

Globalization of Labor Markets and the Growth Prospects of Nations

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Abstract

The many and varied crises in the world economy since 2007 seem to have different origins and diverse manifestations. This paper contends that there is however a structural shift beneath the global economy that is now reaching a critical mass, and that accounts for many of these crises, despite the diversity of manifestations. This shift is occasioned by two kinds of technological changes—the familiar labor-saving

and what is here called “labor-linking.” The paper argues that these changes (1) create a short-term window of opportunity for developing and emerging economies, but (2) in the long run constitute a major, multilateral policy challenge for all. To meet this challenge, we have to think outside the box and conceive of innovative policies. The paper briefly speculates on what those policies might be.

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Globalization of Labor Markets and the Growth Prospects of Nations

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1. The Common Thread

Over the last decade, a series of economic crises has erupted in different parts of the world, beginning with the sub-prime crisis in the United States, spilling over into a major financial recession between 2007 and 2009. This was soon overshadowed by the sovereign debt crisis in Europe, peaking in 2012 and persisting over the next years. Since 2014, a combination of forces, from the downswing in commodity prices, most notably of crude oil, to political instability, is beginning to cast a shadow over emerging economies, with growth slowing sharply in Latin America and more erratically in other continents. In short, this is heading to be, if not in terms of depth, certainly in terms of persistence and length, a global recession with few parallels in the past. What is also quite unusual about this “long recession” is that it seems to be a cluster of diverse and disparate crises that is prolonging this global slowdown. It is not evident that they have a common core.

It is the argument of this paper that this string of crises, as disparate as they may seem, may have shared foundations, which are converting the normal ups and downs of any economy into more major fluctuations with global ramifications and even political conflict.

There are some major shifts that have occurred over the last three or four decades beneath the surface of the world that are changing the ground rules of the global economy. The shifts are unobtrusive enough not to command much attention on their own, but they may well constitute an important common factor behind these many disparate crises, which are accentuating the small and natural fluctuations of any economy into major global events and recessions.

The argument that is put forward here is admittedly speculative. It is sufficiently broad and overarching that it is not possible to provide a compelling case rooted in some firm method, such as a randomized control trial or a big data dissection. What it does is to garner a lot of smoking-gun evidence to make a case. The case is important enough and the manifestations immediate and dire enough that it would not be judicious to wait to have compelling evidence before beginning to design policy. The deep global shifts that I am referring to here have to do with technological change and resultant changes in the nature of global labor markets. These are deeper and more profound and transformational than most people acknowledge. The aim of this paper is to draw on evidence from diverse sources and shed light on the risks posed by these shifts in technology and labor relations and the new policy challenges that arise from them. While the elements of my analysis are drawn from other works and papers, it is hoped that the way in which these are brought together describes a new perspective on the current global situation and opens up new ways of thinking about this long recession and the kinds of out-of-the-box policy response that it may need.

The broad idea is simple. Technology and innovations have been on the march for a long time, creating new ways to release labor from tedious work, and increasing productivity.¹ From the first Stone Age tools, through the creation of basic instruments to hunt more easily and catch fish, the invention of ships that could travel long distances, the steam engine, the airplane, to the computer, the mobile phone, and the Internet. All these innovations have helped us to save on labor and get more with the use of the same amount of labor. An interesting direct indicator of this is the exponential growth of the industrial robot. The number of industrial robots sold worldwide in 2015 was 225,000; 27% higher than in 2014.² I point this out because the robot raises a challenging question about the shift in income from those who do labor to those who have the patent on the robot, those who own the robots, and those who own the shares in the company that owns the robots. This is the core of the political economy challenge arising from the march of this new technology that we have to contend with.

The pace of labor-saving technological innovations has, in all likelihood, increased in recent times. However, what is truly novel in recent times is the surge of innovations pertaining to digital technologies. These innovations save labor, but they do much more. They help labor to link up with demand in faraway places. It is possible now for large numbers of workers to sit in distant places, be it Bangalore, Manila, or Nairobi, and work for corporations located in London, New York, or Sydney, to serve consumers in yet other locations. The rise of this “labor-linking” technology, alongside the advance of labor-saving technology, is what is transforming the global jobs landscape.

What this new technology has done is to make it possible for nations that are not yet rich and industrialized, such as the low-income economies and lower-middle-income economies, to connect their workers with corporations in industrialized nations. If these nations are moderately well-organized and have basic infrastructure such as power and digital connectivity, their workers can do well by working for companies and customers in rich and upper-middle-income nations. This in turn is creating new competition for workers in rich and some middle-income countries, dragging their salaries down and exacerbating unemployment. In brief, while the rise of labor-saving technology is tending to curb labor demand all over the world, some emerging economies and developing nations are able to offset the decline by taking advantage of labor-linking technologies.

This will create and is already creating new challenges. The process is likely to increase inequality in individual nations, and hold back labor incomes especially in high- and middle-income countries, giving rise to political contestation and conflict. We can see manifestation of

¹ Two recent World Development Reports (see World Bank 2013, 2016) amass large amounts of data on, respectively, the changing nature of labor relations, and the march of technology, in particular, pertaining to the Internet and the digital domain.

