

Economic Development in an “Average is Over” World

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I. Introduction

The issue of economic inequality has commanded increasing attention as of late, but some of the most significant angles of the issue remain neglected. Not only may economic convergence turn out to be a myth for many nations, but the economic growth miracles of the future may look very different, and not in every way better, than those of the past. In particular they may be less inclusive and involve higher levels of income and wealth inequality. Those nations which develop may be growing into inequality-prone economic structures to a greater degree than did the growth miracles of the postwar era, most notably the East Asian Tigers.

I will focus on one particular reason why this may be the case, namely that manufacturing success no longer boosts middle-class employment as it did earlier. Ongoing changes in the nature of production may penalize nations which do not have the capacity to compete in information technology, and therefore developing economy labor may be outcompeted by capital from wealthier countries. That in turn may limit the formation of a healthy middle class. Furthermore even when developing nations do compete in the IT sector, as in India, the income gains from that production may be quite concentrated. In other words, the new economic success stories may have high income inequality baked into their core economic structures, just as the United States and much of Western Europe evolved relatively egalitarian economic outcomes after the Second World War. To give one simple example, income inequality in China has been rising, and China's Gini coefficient is now at levels exceeding that of the United States.¹

Sometimes the substitution of capital for labor takes the form of robots explicitly, but the mechanism is often a subtler one. Smart software allows for the automation of many functions formerly performed by humans, or we are substituting our time into new activities which require less in the way of assisting human labor. It is striking how few employees are found in the leading firms of Silicon Valley, whether it be Google, Facebook, or Twitter. But it is not just the tech companies. Today most factories and dockyards are rather quiet places where much of the critical work is performed by machines. Some workers, in lieu of accepting lower-paying jobs,

¹ Xie and Zhou (2014).

may leave the work force altogether, as we have been observing for men in the United States. At the same time, wages are rising for the smaller minority of workers who are skilled at working with the new information technologies.²

In a series of papers and short articles, Dani Rodrik (2012, 2013, 2014) covers the possibility that the age of catch-up growth may be over, and these concerns have begun to seep into more popular discourse. Daniel Riveong (2015) posed a critical question: "The great challenge is not how Developed Countries will deal with software automation, but how will Developing Countries like Indonesia (with a booming population of over 250 million) find economic growth when competition will come from relentless, scalable, and cheap computer software and robotics."

Even if one takes the view that process is not fundamentally different than the transformational changes of the earlier British Industrial Revolution, it took sixty to seventy years for the Industrial Revolution to translate into significant and sustainable real wage gains for British workers in the 1840s; in the meantime, no matter how desirable the end state, the transition costs were fairly high and this was reflected in the rise of socialist and communist ideals at that time. It is also worth noting that to this day the major Western countries subsidize their farm sectors, even when that is against the advice of most economists. In that regard the economic transition away from farming jobs, as it started during the Industrial Revolution of the eighteenth century, remains incomplete. Those are sobering thoughts for contemplating the economic transformations of today.

To trace changing patterns of inequality, I start first with trade, which has been a prime builder of the middle class for the successful East Asian economies. The next and second section of this paper argues that the growth of international trade and manufacturing employment are especially important for income distribution and inclusive economic growth in the developing world. That

² A number of recent books have explored information technology and how it can substitute for labor, most notably Brynjolfsson and Macfee's *The Second Machine Age* (2014), Martin Ford's *The Light at the End of the Tunnel* (2009) and his current *The Rise of the Robots* (2015), and my own *Average is Over* (2013), as well as some recent research on labor market polarization (Acemoglu and Autor 2011, Autor and Dorn 2013).

said, trade developments do not in every regard seem to be favoring inclusive economic growth. So if trade won't be driving as much of future growth, then what? The third and most central section of the paper looks at trickle-down growth from innovation, price discrimination, and the erosion of intellectual property rights as a new and growing source of economic convergence. Most of the developing world now has cell phones, and this may represent a new and different growth paradigm, namely one based on the immediate spread of consumption opportunities. The phrase "cell phones instead of automobile factories" sums up this new growth model. This section also considers how the earnings of wealthy country capitalists might drive foreign direct investment, and considers the import of developing country enclaves for productivity catch-up, in both cases with an eye toward distributional issues.

The fourth section will present four brief case studies from Asia, in particular China, India, the Philippines, and then some observations on the post-Soviet Central Asian republics. It is not possible to provide a comprehensive look at any one of these economies, but in each instance I will consider how the framework of this paper might explain some current and possibly future features of their development. Those cases are chosen on the basis of their absolute significance (e.g., China, India) but also to reflect the geographic and economic diversity of the Asian growth experience.

II. Why trade and manufacturing matter so much for inequality

Comparing the histories for manufacturing employment across the developed economies and today's emerging economies is the simplest way to show the problem. In the United States the proportion of the work force engaged in manufacturing peaked at about 25-27% in the 1970s, and has been falling since, now to about seven percent. But by the 1970s the United States was a fully developed nation before this deindustrialization set in. In Sweden manufacturing employment peaked at about 33% of the work force in the mid-1960s, and for Germany manufacturing employment rose as high as 40% in the 1970s. South Korea managed a

manufacturing share of employment of 28% in 1989. The peak is the United Kingdom, where manufacturing employment peaked at about 45% before World War One.³

Today's developing nations, for the most part, are not managing anything similar. We are already seeing many developing nations deindustrializing and their manufacturing employment is either falling or appears to have peaked before full development is reached. Brazil has been deindustrializing since the late 1980s, and manufacturing there has not exceeded 15% of employment. In India manufacturing peaked at 13% of total employment in 2002 and since then has been falling. In Africa we are seeing service sector employment grow more rapidly than manufacturing employment, which was not the case during the East Asian experiences. Very often in African nations manufacturing is declining as a share of gdp, including in South Africa, the continent's leading economy to date. Felipe, Mehta, and Rhee (2015, paper abstract) summarize the data: "(1) All of today's rich non-oil economies enjoyed at least 18% manufacturing employment shares in the past, and often did so before becoming rich; (2) Manufacturing employment peaks at lower incomes and shares today (typically below 18%), than in the past (often over 30%)".⁴

Part of the problem is that international trade is more institutionally and technologically contingent than is frequently realized and many common understandings of international trade models neglect the constraints on trade. In particular, there is a fixed cost to trading with others, especially across borders and at great distances. Or to pose one specific version of this question, why should a wealthy nation buy from a poorer exporter when it can automate and produce similar goods at home without incurring high labor costs?

If there is one empirical regularity about international trade, it is how little of it takes place. Only a small fraction of firms export or even consider trying to export; the actual percentage of exporting firms is estimated at eighteen percent. Most firms which do export are selling a single

³ See Rodrik (2013) and also Lawrence and Edwards (2013). For data on Asian countries in particular, see Felipe, Mehta, and Rhee (2015).

⁴ See Rodrik (2013). I do not believe we have good enough Chinese data on this question to draw a conclusion on that country; on this issue see Miller (2014).

product to a single country, and even the average magnitude here is to sell to only 3.5 countries. Most nations are not active competitors in most global economic sectors. Trade between nations falls off rapidly, indeed exponentially, as the geographic distance between those nations increases (the so-called “gravity equation,” which now is one of the most firmly established regularities in empirical economics). We see also that exporting firms are much larger than non-exporting firms – 4.4 times larger as measured by sales – and that fact is consistent with the notion of a relatively high fixed cost to trading internationally. Furthermore most exports come from large, multi-product, multi-destination exporters, also consistent with the presence of fixed costs. These factors are often neglected in the simpler presentation of models such as Heckscher-Ohlin and the theory of comparative advantage.⁵

Until recently, the common presumption was that economic globalization will increase over the next few decades, as defined say by its share of trade in global gdp, but it is not obvious this is the correct expectation. To consider a deliberately stylized scenario, imagine the developed countries automate what would otherwise be the growth in their manufactured imports. Rather than buying additional cheap plastic toys from China, or T-shirts from Vietnam, the wealthier nations produce those items at home. The increasing use of machines, smart software, robots, and 3-D printing would mean that wage differentials were no longer a major reason to look abroad or to lower-wage countries. The domestic manufactures would have lower transportation costs and furthermore the investment would proceed under a culturally and legally familiar home environment. It doesn't have to be the case that all or even much outsourcing is reversed, only that its growth slows down considerably. This scenario may sound anti-trade or pessimistic about trade in general, but that is a misinterpretation. The real question is whether domestic trade will outrace trade across borders and indeed it may. In the scenarios I am considering here, trade will depend less on one set of factors – namely wage differentials – and more on other factors, such as progress in information technology and also domestic market integration.

