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Premature deindustrialization and inequality

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Abstract

Purpose – The purpose of the paper is to determine why premature deindustrialization is occurring in many developing countries.

Design/methodology/approach – A theoretical structure for explaining premature deindustrialization is utilized. Then the comparative experiences of a number of developing countries are used to illustrate the operation of the theory.

Findings – The results indicate that increasing inequality among a number of developing countries has reduced the domestic market for labor intensive manufactured goods, resulting in stagnation in manufacturing. Also, the increasing inequality in developed countries has reduced international demand for labor intensive manufacturing. Thus developing countries have fewer opportunities to export labor intensive manufacturing.

Research limitations/implications – Data on inequality is limited and it is very difficult to determine causality. However, intuition indicates that causality is most likely bi-directional.

Practical implications – Strategies of economic development must concern themselves with the effects that increasing inequality will likely have on the development of labor intensive manufacturing.

Social implications – Social programs that bolster the purchasing power of poor families are likely to be important (social safety net). Broad-based agricultural growth will provide a basis for labor intensive manufacturing.

Originality/value – The originality stems from the linking of deindustrialization with rising inequality.

Keywords Development, Income distribution, Developing countries

Paper type Research paper

The process of economic development has always been closely linked with industrialization and, more specifically, manufacturing. In this process structural change has always been thought to play a crucial role. One can conceive of a developing country as being dualistic in nature with a low labor productivity sector, often called the traditional sector, and a high labor productivity sector, usually thought to be mainly made up of manufacturing. Thus development involves a shift of labor out of the former and into the latter with the share of manufacturing in GDP and employment growing rapidly. One can combine this with the idea that initially this growth in manufacturing would be labor intensive in nature, given the abundance (and therefore cheapness) of labor in many developing nations, and that an evolving comparative advantage in labor intensive manufacturing would result in a rapid growth of exports of such manufactured goods. The experience of East and Southeast Asia is often used to illustrate this particular process of economic development (Lin, 2003; Francks, 1992; James *et al.*, 1989).

Recently, however the feasibility of pursuing such a strategy of economic development has been brought into question. That is, it may no longer be possible for a country to achieve rapid growth and structural change via the rapid growth and export of labor intensive manufacturing. Rodrik (2014) has argued that manufacturing (as a share of GDP and employment) in many of today's developing countries is failing to rise to the levels achieved by East and Southeast Asia and may actually be declining long before today's developing countries have achieved significant growth and development (sometimes this is called premature deindustrialization).

This is considered to be important since history indicates that economic development and convergence to high standards of living has almost always involved a significant



amount of industrialization (Allen, 2011). So the question immediately arises as to why premature deindustrialization is occurring? Much of the current thinking seems to be focused on the supply side. Changes in the way goods are produced, resulting from rapid technical innovation, is altering the relationship between economic growth and development and manufacturing. For example, Baldwin (2011) has argued that dramatic changes in technology have led to an unbundling of the manufacturing process. Throughout much of recent history economic development involved a country engaging in a difficult process of constructing a supply chain eventually resulting in the production of a finished manufactured good. Thus the share of manufacturing in both GDP and employment would rise dramatically.

However, developments in technology have allowed the production process to become unbundled into different parts or elements. These different parts of the supply chain can now be located in different of the world where costs are lowest. Thus a less developed country can become home to only a particular part of the supply chain and thus manufacturing as a share of GDP may rise, but not to the extent that occurred in previous processes of industrialization.

Subramanian and Kessler (2013) point to another supply side factor that accounts for the lower share of manufacturing in GDP as the development process unfolds. They argue that since the 1990s the world has entered into a period of hyper-globalization. During this period trade in goods and services as a share of world trade rose dramatically. This rapid increase is somewhat surprising since transportation costs did not seem to dramatically decline. However, the cost of information and communications did decline significantly.

Part of the expansion of trade was the result of the fragmentation of manufacturing across borders, the slicing of the value chain discussed above. However, Subramanian and Kessler (2013) believe that one can also characterize this period as dematerializing globalization. That is, world growth has come to increasingly involve the trade in services. They characterize this as moving from “stuff” to “fluff” (tangibles to intangibles). Thus one would expect that manufacturing would decline in importance not just for developed, but also for developing nations. Again, this is a supply side phenomenon since it is the technological innovation in communications and information that make this possible.

Finally, another important factor, very simply, is that technological innovation has, over time, become increasingly capital intensive in nature. Thus tasks which in the past involved the application of significant amounts of labor are now being automated and mechanized. Thus an expansion manufacturing will result in slow growth in employment opportunities. Again this is a supply side phenomenon.

