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How countries become rich and reduce poverty: A review of heterodox explanations of economic development

Lindsay Whitfield

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ABSTRACT

For the sake of less developed countries, it is time to adjust the discourses of international development assistance on poverty reduction. This article attempts to do so by reviewing new and old literature explaining why some countries are rich and others are poor. History has repeatedly shown that the single most important thing that distinguished rich countries from poor ones is basically their higher capabilities in manufacturing. We have to shift the discussion about ending world poverty back to one about structural transformation of the economy and increasing technological capabilities.

INTRODUCTION

'As the industrial revolution developed in the leading countries in the first half of the nineteenth century it challenged the rest of the world in two ways. One challenge was to imitate. The other challenge was to trade. The challenge to imitate was immediate, and a number of countries reacted immediately. Most countries did not. This was the point at which the world began to divide' (paraphrasing W.A. Lewis, cited in Figueroa 2004: 740). Those countries that imitated prospered, and those countries that traded did not.

After the end of World War Two, the world divided again. The First World consisted of the already rich, industrialized countries. The Second World, or the communist countries, were trying to reach the standard of living of the First World through the same process (industrialization) but using a different means (state ownership). The Third World consisted of poor countries, many of which had just emerged (or were yet to emerge) from colonization.

After the end of the Cold War, it was clear that changes had occurred on the global landscape or were occurring. Some former Soviet Second World countries underwent de-industrialization and a decline in standard of living. The Third World became extremely differentiated. Some East Asian countries had rapidly undergone industrialization and increased living standards. Other Third World countries achieved some economic transformation, but not as successfully as in East Asia. While other Third World countries had not achieved very much economic development or were even regressing.

Thus, the term 'developing countries' is no longer useful because countries in the Third World have developed very differently. As a result, adjectives are put on the front of the term, such as least developed and less developed countries.

What is it that makes rich countries rich and poor countries poor, and how is it that some countries became richer between the end of World War Two and the fall of the Berlin Wall. What explains the 'rise of the rest', and what distinguishes the 'rest' from the 'remainder', to use the terminology of Alice Amsden? Economists and economic historians can describe the changing economic characteristics of countries as they became rich, and the different various paths that countries took, but they find it much harder to explain why these changes are necessary and how they led to wealth creation and generalized mass affluence. In fact, there is a great divide in contemporary economics exactly over this issue.

The article synthesizes the arguments of some key works from heterodox economics explaining how economic development takes place, both old and new works. The purpose is to revive these debates, inject them into current discourses of international development assistance, and make a convincing argument for changing the way development practitioners think about poverty reduction and pro-poor growth and the role of foreign aid. If nothing else, it aims to provoke new discussions and debates.

The article does not engage in a discussion of the main disagreements and differences between the mainstream or orthodox school based on neo-classical economic theory and the heterodox school. There is plenty of accessible literature that does this adequately (see, for example, Chang 2003). Suffice it to say that the heterodox school argues that free trade per se does not lead to wealth creation and that free trade only becomes useful for wealth creation after a country has achieved manufacturing sectors

with economies of scale. It argues that neoclassical economics is a theory of exchange in the context of equilibrium which cannot be used to explain production relations. In contrast to orthodox theory that says growth occurs from perfect competition and efficient allocation of resources, heterodox theory argues that economic development is caused by structural changes which break the equilibrium, lead to imperfect competition and create rents.

The general argument is that countries in the West achieved systematic changes in the production structure of their economies which led to sustainable economic growth and generalized improvements in living standards. The Rest imitated their economic structures. Economic development cannot be separated from production and more specifically from what a country produces and how it is produced.

The key to economic development is an interplay between sectors with increasing and diminishing returns in the same labor market. Economic activities carry different benefits. Economic activities characterized by increasing returns (economies of scale), technological change and innovation, and synergies lead to productivity increases. Economic development results from the distribution of productivity gains that result from innovation, new knowledge and new technology in production processes. These industries are dominated by dynamic imperfect competition, high barriers to entry, high risks and high rewards. Productivity increases spread in the form of increased wages in the industrial sector and then gradually through the rest of the economy. As new knowledge and production techniques are emulated by others, their profitability falls. At any point in time, there are few industries with productivity explosions, and being the first in a new sector creates the highest profits. Only constant innovations sustain welfare gains.

Thus, talking about growth that benefits the poor outside of the context of specific economic structures, levels of productivity, and how the benefits of productivity are distributed is not fruitful and distracts from the real issues. Talking about the poor, or poverty, in general terms is also unhelpful. There is a fundamental difference between the concept of poor individuals (where ever they are located) and poor countries. What makes a country poor or rich (or somewhere in between) has to do with the process of economic development and its effects on the general standard of living. Instead of emphasizing that it is 'the pattern of growth that matters', as the pro-poor growth literature does, we should be emphasizing that it is 'the type of economic activity that matters'.[1] It is interesting (and optimistic) that the 2009 UNIDO Industrial Development Report co-authored by Paul Collier and another former World Bank economist have echoed this point, saying that 'what economies make matters for growth'.[2]

These arguments are made in the following way. Part one r describes the observed features of economic transformation. Part two explains the forces behind these observations, in other words, why does economic development have these features. Part three draws out the implications for developing countries today, particularly the poorest countries.

[1] For a review of the recent literature on pro-poor growth, see Whitfield (2008).

[2] See Industrial Development Report 2009, *Breaking in and Moving up: new industrial challenges for the Bottom Billion and the Middle-Income countries*.

I. OBSERVED FEATURES OF ECONOMIC DEVELOPMENT

Economic development usually refers to sustainable economic growth accompanied by significant structural change in production patterns and by generalized improvement in living standards. In European countries, the United States and more recently industrialized countries, it was observed that economic development was accompanied by several interrelated processes of structural change (Breisinger & Diao 2008). The stylized facts of economic transformation include transforming a predominantly agrarian economy to a predominantly industrial one. All advanced industrial countries underwent processes where the share of manufacturing increased and the share of agriculture decreased, both in terms of GDP *and* percentage of labor force employed, which was made possible by increasing agricultural productivity significantly. Increasing agricultural productivity and industrialization are necessary and interdependent processes. They involve moving out of subsistence activities and expanding production in economic activities with productivity gains.