⁵ On these points, see Armenter and Koren (2014). For one empirical look at the importance of fixed costs for trade, consider the data on extensive and intensive margins of trade, as studied for instance by Chaney (2008).

I refer to this as a world of “radical insourcing.” Production would be increasingly drawn to those regions with the greatest facility for information technology, or with the best institutions, rather than to the regions with the lowest wages relative to worker productivity.

I am focusing on information technology and automation, but several other forces also may operate to slow down international trade as a share of global gdp. For instance, services will be a higher proportion of gdp and services are also harder to trade, for both economic reasons and for legal, protectionist reasons. Furthermore, insofar as the wealthier economies experience rising inequality, they will have low-wage workers of their own, which also limits the incentive for outsourcing. And Chinese economic growth is slowing down, and Chinese domestic integration has been increasing, both forces limiting China as a source of additional gains in cross-nation trade.⁶ Finally, while this is not the main emphasis of this paper, the next twenty years may not be as peaceful as the last twenty years and that could damage world trade prospects considerably.

At the very least, we should consider the possibility that *globalization as a trend* may have peaked over the last twenty years. Indeed since 2008 trade has been growing more slowly than has output, so perhaps the logic of globalization is indeed slowing down. To some extent that slow growth of trade is reflecting the financial crisis (tradeables tend to be more cyclical) or perhaps the relative decline in the economic importance of Europe, where trade tends to be a high percentage of gdp. In any case this is a scenario we need to reckon with, and one recent estimate (Constantinescu, Mattoo, and Ruta 2015) suggests that half of the recent trade slowdown is structural rather than cyclical. Furthermore we see cases of reshoring, where previously internationalized activities are being returned to inside national borders. American examples of this reshoring include Whirlpool Corporation (hand mixers), Caterpillar Inc.

⁶ Paul Krugman (2013) also expressed a skepticism about the future prospects for international trade when he wrote: “...the major opening of Latin America, China, and India is already well behind us. Finally, there’s The Box — containerization, which made the vertical disintegration of production, with separate stages carried out in far-distant nations, possible. But this too has been going on for a while. The point is that it’s entirely reasonable to believe that the big factors driving globalization were one-time changes that are receding in the rear-view mirror, so that we should expect the share of trade in GDP to plateau...”

(excavators), and Ford Motor (commercial trucks). The size and future prospects for this phenomenon, however, remain unknown and difficult to estimate due to limited data.⁷

In this world of radical insourcing, commodity trade would be the major source of export earnings. Commodity exports, however, typically lead to especially high levels of income inequality. If we look at the most equal economies in Asia – Japan, Korea, and Taiwan – they have little in the way of natural resources and they relied heavily on savings and human capital. Most of the major commodity exporters have quite inegalitarian outcomes, a logic which is perhaps most visible in Russia. It is relatively easy for political elites to gain control over the resources and capture most of the rents for themselves, as is often the case in oil-exporting countries. It's not so easy to do the same for human-capital based manufacturing wealth. Egalitarian outcomes, based on natural resource wealth, may come about when the country has a very strong governance tradition (Canada, Norway), a very small population (Brunei, Norway, Kuwait), or both. But in general commodity exports have not proven a durable basis for the growth of a middle class society, at least not taken on their own and not outside a small circle of small population, very well governed countries.⁸

As stressed by Felipe, Mehta, and Rhee (2015), it is employment in manufacturing which predicts future income growth and the later emergence of a middle class society, as again we have seen in East Asia. If we look elsewhere, the history of Latin America shows the region did not have especially inegalitarian outcomes until the early twentieth century. There was an initial

⁷ On the slowdown in trade, see Davies (2013) for a brief summary treatment, with the longer report from UNCTAD, Trade and Development Report (2013). For an argument that pressures from trade protectionism have gone up more than people realize, see Evenett (2015). Subramanian and Kessler (2013) consider a variety of forces favoring or disfavoring future “hyperglobalization,” as they refer to it. For a skeptical look at talk of insourcing, see Nager and Atkinson (2015). On reshoring see Hagerty and Magnier (2015).

⁸ On the resource curse, see for instance Sachs and Warner (1995), Hausmann, Hwang, and Rodrik (2007), and also Collier, van der Ploeg, Spence, and Venables (2010). For some useful correlations on manufacturing, growth, and premature deindustrialization, see Dasgupta and Singh (2006). For a series of arguments that service sector growth can perhaps drive economic development, see Ghani and Kharas (2010) and also Ghani (2014) and Dadush (2015). Diao and McMillan (2015) argue for the importance of domestic, “mid-level” or “in-between” growth, in small and mid-sized firms, in much of contemporary Africa. For general observations on convergence, see Rodrik (2011).

uptick in inequality during the late 19th century commodities boom, but then more importantly the Latin American countries missed out on a good deal of the "leveling" forms of economic growth which characterized the early to mid-20th century. Income inequality became "built in" to these systems, and Latin American levels of income inequality have remained relatively high through the current day (Williamson 2015).

The lack of manufacturing exports for an economy also may feed into domestic growth by taking away potential economies of scale. Without the chance to export Toyotas, Japanese domestic cars probably would have been more expensive and of lower quality. Internally-driven growth would have less of a jump start from the export sector and also less of an ongoing surplus to draw from for future domestic investment. Manufacturing appears to create strong backward and forward linkages, whereby one set of successful manufacturing companies helps to fund input sectors and complementary sectors, also full of middle class jobs. For the United States, for instance, there is good evidence that manufacturing creates a larger share of "value added" than its share of gdp alone would indicate. American manufacturing also accounts for about seventy percent of the country's business research and development.⁹

Without a strong manufacturing presence, developing economies also would lose some of the favorable discipline and learning effects from global markets. Foreign buyers typically demand very high standards of quality because they have higher incomes and also can select from a wider menu of choice. Furthermore it is difficult to manipulate foreign demands by domestic politics. So if a nation is succeeding in external markets with quality exports, the country is meeting some pretty severe quality standards. That may bring trickle-down benefits through learning, and the development of broader industrial clusters, to the rest of the economy. At the very least it indicates that the gdp generated through exports is real, and it is reflecting real productive advances. It is all too easy for governments to generate "phony gdp" – meeting the statistical prerequisites of the measure but often missing the quality and effectiveness – by spending more on their militaries, schools, and health care systems.

⁹ Early versions of these increasing returns to scale arguments come from Kaldor (1967) and arguably from Adam Smith as well. For a recent look of the disproportionate contribution of manufacturing to value added, see Scott (2014). On manufacturing research and development, see Lawrence and Edwards (2013).

