic Growth in the 1990s* (Washington, D.C.: The World Bank, 2005), 11.

With time, the IMF and the World Bank became increasingly stingy with their funds, demanding ever more drastic reforms in exchange for loans. However, it soon became apparent that their neoliberal prescriptions were not working. The 1980s saw negative GDP per capita growth rates in sub-Saharan Africa and the Middle East, and zero per capita growth in Latin America. Those regions fell into a massive economic depression, with devastating human consequences. That debacle was followed, in the early 1990s, by the crippling shock-treatment of the former Soviet States. Shortly thereafter, a series of spectacular crises rocked some of the very countries that the IMF had characterized as model adjusters: Mexico in 1994, Russia in 1997, Brazil in 1998, and, as I described in the prologue, Argentina in 2001. These crises were clearly related to the vagaries of IMF-imposed trade and financial liberalization. After 1990, the flow of capital to the low-income world began to rise once again. Whereas in late 1970s, this flow had mainly consisted of lending from private banks, it subsequently included a large volume of portfolio investments. As trade liberalization caused imports to grow faster than exports, some LICs came to rely on inflowing portfolio investments to cover their growing trade deficits. The problem was that those inflows were so large that they tended to force up the value of developing countries' currencies, making their firms' products even less competitive relative to imports. Trade deficits thus expanded ever further, in a self-reinforcing cycle. At some point, this cycle went into reverse, leaving only devastation—and more adjustment—in its wake.

In short, structural adjustment was devastating for low-income populations. For that reason, the IMF and World Bank found themselves subject to a withering critique by the research wing of the United Nations. The UN has been a surprisingly persistent critic of the IMF and World Bank's policies, since the mid 1980s. UNICEF's *Adjustment with a Human Face*—a 1989 account of the human effects of austerity in the low-income world—was probably the first major

instance of this criticism.[257] UNCTAD's annual *Trade and Development Report* has certainly been the most consistent. The UN wanted to prove that, in the absence of IMF intervention, low-income economies would have continued to develop along a more or less normal path. Thus, its researchers needed to identify a set of policies that states could have implemented—in order to turn their situations around, in the aftermath of the debt crisis—had the IMF not prevented them from doing so. UN researchers focused on the deleterious effects of IMF-imposed reductions in public investment.

The UN had an easy target. The IMF and World Bank claimed that correcting state-induced market distortions was going to rapidly reorganize production. But the supply response to "corrected" prices was weaker than they had anticipated. This lackluster supply response was partly the result of macroeconomic disincentives: many countries' currencies were overvalued. But everywhere, firms faced an additional constraint. Structural adjustment forced states to cut back on public investment, even as they continued to produce a steady stream of payments to creditors. Strangling state finances was a key plank in the Fund's plan. As soon as the adjustment process began, states devalued their currencies, causing their external debts to balloon in size. High interest rates increased the weight of debt payments, while depressing the tax revenues from which those payments were generated. Privatization of state enterprises counteracted these pressures but generated only one-off increases in revenues. According to the IMF and the World Bank, forced reductions in public spending were supposed to encourage the expansion of private investment. But the latter was not forthcoming. In Latin America, investment fell from 25 percent

---

[257] Giovanni Andrea Cornia, Richard Jolly, and Frances Stewart, *Adjustment with a Human Face: Protecting the Vulnerable and Promoting Growth: A Study by UNICEF* (New York: Oxford University Press, 1989).

of GDP in the 1970s to 20 percent two decades later. In sub-Saharan Africa, it fell from 24 to little more than 17 percent.[258]

Researchers at the UN concluded that the ideologues of neoliberalism had neglected the "complementarity of public and private investment."[259] That complementarity had played a large role in the Third World's development between 1950 and 1980, and it continued to do so in the East Asian tiger economies after 1980. Neo-classical economists overlooked this factor in industrial development because their models simply assumed that the most rapidly growing capitalist economies would approximate the most "free" markets. In fact, *the snowballing efficiency of modern economies has required more planning over time*. Those economies are built on a foundation of roads and ports, electrical grids and water treatment plants, primary schools and universities—all of which are lacking in poor countries. Such public goods ensure a dependable environment for private investments. The same is true of public enterprises: in producing what private capital would not, they generate so-called positive externalities for the rest of the economy. It is indisputable that, in the course of the 1970s, developmentalism had come undone. Public and protected private-industries were indebted, mismanaged and overstaffed. But sprinkling the magic dust of the market over these firms, or simply bulldozing them to the ground, left the role they formerly played in the economy wholly unfulfilled.