There are different paths to achieving economic transformation. Countries undergo different patterns and sequences of economic and institutional change, and different paths have implications for poverty reduction and inequality. Economic transformation is also non-linear. Countries may progress, stagnate, or regress.

Observers have also noted that moving from middle-income to high-income status requires more than structural change. It requires upgrading. Structural change involves mobilizing scarce capital and its subsequent socially productive investment in new industrial enterprises. Upgrading involves efforts to improve productivity or innovate in new products by making existing factors more efficient and moving into higher value added products.

Thus, economic development involves not only changes in economic structures but also processes that enhance the capacity to create value, where value means value-added per worker or per unit of capital (Waldner 1999: 159). Ways to create value include using borrowed technology; constructing forward and backward linkages in the domestic economy rather than unrelated enclave enterprises; increasing productivity by upgrading process technology and through learning by doing; and lastly through product innovation or by producing higher value goods based on large accumulations of technology, knowledge and skills (ibid: 160-3). For example, both Northeast Asian and Southeast Asian countries have achieved structural change, but only the Northeast Asian countries have succeeded in upgrading (Doner 2009: 9). As a result, Northeast Asian countries exhibit much more domestic economy linkages and domestic technological capacities, as well as higher growth and standard of living.[3]

II. THE FORCES BEHIND THESE OBSERVATIONS

These stylized facts call for an explanation that would account for them independently of whether they fit into the general framework of received theory or not (Kaldor 1985,

[3] It is also the case that the agricultural sector in Southeast Asian countries is characterized by lower productivity. The combination of low innovation in agriculture and reliance on foreign technology in manufacturing that does not create local linkages (which limits labor absorption in industry) contributes to inequality between rural and urban areas, reduces the poverty reduction effect and discourages growth (Doner 2009: 9-13).

cited in Breisinger & Diao 2008: 3). How do we explain the necessity of structural change and upgrading to achieving economic development? How do we explain the non-linear and multifaceted nature of the economic development process? How do we explain that increasing agricultural productivity is crucial in the early period of transformation but then loses importance and thus the inherent inequality between agricultural and industry sectors?

The process of economic development is characterized by productivity growth. High and rising standard of living is ultimately based on the productivity with which capital and labor are employed. It is not the transition from agriculture to industrialization *per se*, but a change in economic activities from ones of low productivity to high productivity.

The development economist W.A. Lewis argued in the 1950s that a country was poor because it had a large subsistence sector and a small capitalist sector, and that productivity was low in the subsistence sector (and thus wages were low). Lewis' work has been often misinterpreted (Figueroa 2004). His two sector model was not a division into agricultural and industrial sectors, but rather 'the division of the economy into two sectors had to turn on profits' (Lewis, cited in Figueroa 2004). The two sectors are a capitalist and non-capitalist sector. He defined 'capitalist' in the classical sense, as a person who hires labor and resells its output for profit. For Lewis, economic development is a process of labor moving from subsistence sector to capitalist sectors, where labor becomes more productive. Capitalist production is not identified only with manufacturing, but rather capitalists are agriculturalists and industrialists.

Lewis' explanation provides part of the answer by distinguishing between economic activities based on labor productivity, but he did not provide the whole answer. A more recent economist Erik Reinert, who has studied economic theories and economic history of Europe since the 15th century, has resurrected old ideas and put them together in a forceful explanation of the driving forces behind how rich countries got rich, why it produced generalized benefits, and how wealth is maintained. This section draws mainly on his work. Reinert (2006) builds his argument by drawing on a huge number of economists from Antonio Serra in the 15th century explaining the wealth of the city-state Venice to the work of Joseph Schumpeter in the 20th century.[4] For the sake of simplicity, the following sections do not cite Reinert or the many works on which he draws. Assume that the arguments are his unless cited otherwise. Some references are made to other recent work in order to show that Reinert's arguments are supported by other heterodox economists.

I start by explaining the building blocks of Reinert's argument about the forces driving economic development. The next section shows how these basic building blocks work together to create advanced industrial countries and simultaneously create challenges for developing countries. The third section presents the generalized model of economic development.

Different types of Economic Activities

Why does a growing share of manufacturing in an economy make countries richer? The answer lies in the fact that economic activities carry different potentials for growth. Structural change and upgrading involve expanding production in economic activities

[4] Reinert is very prolific, but his latest book captures all of his arguments in one place, and thus I only cite this book here.

that exhibit increasing returns and moving out of economic activities where expanding production results in diminishing or constant returns. The production of raw materials and agriculture was characterized by diminishing returns, whereas manufacturing was characterized by increasing returns.

Diminishing returns occur when one factor of production is held constant while the other factors of production are expanded, and thus the increased input of the other factors yields less and less benefit. Genuine diminishing returns are found only in economic activities where one factor of production has been 'produced' by nature, such as in agriculture, fisheries and mining. When output is increased in these resource-based activities, there is always some point after which the crucial resource is no longer available at the same quality or in the same quantity as before. At some point, adding more capital and/or more labor will yield a smaller return for every unit of capital or labor added. In other economic activities, all factors of production are essentially expandable at the same or better quality.

There are two types of diminishing returns: extensive and intensive. Extensive diminishing returns occur when production is extended into inferior resource bases. Intensive diminishing returns occur when more labor added to the same plot of land or other fixed resource yields less than before. In both cases, productivity will diminish rather than increase as the country increases its production. The best natural resources will be used first. As production increases, poorer and poorer lands or mines are brought into production, fish populations exterminated, and pastures ruined by over-grazing.