These supply side factors have obviously contributed to a change in the structure of production as economic development occurs. The purpose of this paper is not to deny that these factors have played a role. Instead, this paper will argue that demand side explanations have, until now, been ignored. That is, the composition of demand has altered as growth has taken place, reducing the relative demand for manufactured goods within developing nations and between developed and developing nations. The driving force in this change in demand composition is the dramatic rise in inequality. Very simply, as the distribution of income has worsened with economic growth, the composition of demand has shifted from manufactured goods to services, etc. The impacts of this process work through several channels. As the distribution of income in a developing nation worsens, the structure of demand shifts away from manufacturing and toward services and other types of goods and this leads to a decline in manufacturing production as a share of GDP (and a decline in manufacturing employment as a share of total employment). As the distribution of income in developed countries worsens, the composition of imports flowing into these countries also alters. Manufactured goods will decline in importance and thus opportunities for developing countries to produce labor intensive manufactured goods and sell them to developed

countries will be reduced through time. Thus as the world has become increasingly unequal less developed countries have found it increasingly difficult to expand manufacturing.

This paper will unfold as follows. The Section 1 of the paper will discuss the concept of deindustrialization and look at some data. It will also discuss why manufacturing is critical to the process of economic development. Section 2 will look at some theory concerning the relationship between inequality and the composition of demand. Section 3 will present some empirical evidence concerning this relationship. Section 4 will discuss the role of rising inequality in developed countries. Finally, Section 5 will focus on policy implication and provide a summary and conclusions.

1. Premature deindustrialization

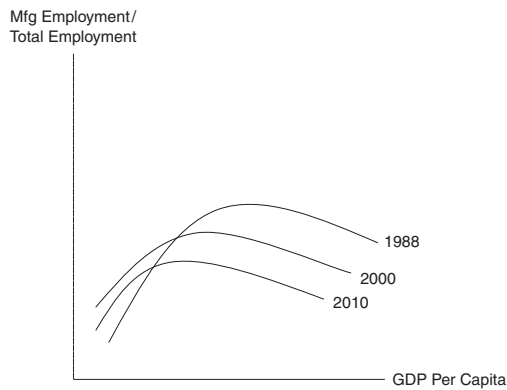
Relative deindustrialization (whether in terms of employment or output) is part of the typical process of structural change as economic development occurs. Initially most developing nations are dominated by agriculture so that the shares of agriculture in employment and production are both high, with the former exceeding the latter due to low labor productivity in agriculture. As economic development takes place, manufacturing tends to expand as a share of both GDP and employment while that for agriculture declines. Ultimately as development progresses manufacturing begins to decline and services expand in terms of shares of output and employment. Thus it would seem that relative deindustrialization is part of a successful development process.

The difficulty arises when deindustrialization occurs too soon with the result being that the labor intensive manufacturing stage is skipped. Is missing the manufacturing stage of economic development necessarily a bad thing? There are several reasons for thinking that this is indeed the case. First, structural change from agriculture to manufacturing usually results in productivity growth since labor productivity in the former is significantly less than the latter. This is the foundation idea for dualistic models of economic development (Lewis, 1954). Skipping this stage may mean giving up a substantial rise in overall productivity.

There is also a potential dynamic productivity loss to skipping the manufacturing stage. Rodrik (2013) has shown that unconditional convergence in labor productivity does tend to occur in manufacturing. That is, once a manufacturing sector is established, labor productivity in that sector tends to converge rapidly to that found in developed countries. Thus aggregate (economy wide) convergence generally fails to occur in many low income countries because manufacturing remains too small a share of the overall economy. Thus there is a dynamic gain in labor productivity that results from structural change involving a shift of labor from agriculture or other traditional types of activity into manufacturing.

There is evidence that premature deindustrialization in the relative sense or in the sense of a missed growth opportunity (both in a static or dynamic sense) has been occurring, in terms of recent historical experiences. One can visualize this by examining Figure 1 which is a stylized version of data presented by Subramanian (2014). It measures employment in manufacturing as a share of total employment on the vertical axis and GDP per capita on the horizontal axis. The relationship between these two variables is measured in 1988, 2000, and 2010. As can be seen, the relation between the two variables is an inverted U-shape for each of the time periods. However, there are two things to note. First, the peak of each curve declines through time. This means that the maximum share of manufacturing in terms of share of total employment has declined over time. Second, the level of per capita income at which employment in manufacturing as a share of total employment declines has itself fallen through time.