Nevertheless, it was under these conditions that developing countries removed restrictions on imports and ended subsidies to domestic firms. Those firms were then summarily dropped into the ice-cold waters of the global cash nexus. It was a sink or swim moment, and most of

---

[258] UNCTAD, *Trade and Development Report, 2006* (New York: United Nations, 2006), 48.

[259] Ibid.

them fell like stones. The UN Commission on Trade and Development explained that, without public support,

> capital formation in most economies in Latin America and Africa was unable to keep pace with the increased need for productivity enhancement and technological innovation, which are basic requirements for the success of export-oriented development strategies. Consequently, they were ill-equipped to meet the challenges posed by opening up to international markets and exposing actual and potential domestic producers to international competition.[260]

The contrast with East Asian economies, which did rely on high levels of public investment, is frequently noted in this literature. That is no surprise: the IMF's biggest embarrassment came in the aftermath of the 1997 East Asian Crisis. The Fund saw the crisis as an opportunity to impose adjustment on East Asian countries that had previously avoided the IMF. To the disgust of the Fund's detractors, loans to the tiger economies carried stringent conditions, which bore no clear relation to the causes of the crisis. East Asian states rejected IMF-style adjustment and proceeded to weather the 2001-02 recession better than other regions.

In one respect, the UN was correct in its criticisms of the IMF: governments in many low-income countries had seen their finances severely constricted by the terms of IMF loan conditionalities, and that affected domestic firms' ability to compete in international markets. That being said, it is important to put states' lack of revenue into context. Governments in most low-income countries were chronically underfunded, long before the IMF intervened. They had low rates of taxation, and patronage-based bureaucracies absorbed what tax revenue they were able to collect. The IMF made these problems substantially worse, since IMF officials had arguably misrecognized the real source of the problem: the IMF blamed the state for mismanaging the economy, when really, the state's mismanagement was itself one symptom of the fact these states

---

[260] UNCTAD, *Trade and Development Report, 2006*, 49.

were suffering under very high levels of inequality. Elites whose wealth derived from the countryside played a disproportionate role in politics and obstructed development projects. The IMF ended up reinforcing the power of those elites. The East Asian states had set themselves apart, in terms of the capacity to collect taxes and spend them in a targeted way, before the 1980s debt crisis. Their tax capacities originated in substantial programs of land reform that were implemented in the early 1950s.

Table 11. Gross Domestic Investment as a Share of GDP (percent), 1970-2009

Region	1970s	1980s	1990s	2000s
East Asia	29	33	36	36
South Asia	17	21	23	29
Middle East & North Africa	27	27	26	26
Latin America	23	21	20	20
Sub-Saharan Africa	25	21	17	19
High Income Countries	25	23	22	20
World	25	23	22	21

Source: World Bank, World Development Indicators, various years

There is an additional problem with the UN's critique. Falling investment/GDP ratios were not limited to the low-income countries (Table 11). They began to fall in the high-income countries before the 1980s turn to neoliberalism. Falling investment/GDP ratios originate in the 1970s and track both falling rates of output growth in the HICs and deindustrialization. In most regions of the world—high and low income—these trends continued into the 1980s and 90s. For that reason, it makes more sense to see neoliberalism as a failed response to a global shift in the economic environment: global markets were increasingly beset by overproduction and overcapacity, in markets for both agricultural and manufactured goods. The IMF and World Bank hoped to resolve this situation by letting markets in the low income countries do their work, that is, shaking

out high-cost producers. But everywhere, letting markets do their work tended to bring on depression-like conditions, which were not followed by a new "Golden Age" of growth.

Indeed, looking at international markets in the 1980s and 1990s, one sees not a break from the past, but rather, continuity with it. The same trends continued to play out in international markets as before, forcing all countries to follow the sorts of policies that had already been adopted, by many countries, in the mid-1960s and early 1970s. First of all, that's because commodity prices continued to fall. Between 1980 and 2003, commodity prices bottomed out, falling much more than they had during the previous phase of price decline, from 1953-73 (see Charts 2.2-4). Thus, the consolidation in agriculture continued. The IMF had recommended that countries encourage growers to enter markets for non-traditional agricultural commodities, but so many producers did so that the result was a fallacy of composition: tiny markets for non-traditional exports could not support so many people trying to get out of traditional lines, and prices collapses in those lines, as well.