Manufacturing jobs, especially at larger scale and for export, are also more likely to be in the formal sector. This helps generate tax revenue, and although it brings the upfront costs of higher regulation and taxes, it encourages the business owners to take a longer-run perspective on their investments. The willingness to bear those high upfront costs of “going formal” is correlated with a willingness to invest in product quality and long-term market penetration. This is in contrast to a lot of petty entrepreneurship and also smaller-scale service jobs, where fixed costs are small and long-term investment is much lower. In addition, manufacturing exports create a political class with a vested interest in building a lot of quality physical infrastructure, which may rebound to the benefit of the nation more generally, as has been the case for instance in South Korea.¹⁰

Export-based manufacturing jobs also are well-g geared toward building a middle class. Many domestic service sector jobs require either high levels of education – a doctor – or very low levels of education, such as a retail clerk. Service jobs can put a lot of people to work but they don’t put enough of those people on a track toward rising incomes over time. Most people can’t become doctors in any case, and the retail clerks may not see much rising productivity. Turnover in retail jobs is typically high, which reflects relatively low returns to experience in those jobs. Once a worker has been trained to work a cash register, and to learn the menu and smile at customers, not so much additional progress is possible in most cases; at best the worker will graduate into being an entrepreneur in the same sector and in turn hire more service workers. In contrast, workers in manufacturing plants often have higher returns to experience and cannot so easily be replaced, and thus the employer has reason to cultivate their loyalty and also to invest further in their human capital. A durable core of middle class workers is built up, in contrast to the more interchangeable low-productivity service sector employees. Consistent with this mechanism, many developing nations have a relatively small elite of highly educated service workers, such as doctors and lawyers, and a much larger number of lower productivity service sector workers. If we consider the United States, for workers without a college education

¹⁰ There is also the issue of which manufacturing jobs. For a disaggregation of manufacturing jobs in the process of Asian economic growth, see Felipe (2010, *passim*, chapter nine).

manufacturing jobs still yield a premium of \$1.78 an hour, or over ten percent. In some states the manufacturing premium for these jobs is over 24 percent.¹¹

Finally, manufacturing appears to be a sector where rates of productivity convergence are relatively high (Rodrik 2012). That means if a developing nation establishes a foothold in those areas, it is likely to see continuing productivity gains and thus higher rates of overall catch-up. For instance once a country gets started in automobile production on a significant scale, it tends to catch up to the world leaders. Productivity convergence in services appears to be less strong, and productivity convergence is weaker yet in agriculture. These stylized facts are yet another reason to believe there may be something special about export-driven growth in manufactures, at least provided it is possible for a country to get onto that track. Keep in mind that as a practical reality, the actual alternative to manufacturing jobs is very often continued employment in agriculture, a sector where catch-up is especially difficult (I will return to this later).¹²

To make these issues more severe yet, some service exports may be automated too. Indian call centers might be replaced by Turing bots. The Saudis might install robots and cut back on the number of Filipina maids they employ, thus lowering remittances back to the Philippines. Many service sector jobs appear harder to automate, but driverless vehicles are becoming a reality, robots and drones are growing in sophistication rapidly, and artificial intelligence programs already are offering medical diagnoses, writing news stories, and grading essay exams. So technology may be making export-driven growth more difficult in both services and manufacturing.¹³

¹¹ See Scott (2014).

¹² Consistent with the view that manufacturing is especially important, the economic losers in recent decades have borne especially heavy losses in those sectors. Argentina, for instance, during its downward economic trend has seen its largest employment losses in manufacturing, and that is the country's largest sector with above-average productivity. The post-1989 economic collapses in Eastern Europe also have been accompanied by significant and often quite rapid deindustrialization. Perhaps these changes were inevitable given global competition, but still the data are consistent with the claim that manufacturing and manufacturing employment are especially important for growth. On Argentina, see for instance Rodrik (2011).

¹³ In standard approaches, a typical manufactured good comes out of a factory and is readily embodied in physical form, such as an automobile or a machine part. It can be put on a ship,

Under such conditions the next generation of catch-up growth, whether we think that is Vietnam, Indonesia, or India, would not be able to get off the ground, at least not through exports. The remarkable phenomenon of late 20th century catch-up growth is just how much of it is driven by cross-border trade, as has been most evident in the East Asian economic miracles. So if international trade is becoming less important in percentage terms, this older model of export-driven growth will become less important too.¹⁴

III. A new source of growth: trickle-down through the erosion of IP rents

In these scenarios trickle-down growth from price discrimination and the erosion of intellectual property rents become more important as a source of economic improvement. I call this mechanism “cell phones instead of automobile factories.” Many economic ideas are subject to non-rivalrous use, as they can be deployed by many people once they exist. That phenomenon may sound separate from the substitution of capital for labor outlined above, but that is part of the same broader process. If the wealthier nations use smart software to displace imports from the developing world, poorer nations will benefit from the software in other ways, including a trickle-down of goods and services.

The cell phone (and by extension the smart phone) is a paradigmatic example of trickle-down consumption. The technologies behind the cell phone were invented across a variety of nations,

truck, or railway and be brought from one place to another. Services, in contrast, are often less tangible more place-specific. You visit a doctor for an examination, a notary verifies and stamps your document, or you attend class in a schoolroom. Yet “manufacturing” vs. “services” is arguably an arbitrary distinction, especially with the ongoing digitization of production. That said, it does not solve the underlying problem to challenge the distinction between manufacturing and services. The scenario of radical insourcing could be reformulated as suggesting that information technology substitutes increasingly for unskilled labor, just as computers put many filing clerks out of business, in both manufacturing and services.

¹⁴ On how trade boosts growth, see the classic paper Frankel and Romer (1999). Felipe (2010, chapter 16) considers export-led growth in a broadly Asian context. On the general theme of inclusive growth, and its preconditions, see Felipe (2012a) and also Kang (2015). Sen (2016) offers an overview of how structural transformation, namely the moving of workers from low productivity to high productivity environments, can come about.

none of them poor (although China contributed to the finishing process), and yet cell phones are extremely prominent in poor and lesser developed nations.¹⁵

Internationally, cell phones and smart phones have brought significant benefits and often at relatively low cost. In the poorer parts of Asia, cell and smart phones are available for much lower prices than in the West. Part of that is the result of price discrimination, such as when Samsung sets deliberately lower prices for most of Africa and the poorer parts of Asia. In other cases the poorer countries buy a somewhat lower quality product, but one still effective for many of their needs. The Blackberry was not long ago state of the art in the United States, but now it sells primarily in poorer countries, including Indonesia, Vietnam, and South Asia, in addition to parts of Africa, and of course it sells to these regions at lower prices.¹⁶

The entire chain of internet-based, internet-connected low-cost service has spread remarkably rapidly to many of the poorer countries, and in essence some of the original intellectual property rents have leaked down to poorer buyers and users. Cheaper cell and smart phones spread globally as fast as they did because originally patentable inventions were copied rapidly, often embodied in cheaper material forms, sometimes within the scope of the law but not always. Indonesia is one of the countries today where Facebook access is most likely mediated through a mobile device (Purnell 2015). Or in other words, rather than Indonesia or Cambodia exporting manufactures to buy imported goods, an alternative development path is that some of those imports trickle down and enter poorer countries at especially low prices.

Poorer economies can't get constant cost goods and services for any cheaper than they are available in wealthier countries and in fact they may have to pay more because of shipping costs, poor institutions, and less efficient retail systems. If the wealthy nations produce more cement,

¹⁵ For a popular take on current economic development as fundamentally a story about consumption, see Prahalad (2006). For a model of urbanization with growing consumption but not much industrialization, see Gollin, Jedwab, and Vollrath (2014). On technology flow to poorer countries more generally, see Cole, Greenwood, and Sanchez (2015).

¹⁶ To compare cell phone prices, pricebaba.com is one source, see for instance http://pricebaba.com/mobile/pricelist/android-phones-price-list#s_gprs=1&s_wifi=1&s_bluetooth=1&sort_by=price&sort_dir=true. /.

the trickle down benefits from that activity may be slight. But for declining cost commodities, it is a different story entirely.