The experiences of a number of countries reflect the analysis presented above. In the postwar period, three countries stand out as experiencing “miraculous” rates of economic growth: Japan Taiwan, and South Korea. The paths of economic development followed by each of these countries were all different, but there were some characteristics common to all. All three began the development process with the bulk of its population involved in



Source: Adapted from: Subramanian (2014)

Figure 1.
Relationship between
GDP per capita and
manufacturing share

agricultural production and all three were natural resource poor. All three began their postwar development process with major land reforms which significantly redistributed land ownership. In addition, they experienced rapid growth in labor intensive manufacturing and their exports were, during the rapid growth phase, also increasingly dominated by manufacturing. As a share of GDP or value added, manufacturing in all three countries attained high levels, 30 percent or more at their peak. In terms of employment in manufacturing as a share of total manufacturing this peaked at between 25 and 30 percent for Japan, close to 25 percent for South Korea and close to 35 percent for Taiwan (Puga and Venables, 1996). The growth of these countries has also been characterized by a relatively equitable distribution of income (Stiglitz, 1996).

The rapid rise of China represents a more recent version of rapid economic growth and convergence. The beginning of this rapid process of catch-up is usually dated in the middle of the 1970s. Land reform had also occurred in China, several decades prior to the economic reforms that began in the 1970s. Initially, this rapid overall growth was driven by rapid agricultural growth combined with the growth of rural-based town and village enterprises (Bramall, 2000). Manufacturing rapidly expanded as a share of GDP and as a share of exports and initially much of this growth was in labor intensive manufacturing. Specifically, manufacturing as a share of GDP achieved its peak at around 40 percent in the early 1980s, but has declined since (WDI Indicators). However, manufacturing employment as a share of total employment peaked at around 15 percent in the mid-1990s. This was substantially less than that achieved by Taiwan, South Korea, and Japan during their periods of rapid economic growth.

Deindustrialization in both the relative sense and the sense that the stage of rapid growth in manufacturing has been skipped is clear in the case of Sub-Saharan Africa. Since the late 1990s, this region's growth rate of per capita income has risen substantially. However, it appears that premature deindustrialization is occurring. Data concerning value added, employment, and relative productivity by sector is presented in Table I. The data for value added and employment represents each sector's proportion of the total value added and employment. With respect to relative productivity levels, this represents the ratio of the sector's labor productivity to the total economy's productivity level. Thus a 0.5 for agriculture implies that this sector's labor productivity was half that of the entire economy. Examining the data one can see that agriculture has certainly followed the typical pattern in terms of structural change. Agriculture's share in value added and employment has significantly declined over time. However, labor productivity in this sector has lagged behind that of the rest of the economy.

When one focuses on the industrial sector several anomalies emerge. Looking at the industrial sector as a whole, the share of value added for this sector rises from 1960 to 1990. However, after that there is a decline. Examining manufacturing alone, one can see that this sector actually begins to decline after 1975. In terms of employment, shares in both industry and manufacturing rise until 1990 and then decline. Examining relative productivity, the productivity of industry is significantly greater than that found in the overall economy, but this advantage begins to decline after 1975 and manufacturing follows a similar pattern.

There are certainly supply side factors, discussed in the introduction, which play a role in explaining this early deindustrialization. However it will be argued in the next section that there is an important demand side factor that also plays an important role and it is connected with increasing inequality.

2. Demand and inequality

The work of Foellimi and Zweimüller (2011) provides a dualistic framework within which one can begin to think about the impact of inequality on premature deindustrialization. Actually, the model they develop is made up of three sectors: subsistence, mass manufacturing, and exclusive goods. The population is made up of two groups, poor and unskilled and rich and skilled. The poor work in the subsistence sector (producing food and/or traditional services), mass manufacturing, and the exclusive goods sector. The rich work only in exclusive goods production and mass manufacturing and they act as the entrepreneurs in terms of establishing these two types of production. Markets for these two goods are characterized by monopolistic competition. The production technologies for the two goods are identical, requiring only labor to produce goods.

A critical assumption is that consumer preferences are non-homothetic which implies that the income elasticity of demand for each of the goods will vary as income rise. More specifically, it is assumed that the rich consume only exclusive goods and the poor only mass manufactured goods. If the poor happen to be in the subsistence sector they produce and consume only the subsistence good. This is the mechanism by which the distribution of income influences the composition of demand.