Since commodity prices continued to fall, ISI-type strategies became increasingly impossible to maintain. Countries that remain stuck in this mode—of exporting traditional commodities in order to develop a manufacturing base, which could then be used to start exporting manufactures—fall into a poverty trap. They became the world's heavily indebted poor countries. Most of these countries still rely on just a few traditional exports, whose prices are falling all the time. As a result, they have to export ever more commodities, in order to make payments on debts that are denominated in external currencies. Essentially, these countries are shut out of the world market: their shares of world trade have declined significantly, and they continue to fall further and further behind. That they are shut out of international markets shows the extent to which

older models of development really were drying up, just as the early proponents of ISI had theorized.

Consequently, all countries had to try to adopt policies of export-led development, in order to remain tied to the world market. They had to try to encourage the export of manufactures, somehow, in order to earn foreign exchange and thus to remain connected to a more slowly growing world market. All poor countries, therefore, had to follow the leaders—that is, those countries that had already made a transition to exporting manufactures, rather than primary commodities, starting in the mid-1960s and early 1970s. And so, in order to encourage exports, countries adopted export promotion schemes, or furthered programs that they had already started, in that direction. They also opened up EPZs, in an attempt to copy the East Asian countries that seemed to be developing the most quickly.

Yet, at the same time, it was becoming harder and harder to make the transition to exporting manufactures successfully, precisely because more and more countries were trying to do so (and in an environment in which demand was growing ever more slowly). The IMF and World Bank missed this fallacy of composition, as well. Based on what had happened before 1980, these two institutions expected that, after a period of adjustment, low-income countries would assume a place in a newly emergent international division of labor. Their manufactured exports growing, these countries would be able to repay their debts, even in the face of falling primary commodity prices. This perspective was based on an assumption, which turned out to be wrong. The IMF and World Bank assumed that, after the debt crisis, global rates of output growth would rise rapidly. They attributed slower growth in the intervening years (1973-1985) to external shocks, which the world economy had absorbed. *In fact, these were not external shocks, but signs of a transition.*

In fact, in the twenty years after the founding of the IMF's structural adjustment facility, the world economy grew at less than half the pace it had achieved during the Golden Age. The global, GDP-per-capita growth rate averaged 1.5 percent between 1986 and 2005, compared to 3.3 percent between 1961 and 1973. Crucially, slowdowns took place not only in countries that had undergone structural adjustment, but also in high income countries. Global output growth rates decelerated because, as industrial capacity came online in more and more countries—and continuous technological change made that capacity ever more productive—the rate of growth of manufacturing in each country tended to slow down. In high-income counties, before 1973, growth rates in manufacturing had generally been higher than those of other economic sectors. Afterwards, they were usually lower—and the same was true in the poor countries. Except in a few workshop countries in East Asia, industry no longer functioned as the driver of growth in the economy.

Between 1965 and 1973, a rapidly expanding world economy was able to accommodate the growth of all developing countries. The fact that some of those countries were more competitive than others did not seem to matter. After 1973, as manufacturing overproduction became an increasingly permanent condition, the rate of growth of the world economy slowed down. In fact, the world economy grew ever more slowly, decade by decade. In this changed environment, manufacturing competitiveness became the key to achieving high rates of growth. A given economy could only achieve high rates of growth by taking market share away from its competitors. It is thus no surprise that East Asia outperformed all other developing regions. In much of the developing world, competitiveness was hampered by a lack of resources, made worse by the imposition of structural adjustment. The result was deindustrialization, or at best, the stagnation of the

manufacturing employment share—in spite of a steady, ongoing exit from agriculture (Table 12a-d).

Table 12a. Manufacturing Share of Employment in Latin America (percent), 1950-2010

	Argentina	Bolivia	Brazil	Chile	Colombia	Costa Rica	Mexico	Venezuela
1950	24.5	8.1	11.5	19.2	11.3	10.8	11.8	10.5
1960	27.1	7.1	11.8	18.3	11.9	11.3	13.2	12.5
1970	23.5	9.3	13.3	20.1	14.3	13.3	18.0	14.6
1980	21.4	11.5	12.7	17.3	12.0	16.0	19.9	16.3
1990	17.8	8.5	14.7	17.5	13.2	18.9	20.0	15.2
2000	12.2	10.7	12.0	13.1	11.5	16.8	19.6	11.7
2010	12.0	13.4	12.1	9.6	11.2	12.4	15.6	9.8

Source: 10-Sector Database

Table 12b. Manufacturing Share of Employment in Africa (percent), 1950-2010

	Egypt	Morocco	South Africa
1950	—	—	—
1960	9.3	9.5	9.3
1970	14.2	11.4	13.3
1980	12.6	14.6	16.5
1990	13.8	15.7	14.7
2000	11.2	17.2	13.6
2010	11.1	12.5	11.9