There are also other challenges in agricultural production. First, cyclical swings in agricultural productivity occur due to the whims of nature. Second, since demand does not move in sync with production, agricultural commodities often experience huge fluctuations in prices. When demand rises, agricultural production cannot respond right away by increasing production, and similarly when demand falls, agricultural is unable to stop production or store semi-manufactured goods once Nature has begun the process of production. Export markets for agrarian products can fluctuate widely and have a low demand elasticity compared to manufactured goods (Cheng 1990: 154). Marketing monopolies in agriculture are a way of keeping prices stable and high.[5] Third, producers of raw materials have to see what the market will pay them. They are price takers because low fixed costs (i.e. low barriers to entry) leads to near perfect competition (especially from cheap labor) which drives down costs. Success in producing raw materials often depends more on timing of sales and financial muscle than on cost efficiency of production. Fourth, producers of raw materials are forced to give away their productivity increases to their customers in the form of lower prices. This was the argument put forth in 1949 by the development economist Hans Singer. Singer argued that learning and technological change in the production of raw materials, particularly in the absence of a manufacturing sector, tend to lower export prices rather than increase the standard of living in the raw material producing nation (cited in Rienart 2006).

Even with increasing productivity through new technology, expansion in agricultural

[5] The experience of countries using marketing boards has varied widely, and even within countries certain marketing boards have been more successful than others. For example, in Taiwan where the state monopolized exports of rice and sugar, marketing boards worked well (Cheng 1990). In many African countries, marketing boards did not work well. Thus, the source of the problem is not in the economics behind marketing boards, but rather how they are implemented.

production and in the production of raw materials more generally, will *sooner or later* run into diminishing returns. In the absence of alternative employment outside the sectors depending on natural resources, a country's population will be forced to live solely on natural resources. At some point, it will require more work to produce the same output, and this situation will create a downward pressure on the national wage level. The existence of a national manufacturing sector established a national wage level which prevents countries from moving too far into diminishing returns.

While specializing in economic activities characterized by diminishing returns creates poverty, economic activities characterized by increasing returns (or economies of scale), technological change and innovation, and synergies create wealth. Increasing returns takes place when an increase in production results in falling costs. New knowledge has high costs and is not generally available. The knowledge is protected by huge barriers to entry, where economies of scale and accumulated experience are important elements in creating the barrier. The larger the production volume a company has accumulated, the lower the costs. At an early technology stage, it does not matter if labor costs are high. Production depends on highly qualified workforce and closeness to research and development. When production volume goes up, costs will go down and make profit. Increasing returns is the result of high fixed costs, which in turn create high barriers to entry for competitors. In contrast, mature industries using simple and widespread technologies and selling their products in markets in which demand has been substantially satisfied and expands slowly generally support only low average returns on investment (Waldner 1999). Because technology used in them is readily available and easily assimilated, there are few barriers to entry in these industries. The subsequent proliferation of competitors pushes down prices and wage rates in these industries.

The same high barriers to entry that create high profits make it hard for other countries to emulate (Kaplinsky 2005). High barriers to entry are created by superior knowledge, by possessing a large variety of manufacturing activities that created systemic synergies, by market power, by low costs created through innovation and increasing returns. It is hard for countries to break into these industries before the profitability of these innovations has waned, and the lower a country's level of economic development the more difficult it is to break into these industries. Thus, there is a tendency for rich countries to monopolize technological benefits (and thus remain rich) and poor countries to remain at the end of the technological spectrum (and thus remain poor). If poor countries participate in technological development only as consumers, their wage level and purchasing power will not be lifted (Reiner 2007: 296-7).

Increasing returns is a concept that is not popular in orthodox economic theory which relies on the assumptions of constant returns to scale and thus perfect markets (Waldner 1999). However, there are schools of thought which accept it. Proponents of strategic trade theory recognize increasing returns and imperfect competition, and that companies gain benefits from being the first to occupy a particular sector. Thus, countries specialize in producing different products for reasons that often have less to do with relative factor endowments than with 'first mover' advantages (Matthews & Ravenhill 1994: 33-34). Among these 'first mover' advantages is a company's ability to reduce average and marginal costs of production by manufacturing large quantities of a given product (known as economies

of scale or increasing returns), to improve production techniques through practice over time (known as learning by doing), and to establish a recognized brand name that differentiates its product from those of competing firms. Advantages of this sort, combined with the large capital investments that newcomers would face, are powerful deterrents to potential new entrants to an industry. In such situations of imperfect competition, oligopolistic firms can earn abnormal profits ('rents') even in the medium to long term. This point that wealth was created through rents resulting from breaking the equilibrium and dynamic imperfect competition was made most famously theorized by Joseph Schumpeter in 1911.

Paul Krugman, who received the Nobel prize in Economics in 2008, argues that the beyond capturing rents, this process generates positive externalities (cited in Matthews & Ravenhill 1994: 36-37). Positive externalities refer to benefits for other sectors in the economy generated by a firm's activities. There are pecuniary externalities and technological externalities. The former are those that are transferred through market transactions, meaning the prices of inputs and outputs of other firms. Reinert refers to these effects as synergies or cluster effects. Technological externalities refer to social benefits or public goods, such as the diffusion of technical knowledge that cannot be completely appropriated by the firm undertaking the research and development.[6]

Krugman's strategic trade theory recognizes the role of technological change in driving international specialization and the possibility that failure to innovate can cause a decline in a country's standard of living, but assumes that technology is freely available to and easily adapted by individual firms. The technological capabilities approach to economic development rejects this assumption. The capabilities approach argues that economic development is primarily about developing countries catching up (i.e. late industrialization) through acquiring new technologies and learning to use them rapidly (Amsden 2001; Dahlman et al. 1987; Lall 1992, 1996). There are two key points in the capabilities approach. First, accessing the latest technology or machines does not automatically translate into using them efficiently. Second, accumulating productive capabilities does not occur spontaneously within markets, nor can productive capabilities simply be transferred to a developing country. This is because learning how to use new technologies and methods of organizing work practice to achieve the potential productivity takes effort (investing in learning) and requires learning-by-doing where tacit knowledge is acquired. Productive capabilities are knowledge-based assets that are difficult to copy; that is why it is difficult for new industries to compete immediately with existing industries, even in countries with low wages, large pools of unemployed labor and abundance of raw material. In short, firms need to go through a learning process to build the necessary capabilities to become competitive in new industries. This is the point that Ha-Joon Chang made in his debate with Justin Lin in this journal when arguing why it is not possible for less developed countries to accumulate capabilities in new industries without defying comparative advantage (DPR Debate 2009).