The implications that are derived from the model are quite interesting. The demand for exclusive goods by the wealthy is less price elastic than the demand for mass manufactured goods (consumed by both rich and poor). Thus the mark-up on the exclusive goods is higher than that for mass manufactured goods. A change in the distribution of income will have effects on both production and employment in the two sectors. Assume that the distribution of income becomes more unequal, *ceteris paribus*. This will result in less demand for mass manufacturing and thus a decline in production and employment in this sector. Alternatively, it will result in an expansion in the production of exclusive goods and

Sector	Sectoral shares								Relative productivity levels			
	1960	1975	1990	2010	1960	1975	1990	2010	1960	1975	1990	2010
Agriculture	37.6	29.2	24.9	22.4	72.7	66.0	61.6	49.8	0.5	0.4	0.4	0.4
Industry	24.3	30.0	32.6	27.8	9.3	13.1	14.3	13.4	4.4	3.7	3.5	2.6
Mining	8.1	6.2	11.2	8.9	1.7	1.5	1.5	0.9	15.7	22.4	23.3	19.5
Manufacturing	9.2	14.7	14.0	10.1	4.7	7.8	8.9	8.3	2.5	2.8	2.4	1.6
Other Industry	7.1	9.2	7.3	8.9	3.0	3.8	3.9	4.2	8.5	5.8	5.3	2.9
Services	38.1	40.7	42.6	49.8	18.0	20.9	24.1	36.8	2.7	2.5	2.4	1.6
Total economy	100	100	100	100	100	100	100	100	1.0	1.0	1.0	1.0

Table I.
Sectoral shares

Note: Adapted from: de Vries *et al.* (2013)

employment in that sector. However, the contraction in the mass production sector will be greater than the expansion in the exclusive sector. This is because exclusive producers hire fewer workers and produce less output because mark-ups are higher (less elastic demand) and mass production sectors hire more workers and produce more output because mark-ups are lower (more elastic demand). The workers unable to find work after the change in the distribution of income return to the subsistence sector to produce food and traditional services. In summary, an increase in inequality leads to a decline in the proportion of output and employment in the mass manufacturing sector, an increase of both of these for the exclusive goods sector, and an increase in labor devoted to subsistence production.

The model outlined above is quite flexible. One can make the assumption that the exclusive good sector is less labor intensive. This might represent the technologically complex nature of exclusive manufactured goods. In this case, an increase inequality would cause even a larger decline in employment in the formal sector and a greater shift into the informal subsistence sector (or unemployment). The mass manufacturing sector would decline in terms of both production and employment.

The impact of increasing inequality on the subsistence sector is the result of labor being pushed out of mass produced manufacturing with the growth in exclusive goods insufficient to absorb the labor. As a result the surplus labor is pushed back into the subsistence sector. However, there is likely to be a pull factor at work here as well. Up until now it has been assumed that an increase in inequality leads richer individuals to purchase more of only the exclusive good. This assumption will be modified here so that when inequality worsens richer individuals spends more on subsistence sector goods as well as exclusive goods. They are not buying more food; instead they are buying more traditional services (servants, gardeners, tutors, etc.). This represents a pull factor. That is, greater inequality pulls more labor into services, which makes up an increasing share of the subsistence sector. Strong evidence supporting this, especially in Sub-Saharan Africa, is provided by the work of Gollin *et al.* (2013).

So the story told here is fairly straight forward. If one labels the mass production and exclusive goods sectors as being formal in nature while the subsistence sector is informal in nature, then an increase in inequality leads to a larger share of employment and production in the informal sector. Within the formal sector, greater inequality leads to a larger share of employment in exclusive good production and a smaller share in mass manufacturing. In the informal sector, it leads to a larger share of employment in traditional services. A number of additional implications can be drawn. If the modern sector represents total manufacturing, then the decline of this sector relative to the traditional subsistence sector represents deindustrialization with two types of costs. First, there is a comparative static loss as the low productivity traditional subsistence sector expands in relative size. Second, there is a dynamic cost since it is the modern sector which, according to Rodrik (2013), converges to higher productivity levels similar to those in developed countries and this sector is declining in relative size. Furthermore, in poor countries it may be the mass produced manufactured goods that are subject to the convergence process, not the exclusive goods. This is because the latter generally require skills not readily available in poor countries while the former are generally intensive in the use of labor, which is the relatively abundant factor in most developing nations. This will be assumed to be the case from this point on in this paper. In this context, the fact that mass produced manufactured goods shrink relative to exclusive goods implies an even a greater dynamic cost. It is thus highly unlikely that such a country could develop a comparative advantage in mass consumption, labor intensive, manufactured goods.

Alternatively, an improvement in the distribution of income implies that more spending is aimed at mass produced manufactured goods relative to exclusive goods and traditional sector services. Thus employment in and production of the former will rise relative to the

latter and total employment will rise in the modern sector relative to the traditional subsistence sector. Thus there will be a comparative static productivity gain and a dynamic gain. If the convergence discussed by Rodrik (2013) is more pronounced for the mass produced manufactured goods, then over time it is likely that the country will develop a comparative advantage in such goods and thus rapidly expand exports of such goods, especially if they are labor intensive in nature.

This model was constructed with the developing countries in mind. However, one could also apply the model to developed countries as well. In this case the subsistence sector is replaced by unemployment in which the unemployed are supported at subsistence by a social safety net. Thus the informal sector is now the safety net sector.