² I point to some of these numbers and arguments in my Project Syndicate column, “The World Economy’s Labor Pains”: <https://www.project-syndicate.org/commentary/labor-automation-slow-global-growth-by-kaushik-basu-2016-01?barrier=true>.

this problem in the high rates of unemployment in high-income economies, such as the Eurozone. But the problem is beginning to show up even in middle-income nations, such as China. As Simon Denyer (2016, p. A11) recently notes, referring to a study of 600 factories in Guangdong by the Hong Kong University of Science and Technology and Tsinghua University, “although the profits picture was mixed, companies had trimmed their workforce by 3.7 percent in 2014. Labor-intensive sectors were hit the hardest, with employment in textiles falling more than 10 percent.”

Among emerging economies, this will create a divergence of performance, with the ones able to organize and take advantage of labor-linking technologies to develop and grow. But down the road, as the advance of labor-saving technology continues, this will be a challenge the world over; and we will have to think of new policies to tackle a global problem. This will be discussed briefly in the last section.

The rise of labor-saving and labor-shifting technology would not matter much if the resultant increased earnings, such as from profits and patents, were equitably distributed, because it would simply mean that people would work less and enjoy the bounties of new technology as visualized by several philosophers, from Plato and Thomas More to Rabindranath Tagore and Bertrand Russell. But the amount of work, far from decreasing, has actually risen, because the shrinking demand for labor has been met with harder work by those who have no share in the dividends of the new technology and live by their labor alone (Piketty 2013). This constitutes the core of the policy challenge that we certainly will not solve in a day, but needs to be initiated in debates and discussion on policy, for not to solve this is to blight the chances of sustainable development.

2. Technological Change and the Share of Wages

One of the most troubling statistical trends in recent times that has received scant attention from economists and policy makers is that of the falling share of the wage bill, sharply and uniformly, in industrialized nations and, more erratically and less sharply, in emerging economies. For instance, the aggregate wage bill as a percentage of GDP in the United States was 61% in 1975 and is 57% now. Over the same period, the same ratio in Australia fell from 67% to 54%, in Canada from 61% to 55%, in Japan from 77% to 60%, in Turkey it fell from 43% in 1995 to 34% now. All this is displayed in Table 1; these nations are not exceptions but rather the norm.

What I am arguing is that the trends we see are only to be expected, given the march of labor-saving technology. The trend is further reinforced in high-income countries because of labor-linking innovation by which the jobs base is being eroded by competition from low-wage labor in well-organized developing countries. It is not surprising that the trend is marked and almost unbroken across the high-income nations. This is true not just for the countries

represented in Table 1, but more generally across the world. The only weak exception is New Zealand between 1995 and 2014.

While it is difficult to provide an unequivocal explanation for individual nations, there are two factors to be kept in mind in the case of New Zealand. First, the wage share in New Zealand was quite high in 1985, above 50%, and then it went into a trough; Table 1 picks up the data during a low period, and so the increase in 2014 picks up a base effect. Second, New Zealand does stand out as a nation with a remarkable balance of policies that made its firms nimble and efficient and, at the same time, shores up labor markets with well-designed, progressive laws, such as the Employment Relations Act 2000. This law promotes collective bargaining and at the same time helps with mediation to enable early resolution of disputes. It insists on minimum labor standards but protects the integrity of individual choice. The consequence was a period of rapid growth in employment up to 2009. This fine combination of policies has meant that New Zealand has one of the highest rates of firm creation and destruction and job turnover.³ With all these advantages, it is still running against the tide of technological shifts, and so the wage bill as a share of GDP rose only marginally between 1995 and 2014, from 45.8 to 46.1.⁴

Table 1. Wage as a share of GDP

	1975	1995	2014
<i>High income countries</i>			
Australia	66.5%	58.0%	53.0%
Canada	60.6%	57.0%	55.1%
European Union (15 countries)	66.0%	57.6%	56.3%
Japan	77.3%	67.3%	59.6%
New Zealand	..	45.8%	46.1%
United States	61.4%	59.8%	57.0%
<i>Emerging Economies</i>			
China	..	52.8%	47.0%*
Mexico	..	42.2%	36.0%
Russian Federation	..	40.8%	42.1%*
Turkey	..	41.2%	32.3%

*Notes: Wage Bill is the adjusted labor income as a share of GDP at current price. The unadjusted labor income only includes compensation of employees, whereas the adjusted labor income share makes an adjustment to account for the self-employed as well. For China, the share is unadjusted. The Russian Federation's share excludes hidden wages and mixed income. *Latest data available for China is 2011 and 2012 for the Russian Federation.*

³ This is mirrored in the fact that New Zealand has second rank among the 189 economies (which includes all major nations in the world), behind Singapore, in terms of the World Bank's Ease of Doing Business indicator (see World Bank, 2015).