To summarize, it is not agriculture and manufacturing per se that matter, rather the bundle of characteristics typically associated with these different economic activities

[6] The fact that technological advances can be readily copied deters companies from investing in research and development. Thus, the social returns to innovation exceed the private returns to manufactures.

which embody the potential to create wealth or reduce it. Countries become wealthy by specializing in economic activities which embody increasing returns, technological change, and synergies with other industries in the economy. The windows of opportunity for innovation and technical change are very unevenly distributed among economic activities. Technological change provides widely unequal opportunities for increasing real wages. New technology and innovations demand and create new knowledge, producing economic activities characterized by high levels of knowledge and high levels of income. These industries are characterized by imperfect competition, high barriers to entry, high risks and high rewards. This contrasts with the perfect competition or commodity competition under which markets for raw materials operate.

Reinert notes that some types of agricultural production may acquire characteristics that were previously associated with manufacturing. Conversely, some manufactured goods may behave like commodities, although with constant rather than diminishing returns. Traditionally in manufacturing, an increase in production would reduce costs (giving rise to the concept of economies of scale or increasing returns), because the next machine one started would reduce fixed costs per unit of production. Traditionally, the fruits of production were retained by having control over the sources of productivity (through control of technological change) and over prices to market (through the barriers to entry). Thus, some forms of manufacturing today do not provide the benefits of increasing returns. Labor intensive manufacturing industries involving low technology and characterized by high competition fall into this category. Factories assembling inputs imported from other places and whose main advantage is cheap labor bring limited returns because productivity cannot be increased. To illustrate this point, Reinert gives examples of baseballs produced in Haiti, Honduras and Costa Rica which have to be hand sewn. All the inputs are imported from the United States, assembled by hand and exported at very low costs and laborers earn very little. In contrast, golf balls are produced in the United States which high tech machinery, and people employed in this industry earn high wages. No technology exists to increase productivity in producing baseballs. Reinert also gives the example of outsourcing unmechanizable products from the US to Mexico—the *maquila* industry near the American border. The *maquila* industry pays lower wages than traditional industry and is driving down average Mexican wages.

Urbanization is a noted feature of structural change because it is associated with industrialization in general and increasing returns activities in particular. Industries tend to cluster in cities and unevenly across regions within countries, but there are cases of decentralized industrialization where industries are located in rural areas, such as in Taiwan. If labor is moving from subsistence agriculture to informal self-employment in urban areas, this does not represent increases in labor productivity. Thus, urbanization does not necessarily reflect structural change of the economy.

How Rich countries got rich and stayed that way

New knowledge is the main factor in increases in standards of living. Building on the work of Schumpeter, Reinert argues that the real driving forces of economic growth are inventions and the innovations that are created when these inventions are brought to the market as new products or processes. Every now and again there are great waves of inno-

vation that create important breaks in technological development. These waves, called techno-economic paradigm shifts, change the general purpose technology that underlies the whole productive systems. Examples include the steam engine and the computer. These innovations create what Schumpeter called 'creative destruction', where new fields of industry with hordes of new products, old established industries disappear because of changed patterns of demand, and radical changes occur in the production processes of almost all industries. The most important aspect of a paradigm shift is the productivity explosion found in the core industry.

Productivity explosions: the sources of wealth

Reinert draws on the work of two scholars which distinguish five techno-economic paradigm shifts in modern history which raised the standard of living: early mechanization in textiles; steam engine and railway; electric machinery and chemical industry; cars and synthetic materials; and data/software and biotechnology. For example, the Industrial Revolution in Britain started with a productivity explosion in cotton-spinning. Productivity explosions act as catapults, rapidly raising the standard of living. The standard of living is raised in two ways: rising wages or falling prices.

Wages rise because the fruits of the technological development are divided among 1) entrepreneurs and investors; 2) workers; 3) the rest of the local labor market; and 4) the state. These factors produce what Reinert calls this the collusive model of economic development. The real incentive for the investments that lead to productivity development are generally to make money, so some of the productivity increase of a successful investment will be taken out as profit. The first successful entrepreneurs get a high profit, which is later reduced because emulators come into the field. Some of the productivity increase will result in higher wages to those employed in the industry. This may be due to the fact that the new skills needed are scarce, or due to the power of labor unions. New technology will spread through the whole local and gradually national labor market as a result of the increased purchasing power created in industries with technological change, and also as a result of limits to the extent to which wages can differ within a labor market. Reinert gives the example of a barber who does the same job in an industrialized country as a barber in poor country, but as the result of sequences of productivity explosions his wage has kept more or less in step with the wages of the industrial workers, while a barber in countries with no productivity explosions have stayed poor. Lastly, the state benefits through increased taxes.

The collusive model explains why wages in industrial countries with frequent productivity explosions steadily increased. As workers, with increasing political support, were able to further their demands for higher wages and as they then got the benefit from the increased productivity in industry, the farmers were the ones who were economically left behind. Rising wages depend on increases in productivity. If demands for wage increases exceed the increases in productivity, the result will be inflation (rising prices). Wage increases increase demand for goods and services and thus create more jobs, but they also create incentives to mechanize. Mechanization leads to productivity increases, which again raise wages, and thus create a virtuous circle.

The increasing global inequality experienced since the 1980s was associated with the techno-economic shifts which brought major structural changes, demands for new skills,

exceptionally high profits in new industries, and a stock market boom (Reinert 2007: 298). There were similar surges of inequality in the 1820s, 1870s and 1920s. Note that European colonial powers had an explicit policy that industries with productivity explosions were not allowed in colonies.