Assume that the country under discussion is a developed country (the subsistence sector represents the social safety net sector) and that the mass produced, labor intensive manufactured goods are imported from developing countries. The developed countries thus serve as the main market for mass produced manufactured goods produced in developing countries. Greater inequality in the developed country will lead to a shift in the composition of demand toward greater consumption of exclusive goods and away from mass manufacturing. The implication is that the developing economies will find that the market for mass produced, labor intensive manufactured goods in developed country is smaller than it would have been if income was more equally distributed within the latter country. This restricts the ability of developing countries to export these goods.

Alternatively, if inequality should decline in the developed country then the demand for mass produced manufactured goods would rise. If these are produced mainly by developing countries, this would imply that the market for such goods would grow rapidly. Thus developing nations would find that the opportunities for exporting labor intensive, mass produced manufactured goods would be rapidly expanding.

Accepting these theoretical arguments, one can tell the following story. The rapid growth of Taiwan, South Korea, and Japan (1950s to late 1970s, early 1980s) occurred during a period in which inequality among developed countries declined. Piketty's (2014) work shows, for example, that income inequality declined from the 1930s to the 1940s and remained relatively low until the late 1980s. The same pattern characterized much of Western Europe. In the theoretical context presented above this would imply that markets for mass produced manufactured goods in developed countries were growing rapidly thus providing opportunities for Japan, Taiwan, and South Korea to rapidly expand exports of these manufactured goods.

In addition to the above, the growth process in Taiwan, South Korea, and Japan resulted in a broad distribution of the benefits of rapid economic growth. Root and Campos (1996) characterizes growth as being "shared growth" and that this provided legitimacy for the political elite in all three countries. Much of the equitable nature of this growth process was the result of extensive land reforms that occurred in all three nations shortly after the end of Second World War. This meant that domestic demand in these countries for mass produced, labor intensive manufactured goods grew rapidly and with rapid productivity convergence these countries were capable of developing a comparative advantage in such goods. Thus these countries were able to take advantage of favorable demand conditions both domestically and internationally for labor intensive, mass produced manufactured goods.

However, dramatic change begins to occur in the late 1980s. As Piketty (2014) has shown, inequality in Europe and the USA begins to rise dramatically. Also, a number of large developing countries began to see inequality in the distribution of income rising as well (China, India, South Africa, Indonesia, and Argentina) (Alvaredo, 2011). In addition, in the 1990s the regions of the world which began to rapidly grow (Latin America and Sub-Saharan Africa) happened to be those regions in which inequality tended to be the highest.

If the model is correct, then the changes outlined above would have resulted in slower growth in sectors involved in manufacturing, especially mass produced, labor intensive manufactured goods. Thus the extent of such manufacturing as a share of GDP and manufacturing employment as a share of total employment would have declined for most per capita income levels and the peak level of manufacturing as a share of GDP and employment would have declined. This would also have been associated with the expansion in employment in traditional sector services. This is a result of changes in the distribution of income altering the composition of demand. But is there empirical evidence to support the model outlined above?

3. Some empirical evidence

General support for the model is provided in the work of Rydzek (2013). A reduced form estimation of the log of the share of workers in manufacturing is estimated for unbalanced panel of 65 countries for the years 1990-2010. Country and time fixed effects are incorporated for several estimations. The right hand side variable included GDP per capita, population, schooling, openness, and the Freedom House Index. Several measures of inequality are also utilized. All the estimates show that “more equality has a strong positive impact on the labor share in manufacturing as suggested by the model” (p. 16). The implication is that when inequality is high a lot of expenditures are directed at commodities which do not have significant employment potential and vice versa. Thus inequality would seem to be related to the extent of employment in manufacturing.

Rebeggiani (2005) examines the experience of Germany. In the endogenous growth model developed in the paper non-homothetic consumption preferences are assumed so that the income elasticity of demand for particular commodities will vary as income changes. Very simply, the idea is that with low income inequality there will be significant expenditures for goods requiring lower level skills. The income earned by these types of workers can then be used to enhance their human capital which in turn leads to or maintains lower inequality in the distribution of income. Alternatively, rising inequality raises the demand for technologically sophisticated goods requiring significant levels of human capital. The recipients of such income expand their accumulation of human capital and thus inequality is maintained or enhanced. Using a large data set including three household surveys of German households for 1993, 1998, and 2003, Rebeggiani (2005) finds strong evidence for a link between income distribution and the composition of demand. The share of expenditure for basic goods shrinks with growing inequality, while that spent on luxury goods rises.