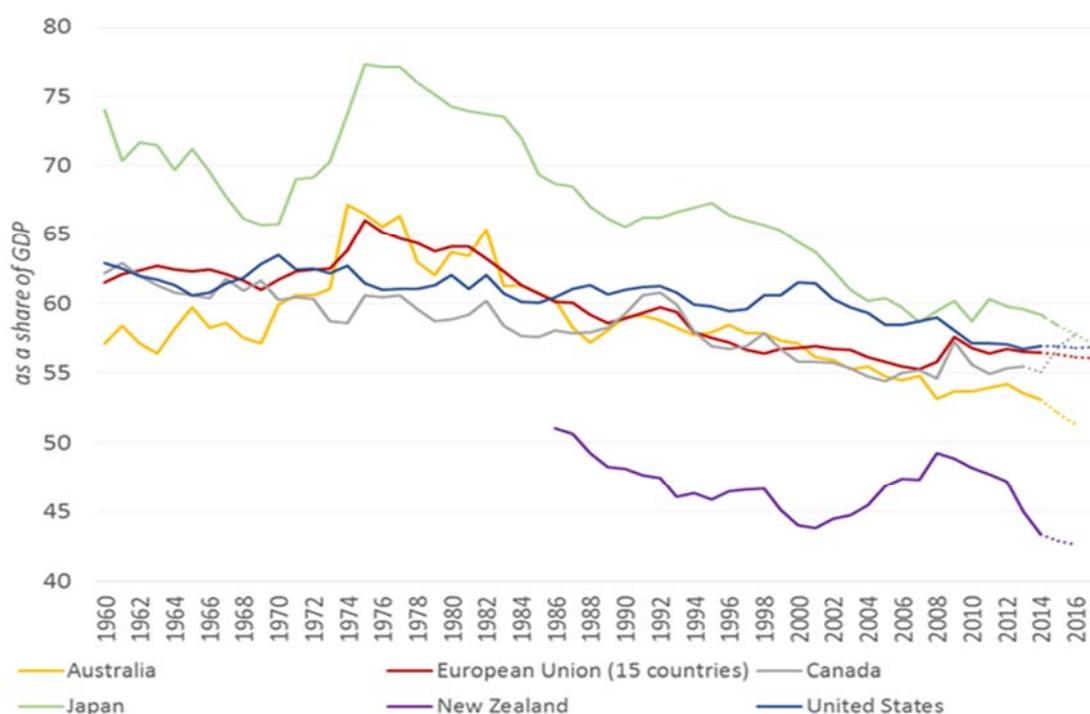
⁴ The other small puzzle is the Russian Federation, but the nation's inclusion of "hidden wages" in the aggregate wage bill makes this harder to interpret.

Source: ILO (2014); European Commission Directorate General for Economic and Financial Affairs, Annual Macro Economic (AMECO) database; for China: ILO calculations based on data from the China Statistical Yearbook; for Russia: Lukyanova (forthcoming) based on Rosstat.

If we track the numbers year by year over the last four decades, it becomes clear that this is not just a trend but a fairly steady monotonic decline. There is clearly something important going on here, which deserves more analysis and attention than has been provided thus far.

Graph 1 below shows the percentage share of wages in GDP for Australia, Canada, Japan, New Zealand, the United States, and the European Union.⁵

Graph 1. Falling wage share of GDP in high income countries



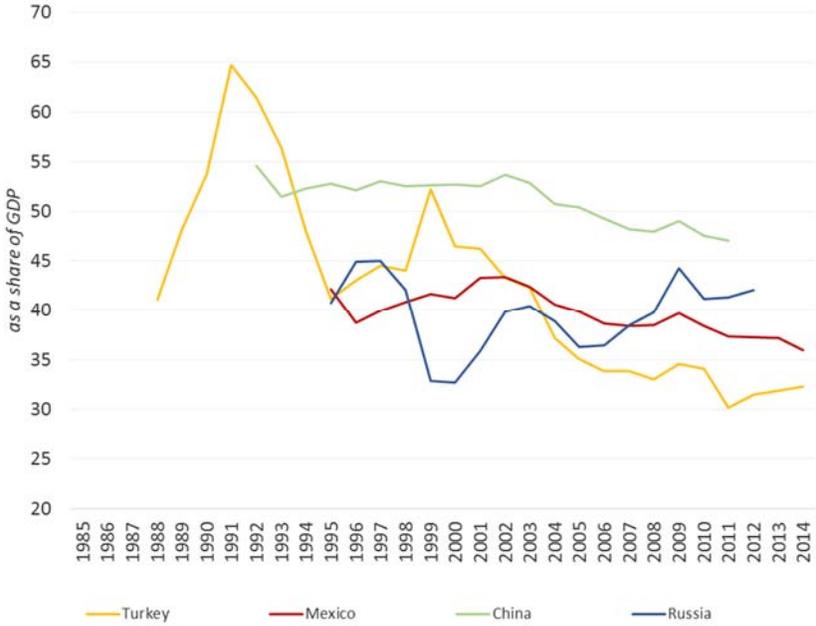
Notes and Sources: refer to Table 1.