Emulation: jumping on the productivity explosion bandwagon

The new king of England in 1485 created the first strategic industrial policy. To be a leader in an industry required a virtual monopoly on an important raw material, manufacturing capacity, and overseas trade. The industry selected was wool manufacturing. Thus, two institutions were established in the late 1400s: the protection of new knowledge through patents, and the transfer of the same knowledge into new geographical areas through tariff protection. Both were based on the same economic understanding: the creation and geographic spread of new knowledge through the instigation of imperfect competition. The patents created a temporary monopoly for new inventions and the tariffs distorted the prices for manufactured goods and enabled new technologies and new industries to be established away from the place they were first invented.

Tariffs on industrial goods were part of an offensive strategy to emulate the industrial structure of the leading nations and to bring every nation's productive sector into the areas where the productivity explosions took place, whether it was cotton textiles, railroads or cars. Historically, Britain was the only country that industrialized without tariffs during the Industrial Revolution (because it was the first mover!). Many European countries copied the economic structures (not the economic policies) of wealthy countries. Not the economic policies because countries already wealthy could afford a very different policy from those still poor. Successful industrial protection carries seeds of its own destruction: when increasing returns and new technologies are acquired, then industries need bigger and more international markets. No contemporary developing country other than Hong Kong has been able to start industrialization without an initial period of infant-industry protection, though there are a few examples of specific industries in particular countries that entered export markets without first producing for domestic markets (Adelman & Morris 1997).

Rich countries stay rich by successively being the first comers to new productive sectors as new technologies arrive. They capture the biggest rents by doing it first. As innovations, products and processes mature and age, that industry loses its ability to produce a high standard of living. Once a considerable gap in real wages is created, economic activities that are technological dead-ends, and thus only require unskilled labor, move to low wage countries. Rich countries export products where there is great technological development and import products where there is little technological development. High value economic activities generally emerge out of new knowledge from research. Many countries invest in basic research because it serves as the main source of innovation. Innovations drive welfare forwards, and only continual innovations sustain welfare. The status quo leads to poverty. This is what makes the capitalist system so dynamic, but it also creates dislocations within countries as industries rise and fall, as well as creating gaps between countries. It is only when labor productivity decreases and total production costs decrease that poor countries can compete,

but then competition is based on their low wages and relative poverty.

The strategic technological school mentioned earlier argues that the cumulative nature of technological development means that the development and application of key technologies may set a country on a new and possibly irreversible technological trajectory. Historical 'first movers' may be able to practice 'competitive exclusion' where their gains from scale and learning economies may be of a sufficient magnitude as to deter others from entering the industry. In sum, 'Early entrants may benefit from a virtuous circle of innovation, economies of scale, learning by doing, and oligopolistic exploitation of technological leads, which in turn gives countries internationally competitive economies' (Matthews & Ravenhill 1994: 39).

This is exactly what Reinert argues in explaining how advanced-industrial countries got rich and how they sustained. It also highlights the challenges that poor countries face. In developing countries, investment decisions entail allocating capital to establish new industries, but in advanced industrial countries, firms facing competition must decide only whether to invest in marginal additions to existing sunk capital costs (Walden 1999). Capitalists in advanced economies can also exploit prior accumulations of wealth, technology, skills and learning, all of which reduce the risk of new investment in the development of new product or process technologies. The developing world capitalist is likely to invest in new industrial plant only when existing technology can be borrowed. Successful East Asian development entailed innovation in shop-floor practices, boosting efficiency and thus lowering costs, and improving product quality. Only after several decades did Japan, Korea and Taiwan begin to develop the capacity to innovate in product-specific technology. This gap between the capacity for product and process based innovation creates a huge disparity: advanced industrial economies can innovate in both product-specific and hence protected technology, where they can create and capture large economic rents, and general technology that might produce benefits for other firms. The rents earned from product-specific technology can then be used to subsidize process technology, compensating for the gains captured by other firms, sectors or industries.

In sum, economic development is driven by assimilation: learning from more advanced countries by copying their economic structure, adapting their institutions, and acquiring their technology. But developing countries (both now and several centuries ago) face daunting challenges and risks in doing so. This is where the role of government comes in. Assimilation or emulation does not happen on its own, or by the forces of the market.

An unhappy marriage: synergies and tensions between agriculture and industry

So far the discussion has centered on the dynamics behind the reason why industrialization creates wealth. Let us turn in concluding to discuss the role of agriculture in this picture and what happens to agriculture. Synergies between the agricultural and industrial sectors are crucial to structural change of the economy. While the share of agriculture in the economy will decline over the longer run as economic transformation progresses, increasing agricultural productivity in the short and medium term is a prerequisite for transformation (Meier, cited in Bresinger & Diao 2008: 7). The growth of the city depended on the rural markets just as much as the rural market depended on the purchasing power,

labor market and technologies of the city in order to raise its wage level (Reinert 2007).

Unless the non-agricultural economy is growing, there is little long-run hope for agriculture. Geographical proximity to the industrial sector gives farmers a market with greater purchasing power. Being part of the same labor market as the cities, excess labor on the farm will find employment in manufacturing sector of cities. Reinert (2007) shows that this argument was used by political leaders and economists in 18th century Europe and after 1870 by the US government to convince farmers that it was in their interest to industrialize under protection. In the short term they will have to pay more for locally produced manufactured goods in order to create virtuous circles of wealth in the future.

At the same time, the historical record is clear on the important role that agriculture plays in stimulating growth in the non-agricultural economy. Through increasing agricultural productivity, agriculture sector provides food, labor, savings and raw materials (for agro-industries) to the process of industrialization and urbanization (Timmer & Akkus 2008). The process of transforming traditional agriculture into a modern sector also enhances both consumption and production linkages between agriculture and non-agriculture and between rural and urban areas. The backward linkages occur through increased demand of agriculture for modern inputs, such as fertilizer (produced by the manufacturing sector), and consumption linkages, leading to higher growth and greater poverty reduction effects. In sum, increasing agricultural productivity is necessary to produce cheaper food, raise rural incomes, and stimulate domestic demand, which are important conditions for structural transformation. A stagnant agricultural sector is likely to inhibit industrial sector growth.