Further evidence concerning the impact of inequality is provided by several country studies. Moustafa (2006) examines the effect of income inequality on the composition of demand and growth in Egypt during the time period 1980 to 2000. Initially (1959-1965) Egypt followed a Soviet style strategy of growth in which investment in industry was significant and industrial output grew at an annual rate of 6.5 percent. The share of manufacturing output in GDP increased from 17 percent in 1959 to 23 percent in 1965. During this time period the share of wages in agricultural and industrial income rose and inequality as measured by the Gini coefficient declined.

However, beginning in the 1970s changes began to occur as growth was accelerated by significant financial inflows stemming from oil revenues, foreign aid, and the earnings of Egyptian overseas workers. The share of manufacturing value added in GDP fell dramatically, so that by 2001 it was only 19 percent of value added. The share of the service sector increased to more than 50 percent of value added. By the year 2004 employment in the services sector represented 60 percent of the civilian labor force, while the industrial sector (manufacturing and extractive activities) employment fell to only 12 percent (Moustafa, 2006).

During this time period the distribution of income worsened considerably. Throughout the 1970s the share of the top 10 percent in total income increased in both rural and urban

areas, while the share of the bottom 50 percent declined. From 1980 to 2000 this trend continued so that by 2000 the share of the top 10 percent in total expenditures was 31.1 percent while the bottom 10 percent was 3.21 percent. Although transfer programs carried out by the Egyptian government sought to mitigate some of the effects of rising inequality, waste, corruption, and mismanagement resulted in much of those transfers and subsidies going to the non-poor (Moustafa, 2006).

One would expect alterations in the composition of demand as a result of rising inequality. Moustafa (2006) found that up until 1988 that gross national income and expenditures on manufactured goods rose in a parallel manner which seems to imply that the income elasticity of demand for manufactured goods was close to one. However, beginning in 1988 a gap develops between rising income and consumption expenditure on manufacturing, with the latter falling relative to the former. This implies a declining income elasticity of demand for manufacturing. He calculates the point income elasticity of demand for 1985-1909, 1990-1995, and 1995-1999. The result is that the income elasticity of demand for manufactured goods was 0.96, 0.65, and 0.28, respectively. This corresponds with the income share of the lower 40 percent of the population declining from 23 to 21.9 percent and finally to 18.7 percent.

Thus it seems that Egypt has gone through a period of premature deindustrialization. This has been associated with rising inequality and a falling income elasticity of demand for manufactured goods. Egypt also failed to develop a strong comparative advantage in labor intensive manufactured goods. However, expenditures on services rose over this time period. This seems to indicate that as the share of income going to upper income groups rose, an increasing amount was spent on services and this sector became a major employer. This is what the model in the previous section would predict to occur.

Additional support for the hypothesis of this paper is provided by the experience of Indonesia. With the rise of Suharto to power significant economic reforms occurred. An emphasis was placed on raising agricultural productivity and eventually promoting the rapid expansion of labor intensive manufacturing and the export of such goods. These policies were quite successful. Indonesia was fortunate in that during the years of early development it became a beneficiary of the Green Revolution. New rice varieties were developed at the International Rice Research Institute and these, with some modifications, were applied to rice production in Indonesia. The impact was quite significant. From 1967 to 1981 food producing agriculture grew at an average annual rate of 5.2 percent and by the first half of the 1980s Indonesia had achieved rice self-sufficiency.

Labor intensive manufacturing began rapidly expanding in the 1980s. This was connected to rapid growth in employment which averaged 7 percent annually from 1985 to the late 1990s. Manufacturing as a share of both total output and exports rose dramatically (Henley, 2012). In 1975 Indonesia's exports were dominated by oil, gas, and mining which were 75 percent of all exports. By 1990 this share had declined rapidly while exports of manufactured goods had risen to about 39 percent of all exports (Jacob, 2004). The service sector made up around 30 percent of GDP, but did not increase during this time period.

The rapid economic growth of the 1980s and 1990s had a significant impact on absolute poverty. The number fell from 40.1 percent of the population to 11.3 percent in 1996. This dramatic reduction occurred while the overall distribution of income as measured by the Gini coefficient remained relatively stable, around 30 (Yusuf *et al.*, 2013). Thus Indonesia was viewed as a country able to combine high economic growth, between the 1970s and late 1990s growth in GDP per capita averaged around 5 percent (Coxhead, 2014), rapid reductions in poverty, while maintaining a moderate degree of inequality. The key seemed to be the rapid growth of labor intensive manufacturing (a growing amount of exports as well) based upon rapid agricultural growth.

Thus during this time period in Indonesia inequality was relatively low. Economic growth initially led by productivity growth in agriculture led to significant growth in labor

intensive manufacturing. Eventually the convergence process outlined by Rodrik (2013) resulted in the rapid growth of labor intensive manufactured exports. Service sector growth in terms of employment was slow.