⁵ There are of course confounding factors in special cases. I comment on New Zealand and Japan elsewhere in this paper. Recently, I have argued elsewhere in a joint work with my co-panelist here (see Basu and Stiglitz 2015) that the Eurozone is being restrained from doing better by some of its own laws, such as provisions in the Treaty of Lisbon. The argument here is that these problems are being accentuated by the rise of new technology and attendant rapid globalization.

While the trend in developing economies is similar, the movement is less sharp and the experience across nations is more varied. In addition, there is a lot of volatility over time for the nations. Data for a broad section of emerging market economies is harder to obtain and less reliable, but Graph 2, which shows the share of the wage bill for four countries, Turkey, Mexico, China, and the Russian Federation, gives a hint of this.

The carefully documented paper by Karabarbounis and Neiman (2014) shows that, worldwide, there was a 5 percentage point decline in the share of corporate gross value added paid to workers over the last 35 years.⁶ Of a group of 59 countries for which they could find at least 15 years of data between 1975 and 2012, they found that 42 countries showed a significant downward trend in labor shares. Further, 90% of the labor share decline reflects within-industry declines as opposed to changes in industrial composition.⁷

Graph 2. Falling wage as a share of GDP in emerging countries



Notes and Sources: refer to Table 1.

⁶ In their paper, the focus throughout is on the share of labor in the corporate sector, rather than the share of labor overall. This limits the scope of analysis in some ways but makes the data more reliable.

⁷ This is a subject that has begun to receive some attention, though not yet commensurate with its importance; see, for instance, Acemoglu (2003), Bentolila and Saint-Paul (2003), Blanchard and Giavazzi (2003), Rodriguez and Jayadev (2010), Azmat, Manning and Van Reenen (2012), Spence (2012).

If this trend persists for much longer, clearly it will begin to tear at the seams of society, giving rise to a deprived labor force, causing inequalities to rise and fueling political disaffection and conflict.

Once we look beneath the surface of this trend, it is revealing. In step with the decline in labor shares, we can observe a decline in the relative price of investment goods. This suggests that technological innovation and the increased abundance of capital are likely a cause of the decline in labor shares. Further, there is some evidence of a growing wage gap between skilled and less skilled laborers (see, for instance, Krussell, Ohanian, Rios-Rull and Violante, 2003). This can have many different drivers, but the rise of labor-linking technology is among them. Developing countries have a surfeit of lower-skilled workers. As they come into the global labor market doing outsourced work, the bottom end of the skill spectrum in high- and upper-middle-income countries comes under competition from them, thereby expanding the gap in rich countries between the skilled and less skilled workers. At the start of this century, for instance, Motorola was shedding work in the United States and moving operations to Brazil, China, and Mexico; around the same time, Microsoft, Hewlett-Packard, and British Airways shifted a considerable amount of work to India.⁸

These shifts are good for the world, since they allow poor workers, earlier kept away from the global labor market by virtue of their location and inability to get a visa to work in high-income countries, to now join the global market place. But, at the same time, these shifts give rise to greater inequality between the owners of capital and laborers, and the skilled and the unskilled.

These shifts constitute a more serious challenge for the world than most people recognize. On the one hand, the share of income accruing to labor, especially in industrialized nations, is rapidly falling. On the other hand, the income accruing to owners of capital, those who own shares, the robots, and the patents, is rising. We can see some of these stresses visibly. As the outsourcing continues in high-income countries, there is often an appeal to protectionism and strident nationalism, with fingers being pointed at workers in developing countries taking away the jobs. The fact that those getting these jobs are vastly worse paid and frequently better qualified is overlooked. It is also interesting that the charge of protectionism, which usually went from advanced economies to developing countries, has now been reversed.

What prevents this nationalism from becoming rampant is competition among high-income countries. If one high-income country stops outsourcing and the use of cheap labor from developing countries, companies in other high-income countries will take advantage of this and outcompete this nation on the product market. This provides a natural check on nationalistic protectionism. As I write this, the Japanese economy has just recorded negative growth in the

⁸ Ironically, some of this caused inequality to rise in developing countries, since the workers who were being absorbed in this new sector, working for customers in rich countries, were beginning to command incomes sufficiently above the local rates (see Maskin, 2015).

fourth quarter of 2015. This is disappointing given that the economy shrank in 2014, when the GDP growth was - 0.1%. This has been a matter of some puzzlement among analysts, especially since Bank of Japan has been aggressive with its quantitative easing program and has gone in for negative interest rates.⁹ What is however arguable is that monetary and fiscal policies alone are not able to trigger growth in Japan. The fact that other major high-income countries, most notably, the United States, are using cheap global labor through a combination of outsourcing and immigration, is handicapping Japan's growth. What Japan needs is structural reform in its labor market policy, if it wants to get back to sustained high growth.¹⁰

This debate is often pitched as a labor versus labor issue, that is, a battle between labor interests in rich and poor countries. However, this does not have to be the case. As I have previously argued (Basu 2007, chapter 11), this is equally a tussle between the interests of shareholders and laborers in rich countries; and the problem has to be tackled mainly in high-income countries and, eventually, all over the world and at a multilateral level. This is discussed later in the paper.