Lastly, agricultural transformation is essential to widespread growth and poverty reduction. All countries that achieved rapid growth and poverty reduction over the long term experienced an increase in land yields, agricultural growth and farm and rural non-farm incomes during the early phase of their transformation—unless it did not have one to start such as Singapore and Hong Kong (Cornia 2006; Timmer & Akkus 2008). The important role that agriculture played in both stimulating growth and reducing poverty in East and Southeast Asia cannot be overemphasized (Osmani 2000). Switching government attention away from agriculture to industrialization before a solid foundation of agricultural transformation integrates a majority of the small farmers does not stimulate but rather slows down the transformation process (Breisinger & Diao 2008). Furthermore, agricultural transformation which bypasses small farmers—who remain in traditional, subsistence-type production systems—leads to a dual economy and rural poverty trap (as seen in many Latin American countries, and perhaps in African countries like Zimbabwe and South Africa).

Although increasing agricultural productivity is pertinent in the early period of economic transformation, agriculture declines in importance both for labor and for growth. The transition from low productivity farming absorbing the bulk of the labor force, to high productivity farming absorbing little is part of economic development (Doner 1999: 13). There is a strong inverse relationship between a nation's level of per capita income and the size of its rural population. Breisinger and Diao (2008) find no single country in which agriculture constituted more than 30% of GDP when a country reached middle income status, and also note that the share of agriculture continues to decline with further increases in income.

Furthermore, there is a wage gap between rural areas and urban areas. The presence of a manufacturing sector raises income levels in agriculture as well, but not to the extent as it does in the industrial sector. Wages in agriculture remain below (and sometimes far below) those in industry (see data in Reinert 2007: 135). This is a result of eventually diminishing returns in agriculture. That is why advanced industrialized countries turn to subsidizing their agricultural sectors. Subsidies act both to keep rural incomes high and to protect against commodity prices from poor countries. Protecting agriculture is a political response to the unequal benefits of economic development. Thus, some observers have noted that governments of poor countries generally practice urban biased policies that penalize the agriculture sector to the advantage of non-agriculture, and that governments in rich countries generally practice rural bias (Moore 1993). South Korea and Taiwan also followed this path, where governments used agricultural surpluses to fund industrialization, often keeping down their wages in order to fuel labor into industries and neglecting to spend money on agriculture except during periods of political tension in the countryside (cf Moore 1988). At some point inequalities between the urban and rural areas erupt politically, and governments commit more resources to rural investment.

III. IMPLICATIONS FOR POVERTY REDUCTION

This analysis of economic development using heterodox economic theory and historical evidence concurs with the argument that economic growth is essential for reducing poverty. But it is not growth per se, nor does focusing on the pattern of growth give us the secret. Poverty reduction is an outcome of economic development. It is the outcome of economic growth which increases productivity as well as the outcome of a political process through which the distribution of the benefits of productivity gains are distributed. Thus, pro-poor growth involves two steps. Step one is to create economic growth based on productivity gains, because without productivity gains there is nothing to distribute. Step two involves reaching political settlements (which inevitably change over time) which encourage wealth creation but also its productive reinvestment as well as its equitable distribution in terms of wages and public spending (particularly in ways which increasing domestic purchasing power for domestically produced goods). The last part of this paper looks at these two steps in more detail, drawing out implications for developing countries today.

The first step in achieving pro-poor growth: growth through increasing productivity

More people in South Asia live in extreme poverty than in Africa, but on no other continent than Africa are the extremely poor such a large proportion of the total population. Furthermore, why is it that Africa comes to mind when people think of global poverty? Probably because China and India have experienced significant growth and reductions in extreme poverty (they just happen to have very large populations). African countries have a larger proportion of their population in extreme poverty because a larger proportion is stuck in subsistence economic activities.

Countries that have not seriously begun transforming their production systems, must first face the challenges of structural change.

Middle-income countries that have undergone significant structural change, but based largely on increased inputs or low levels of technological change, face the challenges of upgrading. We call this part one and part two of the first step in pro-poor growth.

Step one, part one—structural change

The current pro-poor growth agenda does not recognize that the issue of structural change of the economy and the creation of new productive capacities remains the most pressing issue for poor countries. The output of the Operationalizing Pro-Poor Growth research project funded by multiple aid agencies showed that movement from agricultural to nonagricultural employment was important in raising incomes of poor households in many countries (Cord 2007). However, the movement from agricultural to manufacturing is not mentioned that much in discussions about pro-poor growth.

The pro-poor growth discussion focused on the macro linkages between growth and income distribution and often ignores the broader picture of the structure of the economy, the diversity of types of economic activities and their consequences. Cord (2007: 4) does comment that much of the progress toward poverty reduction in Bangladesh, Ghana, Uganda, and Vietnam (the four low income country studies included in Operationalizing Pro-Poor Growth) was spurred by 'peace dividends and one-off gains from macroeconomic stabilization and structural reforms', and that only Bangladesh and Vietnam achieved 'any measure of structural transformation with growing agricultural productivity and the release of labor into dynamic industrial and services sector'. In Ghana and Uganda, the gains from economic policy reforms 'appear to be short-lived; the bulk of the population and in particular the poor remain in agriculture and low-return nonagricultural self-employment activities'. However, this is mentioned in passing and not the central theme. If we are to understand why it is that the pattern of growth matters (and not just growth per se), we have to look at countries' productive capacities. The production structures of poor countries are still strongly oriented to exploiting natural resources, as is their export structure (UNCTAD 2006).