The more the economies of the wealthy countries are focused on increasing returns to scale sectors, the more important this version of trickle-down growth will become. And for the last few decades, many of the most important innovations in the wealthy countries have been shifting into increasing returns to scale sectors, most notably in the tech world. The tech world is geographically clustered, and centered in Silicon Valley, which are both classic signs of an increasing returns to scale sector. Some of the outputs are given away for free (Google, Facebook), and others show high degrees of market concentration, with a single dominant supplier providing a network good (eBay, Facebook, Instagram, Twitter). When it comes to the hardware behind the tech sector, there is an emphasis on new models, upgrades, and differential pricing plans, again all signs of increasing returns to scale.

In the limiting case, if *everything* in the economy looks and acts like the tech sector, this source of growth could be quite significant indeed. In other words, a world where “software eats the world,” to borrow Marc Andreessen’s phrase, is a world where the developing nations end up doing pretty well, even if the traditional export-oriented path to convergence has gone away.

Most forms of economic growth are fundamentally imbalanced (Hirschman 1958), but in this “cell phones scenario” we see a new form of imbalance. The new imbalance would be based on increasing returns to scale goods, which would trickle down to poorer countries, vs. constant and increasing cost goods, which would not trickle down. Developing nations thus would be very well supplied with (cheaper versions of) increasing returns to scale goods, but have relatively stagnant supplies of constant and decreasing returns to scale goods.

In practice this would mean that cell phones, software, web sites, movies and television shows, pharmaceuticals, and ideas more generally would be plentiful in developing nations. Similarly, housing and many basic foodstuffs will have higher relative prices. “Living in the past,” so to speak, will become increasingly expensive, and living on or near the technological frontier may become relatively cheap, even in countries which are not thought of as especially technologically

advanced. This probably would mean that younger individuals would gain more from economic growth than would older individuals, at least relative to a model of balanced growth; the younger individuals are more likely to use the newer technologies.

It is worth noting that measured gdp will understate true economic growth in these scenarios. First, measured gdp won't pick up free goods such as Facebook and Google. Second, measured gdp will undervalue consumption goods produced under increasing returns to scale. Even if these goods are not free, their prices eventually will fall to be near marginal cost and consumption of the good will rise considerably. Gdp measures will value these goods at their market prices, yet inframarginal social valuations are likely to be especially high, as compared say to an equivalent good produced at constant marginal cost.

The "cell phones instead of automobile factories" growth path will differ considerably from the export-driven model, as it will look and feel more "consumption first." It does not require high levels of personal savings, as did the East Asian growth histories, nor does it require or necessarily induce major investments in high-powered, capital-intensive physical infrastructure. Instead, many individuals in the poorer nations will rather rapidly be much better off and enjoy a wide variety of personal consumption items, at quite low prices or sometimes for free. It is a "more fun" path to economic growth. It also may not require much in the way of cultural changes or transformations, as most cultures in the developing world already are sympathetic to higher personal consumption. The almost obsessive pro-saving, pro-education ethics which evolved during the East Asian miracles need not be repeated for this growth path.

In these scenarios, the developing nations perhaps do not look physically very impressive, even as their income levels approach middle tier status. Their housing stocks may remain somewhat ramshackle, energy costs may prevent them from developing transport systems of the highest quality, and mediocre infrastructure may deny them full internal economic integration. Materials costs will remain a significant binding constraint, and trickle down from the wealthier economies won't do much to help in these matters. It is ideas which are the public goods, not building materials. Nonetheless the poorer countries will have cheap labor and wonderful access to ideas,

most of all ideas as they are embodied in goods produced under conditions of decreasing marginal cost.

Many developing economies could, in numerous ways, be doing fairly well, but visually never look very well developed. In this regard they could prove the opposite of Eastern Europe, post-1989. I traveled to Prague in the summer of 1990, and from a superficial perspective the city did not appear so poor. The buildings and lodgings did not look much worse than in the historic cities of Western Europe, although the amount of renovation had been less. Still, Prague appeared to be nearly fully developed, at least from the exteriors. Furthermore that part of the Czech Republic (then Czechoslovakia) still had a lot of good roads, bridges, and infrastructure from the pre-World War II era. A closer look, however, revealed that Prague was poor when it came to ideas and new technologies. Inside those magnificent historical buildings were relatively few fax machines, computers, and electronic systems. The next generation of the developing world may look like the opposite of this. It may have lots of modern technology, especially as it relates to information, but a relative paucity of investment in expensive physical capital.¹⁷

In this scenario where ideas (and labor) are cheap, some developing nations might end up specializing in cultural production, educational production, and computer programming, to take advantage of these efficiencies. That is, they might find a new path back to some forms of export-oriented growth, albeit not in traditional manufacturing. This mechanism already reflects some features of Indian economic growth, most of all in computer programming and information technology. The services and products from those sectors are themselves sold and exported using information technology rather than shipping labor or a physical product.

Might high returns to foreign capital benefit emerging economies through other mechanisms?

¹⁷ Economies benefiting from trickle-down consumption growth also will have unusual properties when it comes to cyclicity. Their relatively low rates of savings, compared to the East Asian tigers, will make their economies more vulnerable to debt crises. At the same time, that cyclicity is more likely to show up in gdp figures than it is to show up in terms of consumption. The relevant consumption goods are already quite cheap and well-entrenched in these societies. Cycles may thus be more volatile in the economic data, but have lower impact on the well-being of many individuals in these nations.

The above discussion focuses on the trickle-down of consumption opportunities, but high returns to foreign capital will have other trickle-down effects on emerging economies. As some wealthy country capitalists earn high returns, they will look to invest their accumulated capital and often they will look outside their home countries. Foreign capital thus would continue to boost growth in developing nations, even if it is less likely to fund export-driven growth. Foreign capitalists still may seek higher rates of return from the “low-hanging fruit” of the poorer nations. For instance as Indian domestic retail opportunities grow, foreign capital will continue to seek out those profits, at least provided the legal environment is suitably tolerant.¹⁸

This mechanism for foreign direct investment likely will favor the countries with larger internal markets. Just as foreign trade has fixed costs, foreign investors face fixed costs to make investments abroad at all. They will invest in smaller countries if those countries show the potential for high returns, for instance through exports. But with exports neutered as a major factor, the potential for high returns stems from the size of the domestic home market. In Asia that would mean larger relative FDI advantages for China, India, and Indonesia, and a larger relative FDI disadvantage for smaller countries such as Armenia, Turkmenistan, Cambodia, and Laos, to cite just a few examples.

Given the dilemmas outlined in this paper, some smaller nations may seek their futures as satellites or willing “economic colonies” of wealthier countries. A (non-Asian) example is Mexico, which has very close economic ties with the United States as well as membership in

¹⁸ I do not expect Thomas Piketty’s argument to provide the relevant parameters for future inequality, but for the time being assume his model is correct. The Piketty scenario actually may imply some rather optimistic conclusions for the relatively poor Asian nations. At one point Piketty considers why diminishing returns to capital will fail to take hold in the wealthiest countries. In response, he cites two factors, in a section of the book which has been neglected. First, the wealthiest individuals may have access to special trading technologies, such as through hedge funds. Second, and more important for our purposes, capital will continue to find low-wage investment opportunities in poorer countries, thereby maintaining higher rates of return. In other words, in the Piketty model capital mobility remains a significant source of (partial) wage equalization across borders. In fact, the more r will exceed g , the more capital will have to flow abroad to maintain a high rate of return. In this regard the model is not such a dystopia at the global level. Do note, however, that Piketty predicts a global growth slowdown after 2050, including for the developing nations. On this aspect of his thought, see Demombynes (2014).