However, in the late 1990s Indonesia experienced a significant turning point. A financial crisis enveloped much of East and Southeast Asia. In Indonesia there was a significant drop in GDP, a significant devaluation, and increases in poverty. However, within a few years most of the economies in the region recovered from the effects of the financial crisis. Economic growth resumed and financial stability returned. However, the process of growth and development in the region altered significantly in character. Manufacturing became increasingly less important and inequality began to rise in much of the region.

In Indonesia growth in GDP per capita was negative in the late 1990s, but by 2007-2011 growth in GDP per capita had returned to approximately 5 percent (Coxhead, 2014). However, inequality began to increase through time. From 1990 to 2012 the Gini coefficient increased from 0.31 to 0.41, the highest ever for Indonesia. This increase was similar in both rural and urban areas, although the absolute size of the coefficient was lower in rural than urban areas.

Manufacturing's role in the growth and development process also changed. Table II presents data on the share of manufactured goods in value added, the share of manufactured goods to total exports, and the share of manufactured goods in total imports. As can be seen, prior to the financial crisis manufacturing was becoming increasingly important both in terms of GDP and in terms of exports. However, after the financial crisis these both begin a rather significant decline.

Another aspect to this change is that manufacturing employment also experienced dramatic changes. Since the late 1990s growth in manufacturing employment has been almost non-existent. Using an index of total manufacturing employment Aswicahyono *et al.* (2011) show that this rose from 61 to 100 and from 1990 to 2000. However, by 2009 it had risen only to 102. Thus growth in employment in manufacturing stalled. Moreover, this poor record with respect to employment would seem to be the result of a slowdown in growth in employment in labor intensive industries. The share of total employment in these industries has fallen from approximately 50 percent to less than one-third. All countries, as they develop, go through a period in which the economy shifts from producing labor intensive commodities to producing more capital intensive commodities. However, this has occurred in Indonesia while the per capita income level is still very low.

With the labor force still growing rapidly and labor intensive manufacturing declining, where would laborers find employment? As the model predicted the service sector rapidly expanded to absorb the labor. In the early 1990s the World Development Indicators data show that the service sector made up about 30 percent of all employment. However, this had risen to 43 percent by 2012. Much of this employment is in the informal sector.

So what happened in Indonesia after the Asian Financial crisis which so dramatically altered Indonesia's path of economic development? The dramatic devaluation in the currency combined with rapid growth in China for natural resources set off a significant shift in the structure of the economy toward the production of natural resources-based goods (Coxhead, 2014). Also, as pointed out above, an increasing amount of employment was being provided by the informal sector. This has driven the increase inequality. The inequality in turn has altered the composition of demand away from labor intensive manufactured goods. So manufacturing has suffered from both demand and supply side shocks.

4. Developed countries

As discussed earlier, the work of Piketty (2014) has shown that inequality in much of the developed world has worsened. The implication then is that as a source of demand for manufactured goods, especially labor intensive manufactured goods imported from

Year	Share of GDP	Share of exports	Share of imports
1967	8	2	86
1968	9	1	71
1969	10	1	78
1970	10	1	79
1971	9	1	84
1972	10	2	83
1973	11	2	83
1974	9	1	75
1975	10	1	77
1976	10	1	73
1977	11	2	67
1978	12	2	67
1979	12	3	66
1980	13	2	65
1981	12	3	69
1982	12	4	66
1983	13	7	62
1984	15	19	67
1985	16	13	72
1986	17	19	74
1987	17	25	75
1988	20	30	75
1989	20	32	75
1990	21	35	77
1991	21	41	76
1992	22	48	76
1993	22	53	76
1994	23	52	75
1995	24	51	73
1996	26	51	71
1997	27	42	73
1998	25	45	69
1999	26	54	58
2000	28	57	61
2001	29	56	61
2002	29	54	58
2003	28	52	56
2004	28	51	56
2005	27	47	55
2006	28	45	53
2007	27	43	53
2008	28	39	62
2009	26	41	65
2010	25	38	63
2011	24	34	60
2012	24	36	62
2013	24	37	60

Table II.
Manufacturing as a
share of GDP, exports
and imports (%)

Source: World Development Indicators

developing countries, would be limited. In this short section some evidence supporting this fact will be presented.

Table III presents data on the share of manufactured imports in total merchandise imports for high income countries. This would give an indication as to how rapidly the market for traded manufactured goods is growing in high income countries.