3. The Scope for Emerging Economies

Labor-saving technological innovation will, no doubt, expand the global GDP as is happening currently with the digital advances, and such advances are to be welcomed; however, they do create new divides, in the current case the digital divide (World Bank 2016). At the same time, for developing countries with cheap labor, this downside can be made up for, at least in the medium term, by taking advantage of the new labor-linking technologies. If a nation is minimally organized, conflict free, and has basic infrastructure, it can take advantage of these new opportunities.

Indeed, the most notable feature of developing countries currently is the divergence of growth performance across them, and this may have some connection with the phenomena described in the previous section. There are individual countries, spread across all continents, which are growing powered by this new globalization. One can see some of this in the data and recent history. Poor nations that took off in the age of globalization, that is, after World War II, have done so at a pace rarely seen before. The Republic of Korea; Taiwan, China; Singapore; and, after 1978, China are excellent examples. It is true that their investment in human capital—health

⁹ Indeed, this causes the yield on 10-year Japanese bonds in February 2016 to be negative for the first time in the nation's history.

¹⁰ Short of that, the prospects do not look good. The World Bank expects Japanese growth to rise to 1.3% in 2016, but for it to slow down again in 2017 to 0.9%, as a consequence of the base effect and the dampening impact of the rise in consumer tax expected in 2017. These are however all policies that tamper at the margins. For a big break, what is needed are reforms in terms of immigration, outsourcing, and foreign direct investment.

and education—played a major role, but equally important was the fact that they were jumping onto a moving train, to wit, that of globalization and new technology.

We can see the great divergence in growth among emerging economies in the most recent numbers. Table 2 provides growth data for the BRICS countries. These countries have never seen such disparities in performance before. Again, there are, no doubt, proximate drivers, such as the fall in oil and commodity prices adversely impacting Russia and Brazil for instance, but the story does not end with that. China and, more recently India, which are growing well in this cluster, have been able to take advantage of the globalization, albeit in different ways. I shall briefly describe the India story in the next section.

Table 2. GDP growth in the “BRICS”

	Average 2001-2008	2009	Average 2010-2013	2014	2015 (est.)
<i>Brazil</i>	3.7	-0.2	4	0.1	-3.7
<i>China</i>	10.7	9.2	8.9	7.3	6.4
<i>India</i>	7.1	8.5	7.2	7.3	7.3
<i>Russian Federation</i>	6.6	-7.8	3.4	0.6	-3.8
<i>South Africa</i>	4.2	-1.5	2.7	1.5	1.3

Source: World Development Indicators, and Global Economic Prospects (for 2015 estimates).

A similar growth divergence in the Sub-Saharan African experience is captured well by recent data. Contrary to the more-uniform stagnation experienced before, there are now countries in that region that are growing at a pace earlier associated with East Asian nations and among the highest-growing nations in the world currently. Table 3 provides a cross-country view of Sub-Saharan Africa.

Table 3. GDP Growth in Sub-Saharan Africa

	Average 2001-2008	2009	Average 2010-2013	2014	2015 (est.)
<i>Top 5 higher expected growth in 2015</i>					
Ethiopia	8.3	8.8	10.7	10.3	10.2
Côte d'Ivoire	0.7	3.3	4.4	8.5	8.4
Congo, Dem. Rep.	4.6	2.9	7.4	9.0	8
Rwanda	8.2	6.3	7.2	7.0	7.4
Tanzania	6.8	5.4	6.7	7.0	7.2
<i>Top 5 lower expected growth in 2015</i>					

Guinea	3.1	-0.3	3.0	0.4	0.4
Burundi	3.3	3.5	4.1	4.7	-2.3
South Sudan	..	5.0	-8.0	3.4	-5.3
<i>Equatorial Guinea</i>	22.7	-4.5	-0.7	-0.3	-9.3
<i>Sierra Leone</i>	7.3	3.2	11.5	4.6	-20

Source: World Development Indicators, and Global Economic Prospects (June 2015).

Even if we exclude Sierra Leone as a special case affected by the Ebola epidemic, the growth range in Sub-Saharan Africa, from 10.2% in Ethiopia and 8.4% in Côte d’Ivoire, to -9.3% in Equatorial Guinea and -5.3% in South Sudan, is quite amazing. There are many factors behind this divergence, but one of the most important ones has to do with the country’s ability and preparedness to grapple with globalization.