Source: 10-Sector Database

Table 12c. Manufacturing Share of Employment in Asia (percent), 1950-2010

	Hong Kong	Singapore	Taiwan	South Korea	Thailand	Malaysia	Indonesia	Philippines
1950	—	—	—	—	—	—	—	—
1960	—	—	13.5	8.3	4.3	—	—	—
1970	42.7	22.0	20.2	13.6	5.4	9.9	7.9	12.0
1980	38.0	29.3	31.5	22.2	8.3	13.7	9.2	11.6
1990	25.1	28.6	30.8	27.4	9.8	17.7	11.6	10.1
2000	9.2	20.7	27.7	20.3	13.6	24.4	12.7	9.9
2010	3.9	17.8	27.3	18.2	14.1	17.7	12.1	8.4

Source: 10-Sector Database, Hong Kong 1970 = 1974, Taiwan and South Korea 1960 = 1963, Malaysia 1970 = 1975, and Indonesia and Philippines 1970 = 1971

Table 12d. Manufacturing Share of Employment in Asia (percent), 1950-

	China	India
1950	5.6	—
1960	11.9	9.6
1970	7.8	9.4
1980	13.8	9.1
1990	14.9	10.5
2000	14.5	11.4
2010	19.2	11.6

Source: 10-Sector Database, China 1950 = 1952.

Conclusion

According to many accounts of the origins of neoliberalism, poor countries were isolated from international markets before the debt crisis of the early 1980s: they were developing in their own way, according to the freely chosen policies of import substitution industrialization (ISI). ISI blocked the import of goods from rich countries, while increasing production of those same goods at home. Neoliberal structural adjustment is supposed to have intervened into this situation, based on a fluke of history: the 1979 Volcker shock caused interest rates to rise in poor countries, and that allowed the IMF to break open their economies, defeating ISI and forcing countries to adopt, instead, a policy of export oriented industrialization (EOI). The effect was to re-subordinate low-income countries' development to the needs of rich countries. I argue that this narrative is fundamentally incorrect, in certain key respects (which need not imply that IMF structural adjustment did not make economic prospects substantially worse; SAPs made them much worse). That's because the ISI strategy was already hitting a wall in the mid-1960s.

In spite of import substitution, poor countries remained heavily dependent on imports of capital and intermediate goods, if not of consumer goods, throughout the industrializing era.

That dependence became increasingly difficult to sustain in the face of a global decline in primary commodity prices. Overproduction in agriculture, which we have already encountered in previous chapters, made it difficult for countries to import manufactures, and thus to continue along the ISI path. In this environment, governments in the low-income countries had to find way to promote the export of manufactures. If they did not do so, they risked seeing their countries shut out of world markets—which also would have ended their industrialization drives. Thus, the decisive shift to manufactured exports was not so much policy-driven, as driven by changes in world markets. The same world market conditions also determined why this turn would be successful in the 1960s and 70s and also why it would prove so unsuccessful from the 1980s onward.

Those poor countries that successfully made the switch to exporting manufactures, in the 1960s, were able to so because, in that moment, US firms began to facing intensifying competition from lower-cost European and Japanese firms, which were now successfully infiltrating the US domestic market. US firms went out in search of sites with lower wages than those prevailed in Europe and Japan, for the production of components or for the final assembly of goods, in order to lower their overall costs. That helped the US level the playing field, for a time, but in the end, all countries, rich and poor, were mired in the same problem of industrial overproduction and intensifying competition, which had led to the switch in strategy, among high and low-income countries, in the 1960s.

Moreover, in spite of the fact that world markets for manufactures were increasingly oversupplied, these markets continued to see a stream of new entrants. Prices for agricultural commodities continued to fall even faster than prices for manufactures (at least until the 2003 commodity-price boom), thus making it logical for governments to try to promote the export of manufactures, in spite of the fact that those markets, too, were already oversupplied. The effect that

output growth decelerated in many countries, on a decade by decade basis, and *that tip the scales decisively towards deindustrialization*, as industrial output growth rates fell towards or below industrial productivity growth rates, causing employment growth to stall.

That was devastating for working people, everywhere: now industry, as well as agriculture, was either expelling labor or was not soaking up much of the labor that was entering the labor market. This excess labor was not easily absorbed by the service sector (for reasons that will be made clearer in a future study). Consequently, employment growth has been increasingly immiserating: it has involved stagnant wages and terrible working conditions, for many workers, even as per capita GDP levels continues to rise, although more slowly than before.