NAFTA. Mexico also has high productivity levels in some technologically advanced sectors, such as automobiles (Mexico soon will pass South Korea as the world's third largest automobile exporter), while also having a large informal sector with much lower wages. In essence, Mexico is creating a dual economy and offering developed country productivity levels in some sectors, but low wages for many of the accompanying workers on the side. Even the best automation only eliminates some of the labor costs of production, and so investors may seek out economies with favorable mixes of technology and low wages for the remaining support services. Mexico has experienced some success in stepping into this niche.¹⁹

These hybrid developing economies will tend to have relatively high stock market values, relative to their median wages, or in other words a lot of the economic gains from that model will be captured by capital. This seems to describe the Mexican experience circa 2016.²⁰

Countries also may boost their internally-driven growth by constructing enclaves. Special economic zones, for instance, bring the practices and culture of the broader global economy to specified parts of developing nations. The relationship between America and Mexico mixes low- and high-wage economic elements across a border, but enclaves try to do the same within a single nation or region.

Indian outsourcing activities, as practiced in Bangalore, Chennai, or Hyderabad, are examples of enclave construction. The outsourcing centers typically produce much of their own

¹⁹ Note that in some cases the “capital investment” from foreign economies will take the form of philanthropy. We already see the Gates Foundation investing capital in Africa, with the hope of improving public health outcomes, and it is likely that future billionaires will make additional efforts in similar directions, in Asia too.

²⁰ Such hybrid models may require a close economic and maybe treaty relationship with a nearby hegemon. In that regard there is no clear parallel to Mexico in Asia currently. Nonetheless we can imagine that some version of this model evolves over time. For instance Sri Lanka or Vietnam or Mongolia could take on a role broadly similar to Mexico with China as the dominant hegemon, although so far geopolitics has proved a partial obstacle to bringing these trade relationships to their maximum potential. Another version of the idea would have India as the hegemon and Bangladesh and/or Pakistan as the poorer and smaller economic satellite nations. The desire to attract foreign capital is one factor giving the smaller nations reason to accept such a subordinate status.

infrastructure, including electricity, water, web connections, and even roads. The goal is for the environment inside the firm, often set in walled-off medieval-style compounds, to approximate that of a fully developed nation. At the same time, the enclave is set in India and takes advantage of the lower wages there. It is another way of blending developed and developing country features, and future development models likely will involve a good deal of such blends, rather than the more straightforward construction of middle class societies as we have witnessed in South Korea, Japan, and Taiwan.

We see this practice of enclaves, combined with partial exclusion, popping up in many contexts. Paul Romer's "charter city" concept was another attempt to build an enclave – in this case a legal enclave with external law enforcement – although that idea has not been realized in practice, at least not since the earlier colonial versions of Hong Kong or the Panama Canal Zone.

The literature on differential productivity convergence across different sectors (Rodrik 2012) offers a motivation for yet a further growth of enclaves to stimulate economic growth. As mentioned above, productivity convergence tends to be most rapid in manufacturing -- contingent on a poorer country obtaining an initial foothold -- and slowest in agriculture. We don't know why this is the case, but it is worth thinking through some hypotheses and what they may mean for future growth models.

One explanation for convergence differentials across sectors involves the degree of insulation from surrounding institutions or the surrounding culture. Very often agriculture is "out there" in an open field. It takes up a good bit of territory and those lands overlap with numerous local, county, and state political borders. It hits up against issues of native land rights, infrastructure and transportation quality, and very often there are time-honored agricultural practices and techniques dating from the distant past which are not about to go away. Agriculture, in part because of its age and universality, is often tightly integrated with traditional cultures, especially in the world's poorer countries. Those features can make it harder to bring improvements to low-productivity agricultural producers, as it is hard to build enclaves which exclude the lower productivity elements of the surrounding culture.

A lot of manufacturing, in contrast, is located in factories. The factory takes up less space than open fields and crosses fewer political boundaries if any. It does not usually war against any kind of traditional technique, and it lacks the romance and emotional appeal of time-honored food practices, as we still see being practiced with Japanese rice. The factory can more easily be fenced, guarded, and locked up overnight. A factory comes closer to being a world, and a culture, unto itself. In other words, the factory is more like a segregated enclave than is agriculture.

Coming from another literature and another direction, Richard Baldwin (2006) has analyzed how much various international supply chains are being picked apart and spread across various countries. In his account, the old model was the construction of a comprehensive, horizontally integrated supply chain, as happened for instance in South Korea. The production of automobiles in South Korea involved a lot of other inputs, and a lot of other cooperation, but to a large extent with other South Korean manufacturers. The South Korean government also built a national physical infrastructure to sustain such productive relationships. These days, according to Baldwin, the new model is closer to that of Thailand, which like South Korea is also involved in automobile production. But rather than attempting to make the whole car or even most of it, Thailand specializes in a small number of stages of automobile production, often under the aegis of a Japanese company. Thailand will never fully industrialize, but we see enclaves of high-quality automobile production in Thailand, which boost incomes significantly in some regions of the country and for some classes of workers. Baldwin's scenario combines the idea of hybrid relations – the United States-Mexico model – with the idea of enclaves. Again, future development models may blend features of developed and developing nations in new and unusual ways.

IV. Country case studies

Now I shall consider recent developments and future prospects for the evolution of income inequality in four nations or regions: China, India, the Philippines, and the post-Soviet republics in Central Asia to illustrate some of the themes of this paper.

China

Most of all, China is an example of a developing economy which is slated for a very high future level of income inequality. In fact, over time we might expect China to be among the least equal major economies. For instance, just recently it was announced that Beijing has passed New York City in the “billionaire tally,” namely 100 to 95.²¹

Issues of politics and corruption aside, the reason for this is simple, namely China's economic size as a nation. Because of the “home market effect,” larger countries tend to produce larger business firms and thus larger fortunes. Since many businesses serve national markets, they will be built larger in the first place, or have greater potential to scale globally, if they are founded in large economies, such as China (this is also one reason why the United States has higher income inequality than most other developed nations). China already has some sizable information technology companies, such as Tencent, AliBaba, Huawei, each having generated some very significant private fortunes and in many cases with plans for global expansion. Similarly, the largest Chinese auto manufacturers likely will end up very large by global standards, again with some attached mega-billionaires most likely.

There is yet another reason why we might expect China to grow into especially high levels of income inequality. China starts along its growth path in the 1980s, precisely when technologies of advanced growth are pushing economies in the direction of greater income inequality. Chinese economic growth did help build a middle class, but at the same time Chinese growth through real estate, finance, global exports, and tech created a class of billionaires and the mega-wealthy. Chinese economic growth was “born” into a time when economic conditions, for whatever reasons, are allowing less long-run play for egalitarian forces.²²

²¹ See Yang (2016).

²² On China already having greater income inequality than the United States, see Xie and Zhou (2014).

The “baking in” of this higher income inequality may result from a number of forces. For instance China started selling to world markets relatively quickly, which increased earnings at the top of the income ladder. At the same time, China, unlike Japan or South Korea, came of age in manufacturing at a time when global competition was much fiercer. China has to compete with South Korea on the higher end of the manufacturing scale but also Vietnam and many other countries on the lower end. The final evidence is not yet in, but this may cap just how sustained the increase in Chinese middle-class wages may prove. Circa 2016, with an ongoing slowdown in the growth of the Chinese economy, the country cannot simply rely on export-driven growth as it has in the past. The global demand is not there to drive sustained growth in middle class wages, and of course the United States, Japan, and Western Europe suffer from similar problems.