In this brewing global challenge that has to do with labor, Africa will probably play a more major role than any other region in the developing world. This is because most of Africa will see a rise in its working-age population—the so-called ‘demographic dividend.’ China has already seen the high point of this; India still has more of this dividend to come but it is well on the way. It is Africa for which much of the demographic dividend still lies ahead. Without adequate global demand for this labor, the continent could get mired in conflict and forced migration. On the other hand, done right this is an opportunity to draw Africa into the mainstream of global growth.

Africa has some remarkable features that could power the economy. One of the most notable is the participation of women. Approximately 54% of African women aged 15+ are labor force participants, with the number rising to as much as 62% for Sub-Saharan Africa as a whole and 76% in Eastern Africa. This is much higher than most other regions, such as the 40% in South Central Asia and 38% in Central America. This can be a great advantage, not just in promoting shared prosperity, but in helping with growth.

In keeping with the story in this paper, we can also see some remarkable divergence occurring within Africa. Continuing with the theme of female labor force participation, we see very low numbers in Northern Africa, the average being 27%, which contrasts sharply with other regions and nations, such as a remarkable 91% in Burundi, 87% in Tanzania, 85% in Rwanda, and 81% in Ethiopia. So, along with the divergence in performance that is happening because of short-term problems such as the drop in commodity prices and some slowdown from elsewhere, such as Japan and China, transmitting to Africa and more importantly, the Sub-Saharan region, there is this demographic divergence that will contribute to Africa being differently positioned to take advantage of the rise of labor-linking technology and labor demand from high-income economies spilling over to the developing world. While for most of Africa it remains to be seen how this will play out, India has already had to contend with some of this and a retrospective view of what happened in India could inform India in the future, but also other economies that are beginning to feel the challenges and opportunities of globalization.

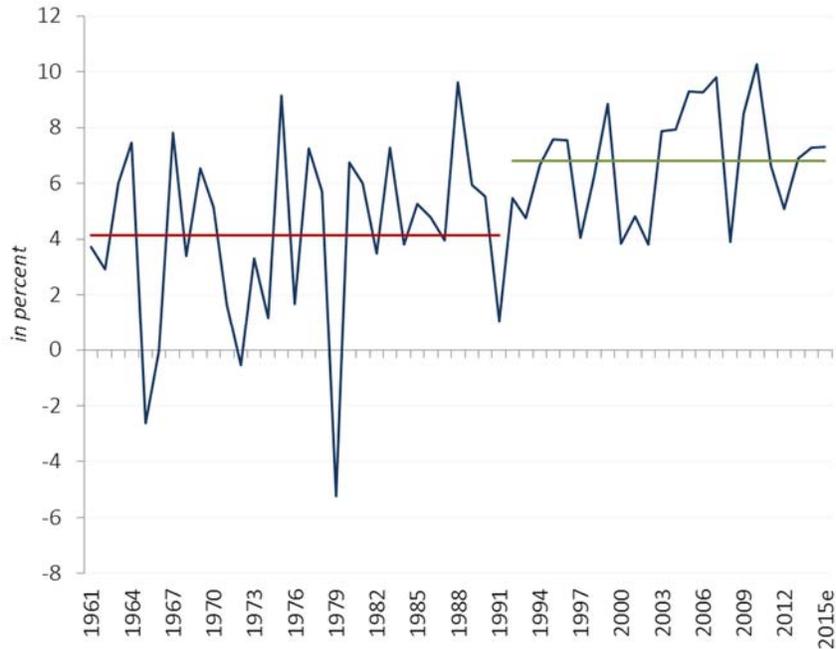
4. The India Story

The India story, since the 1990s, is a remarkable tale of an economy that has been a beneficiary of the rise of labor-linking technology and globalization. India's pickup in growth observed from the early 1990s and again and more-sharply from around 2003 and, especially, from 2005, has many factors (see Basu, 2015 for a detailed discussion), but a critical driver was the nation's success in organizing key sectors, enabling it to harness its skilled labor and facilitate linkup with global demand. This story is worth telling also because India's success in this area has been achieved not through deliberate policy, but often unwittingly.

For any large and complex country, growth invariably has many drivers; it is almost always the outcome of many stars coming into alignment. In the case of India, one can easily point to several. The rise in India's savings and investment rates in the 1970s and again at the start of this century played a major role in boosting the nation's growth rate, in keeping with the neoclassical model of growth. With a capital-output ratio of 4 or just above 4, as soon as the savings rate exceeded the 30% mark, as happened in 2003, India's growth rate moved to around 8%. India's early investment in higher education also played a role (despite the country's poor showing on basic education for the majority).

This allowed India to reap benefits from the rise of Silicon Valley and the concomitant search for skilled labor, when the opportunity arose in the early 1990s. The big break came between 1991 and 1993, when the nation's average growth picked up from just above 4% to 7%, as shown in Graph 3.

Graph 3. India's GDP growth



Source: World Development Indicators, and Global Economic Prospects (for 2015 estimates).