The high-income countries saw an increase in both levels of unemployment and in the length of spells of unemployment, as compared to what prevailed during the "Golden Age." In the US—and then increasingly also in Europe, where labor laws remained stronger for longer—workers were funneled into a low wage service sector. Less educated workers were hit severely; they face increasing insecurity, and in essence, no longer benefit from economic growth. Meanwhile, labor markets for educated workers are more and more oversupplied, resulting in underemployment and also rising insecurity (if still less so than for the others).

The same phenomena are taking place in low-income countries, but at lower levels of overall income and thus more severely. In the low-income countries, moreover, the turn to deindustrialization happened early in the industrialization drive, when the demographic transition and agricultural exit were still at an earlier stage in their unfolding (they have also been unfolding in a more extreme way, in many cases, due to the problems of "late" or "late late" development). That has massively increased the surplus population problem in those countries.

Surplus workers in the low-income countries could not immigrate away, as did, for example, an Italian surplus population in the late 19th century. Immigration to the rich countries of Europe, as well as to the "New World" of the US, has largely been blocked, in part because those countries are experiencing their own problems of labor oversupply (rather than undersupply, as did the US in the 19th century). The result is that surplus workers have no choice but to languish, to try to make whatever place they can, for themselves, in an economy that does not need their labor-power. The effect is visible, as I noted in an earlier chapter, even in terms of LIC urbanization rates: there are not enough jobs for those already in the cities. Consequently, the rural poor, who can find little work in the countryside, are nevertheless forced to remain there with little to do. In the end, the present situation in labor markets suggests a bleak future for workers. The surplus population problem is not only a problem of the oversupply of labor, but also, crucially, as I detail in this section, a problem of an underdemand for labor, having to do with overproduction in industry and a resulting tendency to deindustrialization.

Bibliography

Allen, Robert C. *Global Economic History: A Very Short Introduction.* New York: Oxford University Press, 2011.

Angus, Ian and Simon Butler. *Too Many People?* Chicago: Haymarket Books, 2011.

Anriquez, Gustavo and Genny Bonomi. "Long-term Farming and Rural Demographic Trends." Background paper for World Bank, *World Development Report 2008.* Washington, DC: World Bank, 2007.

Appelbaum, Eileen and Ronald Schettkat. "Are Prices Unimportant? The Changing Structure of the Industrialized Economies." *Journal of Post-Keynesian Economics* (1999): 387-398.

Aufheben. "Picket and Pot Banger Together: Class recomposition in Argentina?" *Aufheben* 11 (2003). Accessed December 25, 2014. http://libcom.org/library/argentina-aufheben-11.

Botwinick, Howard. *Persistent Inequalities: Wage Disparity Under Capitalist Competition*. Princeton, NJ: Princeton University Press, 1993.

Baumol, William J., Sue Anne Batey Blackman, and Edward N. Wolff. *Productivity and American Leadership.* Cambridge, MA: MIT Press, 1991.

Beitel, Karl. "US Farm Subsidies and the Farm Economy: Myths, Realities, Alternatives." *Food First Backgrounder* 11, No. 3 (2005).

Bell, Daniel. *The Coming of Post-Industrial Society: A Venture in Social Forecasting.* New York: Basic Books, 1999.

Erten, Bilge and José Antonio Ocampo. "Super Cycles of Commodity Prices since the Mid-Nineteenth Century." *World Development* 44 (2013): 14-30.

Bloom, David and David Canning. "Global Demographic Change: Dimensions and Economic Significance." *Population and Development Review.* 34 (2008): 17-51.

Brenner, Robert. *The Economics of Global Turbulence: The Advanced Capitalist Economies from Long Boom to Long Downturn, 1945-2005*. New York: Verso, 2006.

Brenner, Robert. "Property and Progress: Where Adam Smith Went Wrong." In *Marxist History: Writing for the Twenty-First Century.* Edited by Chris Wickham, 49-111. New York: Oxford University Press, 2007.

Bryceson, Deborah. "African Peasants' Centrality and Marginality: Rural Labor Transformations." In *Disappearing Peasantries? Rural Labor in Africa, Asia and Latin America.* Edited by

Deborah Bryceson, Cristóbal Kay, and Jos E. Mooij, 37-63. London: Intermediate Technology Publications, 2000.

Bulmer-Thomas, Victor. *The Economic History of Latin America since Independence, Second Edition.* New York: Cambridge University Press, 2003.