The issue of structural change is not only important for the poorest of countries. For example, Botswana, often claimed to be a growth miracle, has not achieved economic transformation (Hillbom 2008). Its growth is dominated by diamond mining, which employs only 4% of the labor force and is not complemented by other forms of industry and has not encouraged or contributed to technological advance. It mainly has effects on the public sector through government employment and government expenditure. Manufacturing is only about 4% of GDP. The economy is not much more diversified than at independence, and government's efforts to diversify have failed. Low levels of technology and productivity also characterize the agricultural sector, and only 4% of the country's area is suitable for agriculture (due to the Kalahari Desert). The advance of cattle rearing is not very productivity, as it uses a lot of natural resources while the returns are modest. Despite substantial growth, 47% of the population lives below the national poverty line (according to 2006 data), there is high unemployment, and one of the highest levels of income inequality in the world. This kind of high growth combined with significant poverty rates and extremely unequal income distribution is a result of the economic structure and pattern of production and investment.

Historically, states played a crucial role in transferring assets and resources from less to more productive sectors and actors (using market and non-market mechanisms) and in accelerating high productivity growth by assisting the absorption and learning of new technologies in the economy by private, public and private-public enterprises. The argument for unfettered markets delivering economic transformation is unrealistic and not born out by the evidence (Khan 2006). It expects local capital to take risks, make long term investments in new productive activities, and seize on the opportunities inherent in international markets. For private investors in poor countries, the uncertainty involved in investing in this kind of learning is typically too high to be worth the risk given that alternative opportunities are less risky and immediately profitable (i.e. real estate, import trade). While the benefits to the individual are low, the potential benefits to the country are high. Thus, without state-induced 'distortions' or incentives, activities that are profitable in poor countries are characterized by low technology and low value-added.

Economic transformation historically has resulted from state policies that maintain macroeconomic stability, simulate competitive pressures on firms, provide infrastructure and utilities, and implement selective industrial policies. No contemporary developing country other than Hong Kong has been able to start industrialization without an initial period of infant-industry protection. It is hard to find any industry 'winners' in the developing world which are not a product of industrial policies of some sort. Agricultural transformation also has been driven by direct or indirect public investment (sometimes subsidized) in rural roads and irrigation infrastructure, research and development, agricultural financial services and access to land.

There is not one path to structural change. In the first industrializer, agriculture served as the engine of transformation. When the agricultural sector is failing to fill this role as the engine of transformation, other more successful sectors could substitute for its shortcomings in forming capital. The process of accumulation can start with capitalist enterprise in agriculture, mining, labor-intensive manufacturing, tourist or other service sector. Diminishing return sectors provide foreign exchange and capital for investment, but this must be used to support and incentivize production in economic activities subject to increasing returns.

Step one, part two—upgrading

Countries are better off having an inefficient manufacturing sector, by international standards, than having no manufacturing sector at all. This is clear in the case of Southeast Asian countries. These countries achieved amazing increases in per capita income from 1960 to 1990s due to a growing manufacturing sector, despite analyses that its manufacturing sector was driven by foreign direct investment from other Asian countries, which was not as well linked into the whole economy, and that their governments did not implement industrial policy as efficiently as the earlier industrializing Asian countries (Jomo 1997).

However, these countries eventually reach end of growth and societal benefits, unless they can move up the technological ladder in products; achieve productivity growth rather than just increasing inputs (capital and labor); and create more linkages within the economy by producing more things domestically, especially technology. Both Waldner (1999) and Doner (2009) conclude that upgrading is more difficult than structural change because it involves addresses com-

plex problems which involve public and private engagement.

Upgrading is what distinguishes the East Asian NICs from the Southeast Asian little tigers. For example, Thai firms had failed to use their temporary low production cost advantage as a stepping-stone for the creation of more competitive advantages based on new technologies (Doner 2009). Most Thai firms competed mainly at the low end of global markets, where value added and product differentiation are minimal, and the country had failed to develop a strong input supplier base. As a result, Thailand experienced sharp rises in wage rates during the 1990s that were not matched by an increase in labor productivity, and it began to face new competition in its production sectors from low-wage competitors such as China, India, and Vietnam (Doner 2009).

To take another example, Turkey experienced impressive growth and economic transformation between 1950 and 1980 (Waldner 1999). However, the greatest increase in production took place in industries that were highly dependent on imports of components and thus had low potential for spurring further industrial development by stimulating demand or supplying inputs. Turkey's record of sustaining growth of productivity was not impressive. Most of its productivity increase was in the 1960s due to initial investments in capital-intensive plants rather than incremental gains realized through learning-by-doing, managerial practices and technological assimilation.

The second step in achieving pro-poor growth: addressing uneven economic development

The process of economic development is inherently uneven. Transformation results in uneven growth and rising income inequality. This is because urban wages grow faster than rural wages, and because industries tend to cluster in certain sub-national regions. However, initial conditions as well as the process of industrialization have important impacts on how the benefits of transformation are distributed. For example, the transformation process was more equitable in Korea and Taiwan, due to land reform before transformation really began, which allowed family size farms to benefit from the agricultural transformation. Furthermore, industrialization was decentralized in Taiwan, spreading the benefits around the country and increasing labor mobility between factory and farm (Cheng 1990).

In Latin American countries, the benefits of economic transformation were not widely shared, partly because peasant farmers did not share in transformation of agriculture. Enormous capitalist plantations co-existed with subsistence plots belonging to peasant farmers. The observation in the 1970s that growth in Latin America, especially Brazil, had not increased the standard of living of the poorest section of the population stimulated research by Hollis Chenery and a team of economists. Their research concluded that in the early stages of development, the distribution of income tends to become more concentrated, due to increases in output coming disproportionately from relatively small modern sectors of primary production and industry (Chenery et al. 1974). As growth continues, its benefits spread more widely, but there are obstacles that limit the share received by the poor, due to an excess supply of unskilled labor. Since they cannot be absorbed in wage employment, the bulk of the poor are self-employed small farmers, rural artisans and members of the rapidly growing urban informal sector—for whom income growth is limited by lack of access

to land, capital, education and other public facilities.