In general, very large countries are harder to transform through export-driven growth. If China had only a population of fifty million individuals, and we imagine the territory as receiving the same growth opportunities in absolute terms, the country already would be (more or less) a fully developed and relatively egalitarian society, through the quality jobs it already has created through exports. But elevating 1.3 billion people, many of whom live in distant rural areas, through export-driven growth is a much more difficult endeavor.²³

Furthermore China, like most of the developing world today, is likely to undergo premature deindustrialization. I’ve already mentioned that America started deindustrializing in the 1970s, when it was already a fully developed, middle class country. Chinese deindustrialization is likely to come well before a comparable income level, shifting to services and also to industrial robots before it attains the American standard of living from the 1970s; that also will keep Chinese inequality high. So far, it is difficult to gauge just how well Chinese manufacturing employment is doing (again, see Miller 2014), but as of late Chinese manufacturing is the sector which has been hit hardest by China’s ongoing structural transformation and slowing growth.

²³ For one discussion of the middle income trap with respect to China, see Zhuang, Vandenberg, and Huang (2012). For a criticism of the idea of the middle income trap, see Felipe, Kumar and Galope (2014).

There is at least one reason to expect that capital-labor substitution might occur more rapidly in China than elsewhere, and that again has to do with the size of the Chinese home market. A large home market means larger firms, and larger firms are more likely to incur the fixed costs associated with mechanization. For instance IBM and Google buy (or invent) a lot of fancy information technology, but the local candy store doesn't adopt the same until it becomes very cheap, if ever. Indeed, China already measures as being the world's number one deployer of robots, and this is for an economy with general wages still slightly below the level of Mexico.

If there is a bright side to the Chinese situation, it is this: the country is so large, it has continued to diversify its manufacturing rather than specializing. If we look at the history of say industrialization in South Korea, at first the country produces all sorts of manufacturing goods, if only to drive its own growth. As the economy matures, it trades more for the most efficient inputs and thus home country manufacturing specializes more, namely domestic Korean companies specialize in what South Korea can sell effectively in global markets. Samsung and Hyundai persist, but the local manufacturer of diapers may or may not prove competitive. That is a natural pattern for smaller countries. In China, however, the country is still producing a wide array of manufacturing goods for the home market. The Chinese market is so large, and the value of direct access to that market is so significant, that China has not significantly specialized its exports the way many other developing nations have. That holds out some prospect for a relatively high level of manufacturing employment in China, looking forward.²⁴

It is also possible that some of the recent measured slowdown in global trade comes from China building more fully integrated structures of production for its manufacturing, relying on domestic inputs in cases where it used to import. That also would help China maintain its manufacturing employment over time.²⁵

When all is said and done, although there is a chance of some especially favorable structural factors in the case of China, China's manufacturing heyday probably will not transform the entirety of the nation. Indeed we already see a Chinese government stressing the growth of the

²⁴ On this point, see Bateson (2016).

²⁵ For a discussion of that factor, see Donnan (2016).

service sector when it is trying to talk up the economy. China thus is likely to develop differently from Japan, Taiwan, and Korea. These countries started their growth miracles in an era when relatively egalitarian distributions of wealth were more common and when such distributions were easier to achieve through standard economic growth and a high percentage of manufacturing jobs in the labor force.

India

India is a striking example of a country which has been underinvesting in manufacturing. As we have seen in section two of this paper, the likely implication is that India will fail to develop a large (in percentage terms) middle class and thus will continue to develop along a path of extreme income inequality, with gains unevenly distributed and to the long-run detriment of the nation.

Relative to its gdp, the path of Indian manufacturing as a share of gdp has been much lower than it should be, on the basis of standard models (for instance circa 2000 the difference was a reality of 15.85 percent vs. a projection of 19.55 percent). At about fifteen percent of gdp, Indian manufacturing is about half that of China and also well behind what Japan and South Korea had achieved decades ago. There may be undercounting here, due to the informal sector, but it is also the case that informal sector firms typically invest less in their employees and have weaker prospects for long-term global competitiveness, due to constraints on their size and visibility.²⁶

Indian development plans frequently call for the number of manufacturing jobs to rise, and Prime Minister Modi states that he has made this a priority. Over 120 million Indians will enter the labor force in the decade stretching to 2024, and it is a central question for income inequality how this demographic dividend will be employed.²⁷

But it is not obvious India will succeed in creating enough high productivity jobs, or enough manufacturing jobs. The country has had inefficient energy policies, and often energy supplies

²⁶ See Felipe (2010, pp.101-103), and for a more recent discussion see Crabtree (2015a).

²⁷ On the number of Indians entering the labor force, see Crabtree (2016).

have served as a constraint on growth. There are strict employment laws, often coming from the state level, which raise the costs of hiring and firing workers. And while Indian wages are low and the population large, finding the right talent and training mix in India isn't always easy, due to the underdevelopment of the education system and highly regulated labor markets. India also has subpar infrastructure, even for a country of its income level. The roads, airports, and ports are usually poor in quality, the power supply unreliable, and internet connections can be iffy. Finally, India does not always protect the property rights of foreign investors, which can limit the creation of new export-oriented firms. The Indian court system is also notoriously slow and inefficient, as cases can take twenty years or more to settle. For instance the security of property rights in land, such as might underlie a factory, can be difficult to discover, verify, and enforce.

Another set of problems may stem from path-dependence. For several decades after World War II, Indian practiced protectionism and foreign exchange constraints and the “license Raj” system made it hard for many manufacturers to import the necessary inputs. This hardly exhausts the list of problems, but most generally India’s economic problems take forms which tend to impinge more heavily on “physical space” activities rather than “information space” activities. For all of these reasons, India is not a natural candidate to succeed China as the world’s low cost manufacturing center.²⁸

As in China, we already see Indian manufacturers investing in automation and robotics, and that is at yet lower wage levels. Both the recent Ford and GM plants in India use state of the art robotics, as they might in much higher-wage countries, and robot manufacturers speak of India as a significant market for potential growth. The Swedish electronics group Ericsson is planning a significant expansion in India, that won't involve many manufacturing jobs for younger workers, but rather it will mostly be a mix of much more highly skilled jobs, plus manufacturing robots. The Indian government has set the goal of manufacturing employment of 150 million by 2022, but the BCG consultancy has suggested that a much more realistic estimate by that date would be no more than sixty-two million.²⁹

²⁸ For one good discussion, see Felipe (2010, pp.104-105).

²⁹ See Crabtree (2015b) and (2016) on these planned expansions.

The net trend is this: manufacturing as a share of Indian employment is falling, in part because global trade has been slowing down. In the meantime, the country has not yet built a middle class which is dominant in percentage terms. It is not clear there are current forces which hold any realistic hope of reversing that basic trend.

We already can see how much of the disparity and inequality in India is regional. According to some estimates from McKinsey, for instance, the very richest areas in India (e.g., Goa, Chandigarh) will have per capita incomes at about \$32,000, or close to Spain today, by 2025, in purchasing power parity terms that is Delhi is projected to have per capita income of about \$24,000 (again, in PPP terms), while Maharashtra, Gujarat, Haryana, and Kerala will have per capita incomes in the range of about \$14,000 a year, roughly on a par with current Brazil. Unfortunately, those brighter numbers probably will not soon describe India as a whole. Many of the poorer states, such as Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh, are extremely populous. Uttar Pradesh alone has about 200 million residents, roughly the population of Brazil, and yet it is one of the poorest states in India. The three relatively poor states of Uttar Pradesh, Bihar, and West Bengal make up about thirty percent of India's population today, with that share projected to grow. And yet the fruits from India's growth are being distributed unevenly across the regions. A McKinsey study estimates that if we take the eight best-performing of India's 29 states, and add on the four best-performing city-states, those units are likely to account for 57% of India's growth between now and 2025. It is thus quite easy to imagine a future where India industrializes to only a very partial extent. Currently the country as a whole has per capita income of only about \$5700 in PPP-adjusted terms by World Bank measures.³⁰

Philippines

The Philippines is a paradigmatic example of the "cell phones rather than automobile factories" scenario outlined in section three . About one-third of the workforce still remains in relatively low productivity agriculture, and manufacturing has been slow to develop. Manufacturing production and also employment increased in much of Asia in the 1980s and 1990s, but the Philippines lagged behind during this period and for a while became known as "the sick man of

³⁰ Nayyar (2014) and McKinsey (2014).