Bureau of Labor Statistics. "Most New Jobs." *Occupational Outlook Handbook.* 2014. Accessed December 25th, 2014. http://www.bls.gov/ooh/most-new-jobs.htm.

Byres, Terence J. "Paths of Capitalist Agrarian Transition in the Past and in the Contemporary World." In *Agrarian Studies: Essays on Agrarian Relations in Less-Developed Countries.* Edited by V.K. Ramachandran and Madhura Swaminathan, 54-83. New York: Zed Books, 2003.

Castley, Robert. *Korea's Economic Miracle: The Crucial Role of Japan.* New York: Palgrave McMillan, 1997.

Chappell, M. Jahi. "Shattering Myths: Can Sustainable Agriculture Feed the World." *Food First Backgrounder* 13, No. 3 (2007).

Charmes, Jacques. "The Informal Economy Worldwide: Trends and Character-istics." *Margin: The Journal of Applied Economic Research* 6, No. 2 (2012): 103-132.

Cleland, John. "The Effect of Improved Survival on Fertility: a Reassessment." *Population and Development Review* 27, Supplement: *Global Fertility Transition* (2001): 60-92.

Davis, Kingsley. "The World Demographic Transition." *The Annals of the American Academy of Political and Social Science* 237 (Jan. 1945): 1-11.

Davis, Kingsley. "The Theory of Change and Response in Modern Demographic History." *Population Index* 29, No. 4 (Oct., 1963): 345-366.

Davis, Mike. "Planet of Slums: Urban Involution and the Informal Proletariat." *New Left Review* II/26 (March/April 2004): 5-34.

Davis, Mike. *Planet of Slums*. New York: Verso, 2006.

Dignidad de los nadies. Directed by Fernando Solanas. 2005. Buenos Aires, Argentina: Cinesur, 2005. DVD.

Dixon, Chris. *The Thai Economy: Uneven Development and Internationalisation.* New York: Routledge, 1999.

Dyson, Tim. *Population and Development: The Demographic Transition.* New York: Zed Books, 2010.

Evenson, Robert E. and Douglas Gollin. "Assessing the Impact of the Green Revolution, 1960 to 2000." *Science* 300, No. 5620 (2003): 758-762.

Gardner, Bruce and Daniel A. Sumner. "US Agricultural Policy Reform in 2007 and Beyond." In *Agricultural Policy for the 2007 Farm Bill and Beyond*. Edited by Bruce Gardner and Daniel A. Sumner, 5-19. Washington: American Enterprise Institute, 2007.

Gerschenkron, Alexander. *Economic Backwardness in Historical Perspective: A Book of Essays.* New York: Praeger, 1962.

Food and Agriculture Association of the United Nations. *State of Food and Agriculture 2000.* Rome: FAO, 2000.

Freeman, Richard. "China, India and the Doubling of the Global Labor Force: Who pays the Price of globalization?" *The Globalist* 3 (2005). Accessed December 25th, 2014. http://www.japanfocus.org/-richard-freeman/1849.

Freeman, Richard. "The new global labor market." *Focus* 26, No. 1 (2008): 1-6.

Freeman, Richard. "What Really Ails Europe (and America): The Doubling of the Global Workforce." *The Globalist* (2010). Accessed December 25th, 2014. http://www.theglobalist.com/what-really-ails-europe-and-america-the-doubling-of-the-global-workforce/.

Friedmann, Harriet. "The Political Economy of Food: the Rise and Fall of the Postwar International Food Order." *American Journal of Sociology* 88, Supplement (1982): S248-S286.

Friedmann, Harriet and Philip McMichael. "Agriculture and the State System: The Rise and Decline of National Agricultures, 1870 to the Present." *Sociologia Ruralis* 29, 2 (1989): 93-117.

Fuchs, Victor. "The Rise of Service Sector Employment." In *Services and Employment: Explaining the U.S.-European Gap.* Edited by Mary Gregory, Wiemer Salverda, and Ronald Schettkat, 42-62. Princeton: Princeton University Press, 2007.

Gereffi, Gary. "The Organization of Buyer-Driven Global Commodity Chains: How U.S. Retailers Shape Overseas Production Networks." In *Commodity Chains and Global Capitalism.* Edited by Gary Gereffi and Miguel Korzeniewicz, 95–122. Westport: Praeger, 1994.

Gold, Thomas. *State and Society in the Taiwan Miracle.* Armonk, NY: M.E. Sharpe, 1985.

Grigg, David. *The Transformation of Agriculture in the West.* Cambridge, MA: Blackwell, 1992.