The story is revealing. It entailed the use of the infant-industry argument and the opening up and liberalization of the economy. In 1997, India had a showdown with IBM, which had a big presence in India, for not sharing technology and also for dumping discarded technology on India. Finally, IBM was asked to leave the country, on the grounds, as announced, of IBM refusing to dilute its 100% ownership of subsidiaries. This did create a large vacuum, but, as Narayana Murthy, the founder of Infosys, which pioneered India's take off in the information technology sector, said, "This was, in some sense, a blessing in disguise." (Murthy 2000, 215). It made India initially struggle, developing its own mini-computers and cheap micro-computers. But like in the classic infant-industry argument, it enabled the nation to develop skills it would never otherwise have.

Equally important, as Murthy pointed out in the same article, was the liberalization and economic reforms that India undertook between 1991 and 1993. By cutting down red tape and the license-permit system, and making trade and the flow of foreign capital easier, it facilitated the information technology sector to take off. There was also a lucky advantage the nation got from its excessive investment in engineering and higher education skills that had been built up through the 1960s and 1970s. As Silicon Valley took off, a large number of Indians migrated to where the demand for skills was high. This became a conduit for connecting with India's new information technology sector and back office work that linked India to the rest of the world.

There was another lucky break that came in the early years of this millennium. There has been an increasing chorus of protest in the United States against outsourcing of work. There

would be repeated charges brought on television about how unpatriotic American entrepreneurs were utilizing new labor-linking technologies and sending work out of the country. What this did was have exactly the opposite effect. Small firms in emerging economies like the Philippines and India, which would never be able to advertise on prime time U.S. television, effectively got free publicity. Small American entrepreneurs, who were unaware that they could save money by outsourcing some unskilled work, began to do so. I called this the “Lou Dobbs effect.” Clearly, countries like India got another boost from this effect and India’s growth rate breached the 9% mark in 2005.

5. The Policy Options

As I just argued, the outsourcing debate in the United States had unwitting implications. But the debate was also misplaced in two senses. First, the United States clearly benefited by its outsourcing. Cheap labor is a huge global resource. By outsourcing, the United States took advantage of this the way the Portuguese, and later the Dutch and the British, were able to take advantage of the mastery of long-distance shipping in the late 15th century, vastly expanding trade and empowering their own economies. One reason the U.S. economy continues to do well is, precisely, its ability to take advantage of labor-linking technology more effectively than other nations, such as Japan.

The second mistake is in the pitting of this as a labor-versus-labor debate. When a firm in an industrialized nation takes advantage of some new labor-linking technology and sends some work to an emerging economy, it is true that, if nothing else is done, the laborers in the industrialized nation are likely to lose out. But there are two sets of people who gain—the workers in the emerging economy and the shareholders and managers of the firm (who will typically have some profit shares). Hence, this does not have to be a labor-versus-labor problem. It can equally be viewed as a labor-versus-capital problem or, equivalently, a wage share-versus-profit share problem.

Viewing it in this latter fashion has the advantage that it opens up new ways of thinking about policy. Before I turn to that, it is important to realize that to view this as a tussle between the interests of workers in rich and poor nations and to try to stop outsourcing and decentralizing manufacturing to chains in developing countries is both morally wrong, since that amounts to a deliberate blockade against workers who are poor, as well as, more pertinently, it amounts to foregoing a competitive advantage. This is equivalent to not using a resource that is readily available. This will give an advantage to other industrialized and advanced economies. As was pointed out above, one reason why the U.S. economy has done well over the last few decades compared to several advanced economies, for instance, Japan, is the readiness of the United States to take advantage of this new resource, to wit, cheap labor, made possible by the arrival of new technology.

However, to leave it at this and do nothing also has a problem. These technological advances will cause income inequality to rise. Given that a vast segment of the population in any nation lives by its labor income alone, the rise of labor-saving and labor-linking technology will cause the less skilled workers' earnings to decline. There is compelling evidence of inequality, on various dimensions, increasing, with median incomes declining in many advanced economies even while overall growth happens to be positive.¹¹ The falling share of wages in overall GDP discussed above is a manifestation of this.

But, if outsourcing should not to be blocked by using protectionism as many in advanced economies were proposing, and if no-intervention means increasing inequality, what should we do? The answer is we have to think outside the box and conceptualize novel interventions and new and creative policies. The clue lies in realizing that what the new technologies are precipitating can be viewed as a labor-versus-capital problem. Hence, what we need to devise are incentive schemes whereby workers in rich countries can earn some of the enhanced profits that accrue by virtue of sending work elsewhere either by foreign direct investment or by outsourcing. In brief, what we need to think of is some fraction of profit sharing, which is an old idea among many serious economists and other social scientists.¹² This can take the form of workers in each firm owning some part of the firm's shares and hence profits, or workers as a whole having a claim to some share of profits overall in the nation.

If workers own shares for some fraction of profit, when work is outsourced or a division of a firm is closed and sent elsewhere as foreign direct investment, the local workers will get to keep some part of the gains. This can vastly curtail tensions within high- and upper-middle-income societies, which will come more and more under pressure from the fact of the global labor pool becoming unified.