Year	%	Year	%
1962	46.25	1987	69.66
1963	45.52	1988	71.67
1964	46.94	1989	71.39
1965	48.24	1990	71.45
1986	50.14	1991	72.51
1967	51.87	1992	73.10
1968	53.98	1993	72.95
1969	56.21	1994	74.27
1970	57.19	1995	75.32
1971	59.00	1996	74.30
1972	59.23	1997	74.69
1973	58.15	1998	77.16
1974	51.97	1999	76.92
1975	52.48	2000	74.07
1976	52.99	2001	74.42
1977	53.90	2002	75.12
1978	57.68	2003	74.06
1979	55.41	2004	73.56
1980	53.21	2005	71.88
1981	53.40	2006	70.27
1982	55.45	2007	69.80
1983	57.55	2008	66.13
1984	59.16	2009	68.09
1985	61.32	2010	68.29
1986	67.98	2011	66.46

Source: World Development Indicators

Table III.
Manufactured imports
as share of total
merchandise imports
(high income
countries)

As one can see, in high income countries imports of manufactured goods as a share of total imports peaked in the late 1990s and has since declined. Thus the potential of exporting manufactured goods to high income countries is on the decline.

A second bit of evidence concerning this issue concerns the role of labor intensive exports in world trade. In a recent report by McKinsey (2012) five broad groups of manufacturing are identified, one of which is labor intensive tradables. The evidence which they present is that this group of goods now only represents approximately 7 percent of global manufacturing value added. The production of these types of goods is concentrated in low income regions in Latin America and Asia. Of this group, China accounts for 38 percent of the world value added of this group. Making up such a small share of world trade in manufactured goods implies that the market for the production of labor intensive tradables is relatively small compared with the past.

Some have argued that as China's income rises and labor becomes relatively scarce, much of this labor intensive production will move to other relatively poor regions. However, this has yet to occur.

The conclusions of this section are quite tentative in nature. The link between worsening distribution in developed countries and the slow growth in their demand for manufactured goods, especially labor intensive manufactured goods, is suggestive. This represents an area for additional future research.

5. Summary and conclusion

Some years ago Ha-Joon Chang (2003) wrote an interesting book entitled *Kicking Away the Ladder: Development Strategy in Historical Perspective*. He argued that all of today's developed countries followed similar policies in the early stages of economic development.

These policies involved using a number of different policy tools to subsidize the development of manufacturing so as to strengthen and speed up the structural change associated with economic development. However, the international institutional structure relating to trade constructed in the late twentieth century sought to reduce and limit the extent to which countries could use domestic policy to protect and subsidize the development of domestic manufacturing. Thus these institutions in effect prevent today's developing countries from utilizing industrial policy to move up the technological ladder, in a sense this ladder has been kicked away.

This paper has argued that the increasing inequality associated with growth in high income countries and in a number of developing countries has greatly restricted the ability of today's developing countries to rapidly expand the production of labor intensive manufactured goods. This has occurred as worsening income distribution has altered the composition of demand, in both developed and a number of developing countries, toward luxury goods and services and away from manufacturing, especially labor intensive manufacturing. Thus developing countries have fewer opportunities to shift into manufacturing and these countries are less able to get on the path of convergence that the production of such goods provides (Rodrik, 2013).

Some have argued that the production of service offers the same opportunity for rapid productivity convergence as does manufacturing. But recent evidence indicates that this does not seem likely. Research utilizing data for 11 Sub-Saharan nations for the time period 1960 to 2010 has found that from 1960 to 1975 structural change did occur with labor shifting out of agriculture where labor productivity is low and into manufacturing where labor productivity was higher. However, after 1990 structural change skipped manufacturing with the service sector growing dramatically. Although productivity levels in services were higher than in agriculture, the growth in productivity in this sector was below that of manufacturing. Thus there were static reallocation gains, by shifting labor into services, but there were dynamic losses with productivity growth being slower in services. The same patterns are also found in the experience of Latin America (de Vries *et al.*, 2013).

A number of policies suggest themselves. In many of the poorest countries of the world the bulk of the low income people reside and earn their living in agriculture. Thus rapid growth in agriculture, if the income gains benefit lower income groups, will result in a demand composition that favors the consumption of simple, mass produced manufactured goods which are likely to be labor intensive in nature. This will increase the likelihood that policies seeking to promote manufacturing will succeed. In addition, a number of countries (Brazil is a good example) have developed programs which provide direct benefits to poor families. If these programs substantially raise the purchasing power of lower income groups, this will again alter the composition of domestic demand toward labor intensive manufactured goods.

Of course the main determinant of the growth in the size of the international market for manufactured goods, especially labor intensive goods, will be determined by the evolution of income distribution in developed countries and large developing nations which are rapidly catching up, such as China. This issue is, of course, immensely important for a number of different problems. Future research in this area is of critical importance.

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