Grilli, Enzo R. and Maw Cheng Yang. "Primary Commodity Prices, Manufactured Goods Prices, and the Terms of Trade of Developing Countries: What the Long Run Shows." *The World Bank Economic Review* 2, No. 1 (1988): 1-47.

Harvey, David. *The New Imperialism.* New York: Oxford University Press, 2003.

Hazans, Mihails. "Informal workers across Europe: Evidence from 30 European countries." Background paper for *In From the Shadow: Integrating Europe's Informal Labor*. Edited by Jo-

hannes Koettl, Truman Packard, and Claudio E. Montenegro. Washington, DC: World Bank, 2012.

Helleiner, G.K. "Manufactured Exports from Less-Developed Countries and Multinational Firms." *The Economic Journal* 83, No. 329 (1973): 21-47.

Helleiner, G.K. "Introduction." In *Trade Policy and Industrialization in Turbulent Times.* Edited by G.K. Helleiner. New York: Routledge, 1994.

Hill, Ian E.J. "The Rhetorical Transformation of the Masses from Malthus's 'Redundant Population' into Marx's 'Industrial Reserve Army.'" *Advances in the History of Rhetoric* 17, No. 1 (2014): 88-97.

Hirschman, Albert O. "The Political Economy of Import Substitution Industrialization." *Quarterly Journal of Economics* 82, No. 1 (1968): 1-32.

Hobsbawm, Eric. *The Age of Extremes: A History of the World, 1914-1991.* New York: Vintage Books, 1994.

Hodgson, Dennis. "Orthodoxy and Revisionism in American Demography." *Population and Development Review* 14, No. 4 (Dec. 1988): 541-69.

International Labor Organization. *Women and Men in the Informal Economy: A Statistical Picture.* Geneva: International Labor Office, 2002.

International Labor Organization. *Women and Men in the Informal Economy: A Statistical Picture, Second Edition.* Geneva: International Labor Office, 2013.

Jütting, Johannes P. and Juan R. Laiglesia. "Employment, Poverty reduction and development: What's new?" In *Is Informal Normal? Towards More and Better Jobs in Developing Countries.* Edited by Johannes P. Jütting and Juan R. Laiglesia, 17-26. Paris, France: OECD, 2009.

King, Russell. *Land Reform: A World Survey*. London: Westview Press, 1977.

Kucera, David and Theodora Xenogiani. "Persisting informal employment: what explains it?" In *Is Informal Normal? Towards More and Better Jobs in Developing Countries.* Edited by Johannes P. Jütting and Juan R. Laiglesia, 63-88. Paris, France: OECD, 2009.

Lee, Ching Kwan. *Against the Law: Labor Protests in China's Rustbelt and Sunbelt.* University of California Press, 2007.

Lewis, Arthur. "Economic Development with Unlimited Supplies of Labour." *Manchester School of Economic and Social Studies* 22, No. 2 (1954): 139-191.

Lie, John. *Han Unbound: the Political Economy of South Korea.* Stanford, CA: Stanford University Press, 1998.

Livi-Bacci, Massimo. *A Concise History of World Population, Fourth Edition.* Malden, MA: Blackwell Publishing, 2007.

Marx, Karl. *Capital: A Critique of Political Economy, Volume 1.* New York: Penguin, 1976.

Mazoyer, Marcel and Laurence Roudart. *A History of World Agriculture: From the Neolithic Age to the Current Crisis.* New York: Monthly Review Press, 2006.

Mishel, Lawrence, Josh Bivens, Elise Gould, and Heidi Shierholz. *The State of Working America, Twelfth Edition.* Ithaca, NY: Cornell University Press, 2012.

Montgomery, Mark R. "The Demography of the Urban Transition: What We Know and What We Don't Know." In *The New Global Frontier: Urbanization, Poverty and Environment in the 21st Century.* Edited by George Martine, Gordon McGranahan, Mark Montgomery, and Rogelio Fernández Castilla. Sterling, VA: Earthscan, 2008.

Montgomery, Mark R., Richard Stren, Barney Cohen, and Holly E. Reed. *Cities Transformed: Demographic Change and Its Implications in the Developing World.* Washington DC: National Academies Press, 2003.

National Research Council. *Beyond Six Billion: Forecasting the World's Population*. Washington, D.C.: National Academy Press, 2000.

Naughton, Barry. *The Chinese Economy: Transitions and Growth.* Cambridge, MA: MIT Press, 2006.

Notestein, Frank W. "Population—The Long View." In *Food for the World.* Edited by Theodore W. Schultz, 36-57. Chicago: University of Chicago Press, 1945.