There are many details that will have to be thought of for this system to work. We cannot flatten the incomes so much by this that it will rob people of the incentives to work. Further, there are questions about whether workers should get a share of their firm's profit or whether all workers in society should get some share, say 10%, of overall profits in society. The latter will entail revising the current system of taxation, whereby the tax has to take the form of a certain percent of the profits and have this be given to workers. None of this can be done without much analysis, because individuals will of course game whatever system is created and, further, no economist will be unmindful of the fact that a poorly designed system can damage incentives and cause GDP to fall and even poverty to rise.

It is not the purpose of this paper to get into such details, but merely to point to the importance of this subject and to the need for more investigation. The challenge of global inequality is reaching untenable proportions, as many authors have recently pointed out. The

¹¹ See, for instance, Piketty (2013); Atkinson (2015); Bourguignon (2015); Milanovic (2015).

¹² See, for instance, Weitzman (1986); Kruse, Freeman, and Blasi (2010); Hockett (2008).

most visible manifestations of this is in the widespread child malnutrition and stunting in poor countries. This nutritional deprivation blights a person's chances in life even before she reaches adulthood and can have no moral justification. We can cover up these inequities for some time by persuading people at the receiving end that this is somehow just dessert, as we did with apartheid, open racial discrimination, caste, and other practices. But at some point people see through these and society then erupts in conflict and turmoil. This is what makes the challenge so urgent.

At first sight, this cursory policy suggestion may seem very radical, and some conservative economists may have an instinctive propensity to shirk from it. What is being suggested here is, however, rooted in ground reality and not an idealistic plan that does not have any scope for working in practice. This intervention in no way denies that markets have an important role to play and that the individual drives for profit and utility maximization are powerful and even essential instruments for efficiency and growth. In that sense, it is similar to the line taken in Akerlof and Shiller (2008), which deals with a very different problem, to wit, the fact that ordinary consumers and workers are not always rational and have behavioral vulnerabilities, which, in a market left unregulated, can be taken advantage of; and so they go on to argue that while the market, the profit motive, and the space for individual decision-making are important, we have to think of certain collective actions, as we today do in matters of the environment or climate.

In a similar vein, this paper recommends an intervention to correct for long-standing injustices and dynastically-transmitted inequities, and to give all people a stake in society's progress by giving them a share in profit. This is in keeping with a certain philosophical tradition and political economy thinking, which have received analysis and scrutiny (see, for instance, Steiner, 1994; Basu, 2011). Further, what is being recommended here is not so much choice as necessity, given the changing structure of the global economy. And even if this particular action does not work, the central message of the paper is that the problem of labor that we are confronting today given the slow (and, in recent decades, not so slow) march of technology, this is a problem that we have to confront intellectually and by designing appropriate interventions. This is similar to what is happening in terms of the environment and sustainability. This was, for a long time, left to individuals to deal with through their personal actions. It is only now that we realize the need for a collective action plan and hence the rush of global meetings and government policies. The aim is not to change everyday economic life, but to make it possible and sustainable.

Every time the world has had tumultuous technological changes of the kind that happen once in a few hundred years, it is forced to confront novel policies, which may at first sight seem idealistic and impossible. A good example is the Industrial Revolution in Britain in the second half of the 18th century. Those technological breakthroughs, by saving masses of labor and increasing human productivity, contributed greatly to our current well-being. But it is easy to forget that much of our current enhanced GDP owes as much to the revamping of laws and changed thinking

in terms of policy that occurred during that time, especially through the factory acts of the early 19th century as to the technological breakthroughs of the Industrial Revolution.

It was common in the 17th century for workers, including children as young as 12 or 10 years old, to work for 14 hours a day, till some of them actually collapsed. The common view was that, if someone was prepared to work for that long and someone else was prepared to employ for that long, why should the state get into the picture and intervene? Further, it was common to argue that that kind of hard work and starting work at the age of 10 built character (Basu, 1999).

It is difficult to comprehend today how matter-of-factly child labor was condoned in those days. Today it seems almost comical that in trying to persuade the attorney general to give a patent on his new spinning machine in 1741 in Britain, John Wyatt observed, as a selling point, how “a Clothier formerly employing a hundred spinners might turn off thirty of the best of them but employ an additional ten infirm people or children ...”. Moreover, not only did the attorney general not flinch at the open advocacy of child labor, but in granting the patent, noted with awe how “even Children of five or six Years of age” could operate the machine.

The laws that came in subsequently, starting with Sir Robert Peel’s Factories Act in 1802 and many other laws, transformed the landscape of labor and enabled us to reap the benefits of the Industrial Revolution and minimize the negative fallout. The technological revolution that we are living through now is very similar. It has created a huge opportunity for humankind, but it has also brought with it some concomitants that can cause jobs to vanish and exacerbate inequalities, fueling conflict and strife. It compels us to think outside the box for solutions. In doing so we have to remember that what looks novel and strange can, if done well, save the day and, in retrospect, come to look as mundane as do the laws of 19th-century Europe today.

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