Asia.” From 1980 to 2013, Malaysia, Thailand, Indonesia, and Vietnam saw their per capita incomes rise by 300% to 400%, whereas per capita income in the Philippines rose only by about 40%. Neither manufacturing nor poverty reduction can do well with that basic background.³¹

The result was a continuation of the country’s especially high level of income inequality. Historically, poverty typically has been more widespread in the Philippines than many other parts of Southeast Asia, due to corruption, economic underdevelopment, policies which punished agriculture, and unequal access to good health care and education. For the forty-year period which started in 1957, the Gini coefficient changed only marginally in the Philippines (from 0.45 to 0.51), despite ongoing economic growth. Even with robust economic growth in the last few years, inequality is baked into Filipino society in various ways, and it will take a long time for the country to undo this earlier legacy.³²

The Gini coefficient, however, doesn’t fully reflect the full nature of the inequality problem in the Philippines, if only because such a large number of people are clustered together at very low income levels and thus registering as fairly “equal.” The data on poverty show an even more worrying picture. Per capita income, PPP-adjusted, is closing on \$7,000 by World Bank estimates, but this number does not capture that the country has some of Asia’s largest and worst slums, as well as significant rural communities which are not well served in terms of clean water, electricity, health care, and sometimes even nutrition.³³

That said, the Philippines are very well equipped with cell phones and also other innovations in information technology. In 2013, 28 million mobile phones were shipped to the country, and prices for smart phones can run \$30 or lower. By another estimate, by the end of 2015 40 percent of Filipinos were to own smart phones of one kind or another, a remarkable figure for a country with such a low per capita income (for contrast American smart phone penetration by the end of 2015 was probably just shy of sixty percent). None of these estimates are exact and they

³¹ On the percentage of the workforce in agriculture, see Sen 2016, p.2. On the slow growth period for the Philippines see “Competitiveness: Catching the Next Wave” (2014).

³² On the earlier history of economic inequality in the Philippines, see Gerson (1998) and also Poverty in the Philippines (2009).

³³ See Keenan (2013) for one description of this poverty.

will be quickly out of date as smart phones continue to flood into the country. Simply spending time in the Philippines immediately reflects how omnipresent cell phones and smart phones are in the business life and also the social life of the country. The Philippines is sometimes known as “the texting capital of the world,” and mobile devices are the primary way people access the internet. Although the country has a much lower per capita income, in terms of real consumption services a large number of Filipinos enjoy communications services which are equal to or not much worse than what is received in the United States or other fully developed economies. That is an example of economic growth on the consumption side having been achieved very rapidly.³⁴

This is not just a story of consumption, rather access to information technology also has shaped the production side of the Filipino economy. The country has numerous service sector enclaves, supplying business process outsourcing. This includes call centers, back-office services, data services and software and IT support, often centered in or near Manila. These services are connected to the outside world by high-speed internet cables, thereby allowing a relatively small part of the Filipino economy to enter contemporary global competition. This is eased by the country's relative proficiency in English, the existence of some good educational institutions, and the ability to those service sector enclaves to build and service their own infrastructure, as is also the case in India. Although educational inequality is high in the Philippines and a major problem, the country is number three in Asia in terms of the absolute number of graduates who are trained in subjects relevant to the business process outsourcing sector. Still, the sector employs only about one percent of the Filipino work force, and that reflects the limited capabilities here for building a middle class through this economic model.³⁵

³⁴ On cell phone shipments, see Rivera (2014), and on smart phone penetration see Santos (2015). For one estimate of the U.S. rate, see “Smart phone penetration rate as a share of the population” (2016). In general these private sector estimates are based on numbers which are fluctuating rapidly and thus hard to estimate, but in this case rapid growth of Filipino cell and smart phones is fully consistent with the thesis, even if some of the estimates are inexact. For the Philippines being known as texting capital of the world, as well as a look at mobile phone innovation in the country, and some additional numbers of penetration and penetration rates, see “Country overview: Philippines Growth through innovation” (2014).

³⁵ For background discussion, and for these numbers, see “Competitiveness: Catching the Next Wave” (2014).

Some good news is that the Philippines has experienced recent growth in manufactured exports. The growth includes outputs such as chemical and chemical products, metal industries, furniture and fixtures, radio, television and communication equipment, and footwear and leather products, and the Philippine manufacturing sector has grown by double digits in some recent individual years. Still, most of the country's manufacturing comes in low value-added areas, such as the assembly of automobile parts and semiconductor devices. In this regard manufacturing in the Philippines needs to move up the value chain. Nonetheless the country has a good enough labor force, and large enough scale, that aspiring to take on some of the manufacturing which will leave China is not an unrealistic prospect. Toward this end, the country also could use more infrastructure investment, as it is below standards for Southeast Asian economies, much less East Asian economies. More growth in the construction sector, and thus more construction sector jobs, also could contribute to building a larger middle class.³⁶

Sentiment toward the Philippines has turned far more bullish with the high growth rates of the last few years, but still the country has to show it can deliver systematically in terms of job creation, poverty alleviation, and general measures of progress. In the meantime, economic growth in terms of the consumption of information and communications is far outracing traditional metrics of progress on the more material side.

The post-Soviet central Asian republics

These countries, namely Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, and Turkmenistan, are in a fundamentally different position than the other nations discussed. Most significantly, they were part of the Soviet Union, and Soviet policy imposed a highly inefficient form of industrialization on many of the satellite states, often to serve the needs of the military-industrial complex. These countries never developed much of a viable independent capitalist sector of their own, and they also lag far behind in terms of the cultural, institutional, and legal infrastructure for such companies. These countries have long histories as trading outposts,

³⁶ See Aldaba (2014), and on the construction sector see “Competitiveness: Catching the Next Wave” (2014).

dating back to medieval times or earlier, but in terms of large-scale capitalistic institutions and business firms they have yet to fully enter the modern era.

Often these economies are fairly dependent on resource wealth, sold from state-owned companies or companies strongly tied to the state, holding dominant positions of privilege in the economy. That resource wealth has elevated gdp, but in most cases it has not led to more broadly-based economic diversification in a manner that would limit income inequality. Resource wealth tends to be controlled by a small number of individuals in those countries which do not have a long history of democratic rule, such as Norway. The number of workers associated with resource wealth is often fairly small, those workers don't always develop the kind of skills which could allow them to start their own businesses (unlike say in the tech sector), and the resource companies often have monopsonistic power over their workers, all ingredients for an unsatisfactory evolution of income inequality.

Since independence, these economies have been about growing a previously repressed service sector and *undoing* the previous artificial industrialization at as low a social cost as possible. At the same time, those economies have sought to stimulate small and medium-sized enterprises. Yet given their backward institutional legal and cultural infrastructure for corporate growth, the prospects for large-scale industrialization simply do not seem that promising.

An additional obstacle is the landlocked nature of the Central Asian republics. Landlocked countries find it harder to trade, if only because water transport is so cheap for their non-landlocked competitors, who connect to the outside world using harbors and ports. Attempting to purchase access to water transport from neighboring countries is not always easy and the purchase price may exhaust many of the potential gains from trade. For instance there may be monopoly problems, if the neighboring country tries to extract most of the available gains from trade when selling access, or hold-up problems, if the neighboring countries simply shut down access and wait to be paid more. In a part of the world where geopolitical rivalries are common, the neighboring countries do not always mind if their neighbor is suffering in the meantime and in fact they may prefer it.