Oya, Carlos. "Large- and Middle-scale Farmers in the Groundnut Sector in Senegal in the Context of Liberalization and Structural Adjustment." *Journal of Agrarian Change* 1, No. 1 (2001): 124-163.

Pollin, Robert. *Contours of Descent: US Economic Fractures and the Landscape of Global Austerity.* New York: Verso Books, 2005.

Postone, Moishe. *Time, Labor, and Social Domination.* New York: Cambridge University Press, 1996.

Reardon, Thomas. "Global Food Industry Consolidation and Rural Agroindustrialization in Developing Economies." In *Transforming the Rural Nonfarm Economy: Opportunities and Threats in the Developing World.* Edited by Steven Haggblade, Peter BR Hazell, and Thomas Reardon, 199-215. Baltimore, MD: Johns Hopkins University Press, 2007.

Reardon, Thomas, Julio Berdegué, Christopher B. Barrett, and Kostas Stamoulis. "Household Income Diversification into Rural Nonfarm Activities." In *Transforming the Rural Nonfarm Economy: Opportunities and Threats in the Developing World.* Edited by Steven Haggblade, Peter BR Hazell, and Thomas Reardon, 115-40. Baltimore, MD: Johns Hopkins University Press, 2007.

Rosen, Ellen Israel. *Making Sweatshops: The Globalization of the US Apparel Industry.* Berkeley: University of California Press, 2002.

Rowthorn, Robert and Ramana Ramaswamy. "Growth, Trade, and Deindustrialization." *IMF Staff papers* (1999): 18-41.

Seccombe, Wally. *Weathering the Storm: Working-Class Families from the Industrial Revolution to the Fertility Decline.* New York: Verso Books, 1993.

Seidman, Gay. *Manufacturing Militance: Workers Movements in Brazil and South Africa, 1970-1985.* Los Angeles: University of California Press, 1994.

Sobhan, Rehman. *Agrarian Reform and Social Transformation.* New York: Zed Books, 1993.

Smil, Vaclav. *Enriching the Earth: Fritz Haber, Carl Bosch, and the Transformation of World Food Production.* Cambridge: MIT press, 2004.

Szreter, Simon. "The Idea of Demographic Transition and the Study of Fertility Change: A Critical Intellectual History." In *Population and Development Review* 19, No. 4 (Dec. 1993): 659-701.

Soares, Rodrigo R. "On the Determinants of Mortality Reductions in the Developing World." *Population and Development Review* 33.2 (June 2007): 247-287.

Tacoli, Cecilia, Gordon McGranahan and David Satterthwaite. "Urbanization, Poverty and Inequity: Is Rural–Urban Migration a Poverty Problem, or Part of the Solution?" In *The New Global Frontier: Urbanization, Poverty and Environment in the 21st Century.* Edited by George Martine, Gordon McGranahan, Mark Montgomery, and Rogelio Fernández Castilla. Sterling, VA: Earthscan, 2008.

Therborn, Goran. *Between Sex and Power: Family in the World, 1900-2000.* New York: Verso Books, 2004.

Thiesenhusen, William C. *Broken Promises: Agrarian Reform and the Latin American Campesino.* Boulder, CO: Westview Press, 1995.

UNCTAD. *Trade and Development Report, 2003.* New York: United Nations, 2003.

UNCTAD. *Trade and Development Report, 2006.* New York: United Nations, 2006.

UNCTAD. *Trade and Development Report 2012.* New York: United Nations, 2012.

UN-Habitat. *State of the World's Cities 2012/2013: Prosperity of Cities.* London: Routledge, 2013.

United Nations Human Settlements Programme. *The Challenge of Slums: Global Report on Human Settlements 2003.* London: Taylor & Francis, 2012.

United Nations, Population Division. *World Population Prospects: The 2012 Revision, Volume I: Comprehensive Tables.* New York: United Nations, 2013.

United Nations, Population Division. *World Urbanization Prospects: The 2014 Revision.* CD-ROM Edition, 2014.

Velásquez, Mario. "Unemployment Insurance: What to Do during Growth?", *ILO Notes on the Crisis* (2010). Accessed December 25, 2014. http://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/documents/article/wcms_limd3_24_en.pdf.

Weis, Tony. *The Global Food Economy: the Battle for the Future of Farming.* New York: Zed Books, 2007.

Wilson, Chris and Pauline Airey. "How can a homeostatic perspective enhance demographic transition theory?" *Population Studies* 53 (1999): 120.