However, further increases in concentration are not inevitable, as illustrated by the experiences of several countries where access to modern sector employment was improved through education and rapid growth of demand for labor, while in other countries, land was redistributed and public investment directed to offset the initial disadvantages of the poor. Thus, the report of Chenery et al (1974), *Redistribution with Growth*, argued that positive government action was needed which included a mix of policy instruments that can reach identified target groups. They advocated targeting the rural poor through a strategy focused on increasing the productivity of the small farmer and self-employed through better access to land, water, credit markets and other facilities. They also advocated targeting the urban poor through a shift towards more labor-intensive products and processes as well as making small-scale producers more efficient by improving access to inputs.

Similarly, but much more recently, UNCTAD's 2006 Least Developed Countries Report also suggests a twin strategy of growth through increasing productivity combined with targeted interventions to reach labor (in subsistence sectors) that is not benefiting from the dynamically growing sectors, because a strategy of investing only in dynamic sectors in attempts to "leapfrog" technologically may not be enough to reduce poverty. The fastest-growing sectors or not likely to be where the majority of the poor are employed and may require skills and training that the poor do not possess.

This paper has outlined why economic development is necessary for poverty reduction, but it has not described the repressive side to the process. In the past it has involved controlling labor such that wages do not rise faster than productivity gains, squeezing smallholder agriculture to fund industrialization, non-democratic forms of government, rent-seeking in order to create a domestic industrial class, the privileging of business over labor and farmers, poor working conditions for workers, violations of civil and human rights, land reforms which liquidated landed agrarian elite classes. The history of the making of England or the United States is not a pretty one. Neither are the more recent histories of South Korea and Taiwan, two countries seen to have the most equitable and rapid economic growth. Thus, long term, sustainable poverty reduction at a country-wide level through economic development involves trade-offs in terms of immediate individual welfare and future generalized welfare and opportunities. This is not to say that economic development requires authoritarian governments, but it is to recognize that long term poverty reduction generally has been achieved through policies that were not necessarily 'pro-poor' in the short term.

Contemporary constraints on the traditional path of economic development

Reinert (2007) argues that historically, the only successful way of escaping the status quo of low productivity and low purchasing power in a poor country is by inserting an increasing returns sector of a minimum size and diversity into the national labor market. Poor countries will not be able to raise wages if they only produce raw materials, even in niche markets. However, he recognizes that the strategies for producing high wages and nations growing rich used from 1850 to the 1970s are much less feasible now than before.

The Fordist nation based paradigm may have embodied unique elements that are diffi-

cult to replicate under the present conditions. The combination of Fordist mass production and a primarily nation-based manufacturing sector created unique conditions for increasing real wages. A key element to wealth creation after 1848 was labor power, which assured the 'collusive' spread of economic growth: people of the rich countries got richer by taking out productivity improvements in the form of higher wages, rather than in the form of lower prices (Reinert 2007: 291). There are several reasons why this path for a nation to grow rich is much less feasible now than before.

First, in the 20th century, the main paradigm-carrying industry was the automotive industry. That every nation of any size had a national source of product innovations in the paradigm-carrying industry and had the possibility to emulate through reverse engineering were key features of early 20th century growth that are difficult to replicate today (Reinert 2007: 292). Patents and copyrights make reverse engineering of impossible, and technological innovations often require large amounts of knowledge and economies of scale. The paradigm-carrying industry today is microelectronics. Replicating small Microsofts in every nation, as was done with car factories, not only produces inefficiencies, it is illegal. Thus, a country cannot imitate in this industry, but rather has to innovate. Products protected by patents, copyrights and royalties account for a rapidly increasing percentage of world trade.

Second, it is argued that the WTO has made the use of interventionist trade policy impossible. Chang (2003: 267-9) argues that rules on the use of tariffs, subsidies and quantitative restrictions have become tighter than under GATT (which did have restrictions), but also that some countries have reduced tariffs much quicker than the WTO rules mandated. There is still vital space for policy maneuver: infant industry protection up to eight years is allowed and there are clauses that allow countries to impose emergency tariff increases on certain grounds. Furthermore, all subsidies are not 'illegal', as least developed countries are allowed to use export subsidies for agriculture, regional development, research and development, and environment-related technology.

Third, never before has a country upgraded technologically as fast as China, accompanied by such small increases in real wages (Reinert 2007: 294). This creates downward wage pressures everywhere. While no country can remain hypercompetitive in labor-intensive industries indefinitely, China and India still have large reservoirs of labor in the rural areas, so the wait could be a long one. Furthermore, the efficiency and scale of Chinese manufacturing has pushed down the price of many manufactured products, relative to many other goods in the global economy. *The Growth Report: strategies for sustainable growth and inclusive development* released in May 2008 by the Commission on Growth and Development argues that this decline in manufacturing prices does not mean that labor-intensive growth strategies are impossible, but it does imply that they are more difficult to start and less effective in elevating incomes than they were in the past. This could be overcome if Europe decides to grant trade preferences to Africa as currently being advocated.

Conclusions: implications for development assistance

Industrialization must be back on the agenda for poor countries, but it must be linked to a simultaneous drive to increase agricultural productivity in food crops produced by smallholder farmers. Developing countries also

need to get out of producing technological dead-end products. In terms of development assistance, we need to focus on the positions of the poor as producers and not as consumers, and thus shift away from the idea of alleviating poverty by transferring purchasing power to the poor through foreign aid and towards the idea of alleviating poverty by creating employment.

Foreign aid has been used in the past to spur economic transformation. South Korea and Taiwan are the best examples, and it can be argued that aid played an important role in making them the success stories that they are. However, Robert Wade (2003: liii) argues, one of the disastrous effects of the end of the Cold War has been the disappearance of Western commitment to spurring economic transformation in poor countries. Instead of supporting transformative capitalisms, rich countries now focus on poverty reduction, market access and participatory governance. The current development agenda focused on programs to directly alleviate the symptoms of poverty, strengthening participation and eliminating rents and corruption has little to do with creating transformative capitalist systems able to generate mass affluence and a decent quality of life. It also flies in the face of historical evidence on how Western countries and more recent industrializing countries achieved economic development.

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