For the Central Asian republics, various routes to the sea involve negotiations with Iran, Afghanistan, Pakistan, Russia, China (traversing its entirety), and of course each other, along plausible paths. Some of these countries have problems with political stability, problems with corruption, problems with infrastructure, and they are not in every case themselves equipped to have a major export presence.

China has the best export-oriented infrastructure of that group, but here the complexities are significant. For one thing, the Central Asian republics are adjacent to some of the poorest and least developed parts of China, namely the western provinces. Sending export-ready goods across the entirety of China, or most of the country, still is a daunting task in terms of cost and it also raises the question of, resource wealth aside, why China cannot produce the relevant goods and service itself more cheaply.

Currently China is making significant plans for upgrading infrastructure connections to central Asia with its much heralded "One Belt, One Road," or "The New Silk Road Initiative." Nonetheless it remains to be seen how much this will help the other Central Asian republics, even if the infrastructure comes off as planned (and that is far from a sure thing, given the current economic troubles in China). One possibility is that infrastructure is built to ease the transport of raw materials into China. That would help China, and in some regards it would help the Central Asian republics too. Still, it would result in relatively efficient Chinese manufacturing expanding at the possible expense of manufacturing in Central Asia, and it could lock the Central Asian economies into their current resource-based emphases. It would make it easier for China to export its manufactured goods to Central Asia, and of course that is a major rationale for the infrastructure from a Chinese point of view. In any case, China will be paying the bill and calling the shots, so we should not expect this potential infrastructure to be geared toward solving the income inequality problems of Central Asia.

In terms of growth rates (not levels), Uzbekistan has shown the best economic growth record since independence. Typically the rate of growth has been in the range of six to eight percent, poverty has declined, and arguably Uzbekistan has had the easiest path of any former Soviet economy, at least in terms of rates of change albeit not levels; the country's per capita income is

still in the range of \$5500, adjusted for purchasing power parity. One of the most hopeful signs, however, has been the change in exports. In 1992 non-commodity exports were only ten percent of total exports, but as of 2012 that has risen to 23 percent; those exports include cars, trucks, fertilizers, plastics, and foodstuffs. Uzbekistan also has succeeded in diversifying its trade away from the former Soviet nations, and toward China, South Korea, the European Union, Turkey, and other nations.³⁷

That said, the previous successes of Uzbekistan should not blind us to the difficulties which await the country when it comes to manufacturing and employment. Per capita wages are still very low, and good news about rates of change ultimately does not overturn bad news about levels. The country is fairly protectionist and the domestic sectors are not in general competitive in global terms. A lot of the post-independence success of Uzbekistan came from the positive momentum of the 1990s. The country was not as over-industrialized as much of the East bloc and it was, in relative terms, not so dependent on the Soviet military-industrial complex. The gains from those beneficial historical legacies are worth less as time passes and the country faces new challenges.³⁸

Industrialization would be important for Uzbekistan partly because the country cannot rely on its commodity exports. Cotton and gold are two significant exports, but Uzbekistan generally has been losing share in world cotton markets, in part because it regulates and taxes its domestic sector inefficiently. As for gold, the price is highly volatile and there is no reason to expect that the bull market in gold, as seen over much of the last fifteen years, is going to continue. As for gas, again the market does not currently seem favorable in price terms and furthermore gas production in Uzbekistan is due to decline, due to depletion of reserves.³⁹

³⁷ On all this, see Trushin and Carneiro (2013).

³⁸ Taube and Zettelmeyer (1998) provide a good discussion of the post-Soviet legacy of Uzbekistan.

³⁹ On Uzbekistan and cotton, see MacDonald (2012). On the depletion of gas reserves, see Popov (2014). To whatever extent fracking could potentially reverse this, Uzbekistan is not well situated to adopt maximally sophisticated technology.

Kazakhstan is the wealthiest of the Central Asian countries, with a PPP-adjusted gdp per capita of \$24,100 as of 2014. It is the largest economy in Central Asia and by far its biggest export is fossil fuels, with the country also being a significant exporter of uranium. Still, Kazakhstan has some export capacity in construction equipment, tractors, and agricultural machinery, and there are plans for a significant expansion of automobile production, although the sector faces competition from Russia. The country's leading trade partner is China, which represents a beneficial move away from the former Soviet sphere.⁴⁰

In terms of institutions, the country still rates as fairly corrupt but it has seen significant improvements in terms of indices of economic freedom. The country also has seen declines in income inequality over the 1996-2009 period, in part due to trickle down effects from resource wealth and general recovery from the economic contraction of the 1990s and the shift out of a Soviet-style economy.⁴¹

Currently Kazakhstan is in a position to diversify its economy more, though it remains to be seen how well the challenge will be met. Oil prices have fallen a great deal. That limits the fossil fuels sector in the country, it also has weakened the currency significantly, and the crunch on government revenue has led to subsidy cut backs for industry. The country has recently joined the World Trade Organization, and the level of literacy is high. All of those conditions, taken together, imply some very real opportunities to expand exports and diversify the economy.

Yet economic growth has slowed considerably, and it is not obvious in which foreign markets Kazakhstan might find greater success, especially given import slowdowns in China and Russia. The country still has a great deal of inefficient and hard to restructure state-owned enterprise. The Kazakh population also has become more aware of economic inequality as an issue, as resource wealth has led to growing disparities in earnings. The IMF describes manufacturing employment in the country as "anemic," and notes that the link between economic growth and

⁴⁰ One source for general background on Kazakhstan is "Republic of Kazakhstan, Selected Issues" (IMF, 2014).

⁴¹ On the period when income inequality fell, see Howie and Atakhanova (2014) and Satti, Mahalik, Bhattacharya, and Shahbaz (2015).

job creation has become quite a weak one. Yet a youth bulge in the population will require the creation of many more jobs.⁴²

If we look to a smaller scale, Turkmenistan epitomizes many of the more general problems of the Central Asian republics. The positive news is that the economy has a gdp of about \$15,000 per capita in PPP-adjusted terms by World Bank measures, massive natural gas reserves relative to a population of only slightly above five million, and the country is a major exporter of cotton.

Yet the problems are severe. The resource wealth has meant the country never had to liberalize much, and both state-owned enterprises and price controls are common. Manufacturing is extremely underdeveloped, and Turkmenistan (like Kyrgyzstan and Tajikistan) does not come close to having the potential economies of scale of Uzbekistan or Kazakhstan for manufacturing and also infrastructure (those latter two countries have populations of 30 and 18 million, respectively). Corruption remains high, and the country lacks suitable outlets for its exports, although this problem has been alleviated to some extent by the construction of new pipelines to China. The country was hurt a great deal when Russia stopped buying gas in 2009, which illustrates a kind of commercial vulnerability common with landlocked countries. Along both the short- and medium-run, it is hard to see how Turkmenistan can significantly diversify its economy or its export earnings. Yet with relatively low fossil fuel prices at the moment, this is more of an economic imperative than ever before. Most likely the level of economic inequality in Turkmenistan will remain very high, as there are few sources of significant wealth outside of the resource sector and government and government corruption.

V. Concluding remarks

I have focused on inequality in the developing countries, particularly parts of Asia, but the logic of these arguments may apply to developed countries as well. For instance South Korea and Japan grew through industrializing, but they are facing futures of ongoing deindustrialization. They have much higher standards of living than the countries discussed in these case studies, but

⁴² See "Republic of Kazakhstan, Selected Issues" (IMF, 2014) on these and related points.

still they may approach the equilibria discussed in this paper, albeit with higher stocks of wealth, slower transition times, and higher quality institutions. The forces outlined in this paper are quite general. It could well be that a substantial portion of the world, deeper into the future, lives from technological trickle-down from a small number of locations, rather than from their own productivity improvements and export capabilities. Policymakers and economists ought to give this scenario further consideration.

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