Globalization, Development, Changing Technology: Achieving Sustainable and Equitable Growth

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Developing countries in Africa face multiple interrelated new challenges

- End of export-led manufacturing growth model
- New digital technologies/robotization
- Growing inequality
- Climate change
- Employment
- Population growth

Will focus remarks on the challenge of equitable and sustainable growth and on achieving the SDGs

I. Export-led growth model behind 20th century growth miracles

- Unprecedented growth in East Asia—closing the gap in income per capita/standards of living with advanced countries
- That model won't be working in the future in the way and to the extent that it did in the past
- Manufacturing is victim of own success: productivity exceeds rate of increase in demand (share of manufacturing in GDP declining everywhere as next slide shows)
  - Some vertical disintegration of service components of manufacturing gave the appearance of more rapid disappearance of jobs
  - Vertical disintegration can have real consequences (e.g. for wages and flows of knowledge)
- Similar to what happened to agriculture in advanced countries almost a century ago

Manufacturing Share of GDP (%)

	2000	2015
World	19	15
E. Asia & Pacific	25	23
ECA	19	16
LAC	17	14
North America	16	12
South Asia	15	16
Sub-Saharan Africa	11	11
Low-Income	10	8
Lower Middle Income	17	16
Upper Middle Income	24	21
High Income	18	15

Source: WDI

Africa will have to find alternative strategies

- Even with emerging markets taking larger share of manufacturing jobs, and with shift of jobs from China to Africa, new manufacturing jobs will only absorb a fraction of new entrants into labor force
  - Can still have impacts disproportionate to size
  - Countries may have a natural comparative advantage in some niches (or in some cases, even be able to create a comparative advantage)
  - But unlikely to have impacts that manufacturing export-led growth had in China and East Asia
- Because of robotization, advantages of cheap labor will diminish

Problems exacerbated by development of new technologies—posing hard questions

- Will new digital technologies make it more difficult for developing countries to close the gap between themselves and the advanced countries?
- Will it lead to increased unemployment and wage and income inequality within developing countries, even as it increases opportunities for some?
- The challenge for Africa is the greater because of the demographic trends that have Africa's labor force rising by 2.1 billion during 2010-2100 compared to 2.0 billion for the world (the middle case in UN projections), so that its share of the world's labor force rises from 13% to 41%

General perspective: double-edged sword

- New technologies open up multiple new opportunities (for instance, in finance, in e-government, in access to knowledge, in global connectivity)
- But there is a real risk that unless adequately regulated, the "dark side" will predominate—with more monopolization, more inequality of income, more inequality of voice, more invasion of privacy, more tax avoidance and evasion and less in tax revenues, less and (less secure) employment
  - Original promise of Twitter: democratizing publishing
  - Reality: those with money can dominate through bots

New technologies pose an especially difficult problem for developing countries

- New technologies may also make it more difficult for developing countries to catch up
  - On-shoring
  - Lack of trust undermining global trade regime and leading to “splinternet” and possibly new “cold war”
  - Problems of mental health, lack of focus that are showing up in advanced countries may manifest themselves in developing countries, with less capacity to cope
  - Consequences of undermining democracy worse in countries with weaker institutions
  - Even spreading of misinformation about developmentally related information, e.g. risks of vaccination
  - Widening of the knowledge gap with advanced economies

II. New thinking about development

- What separates developing countries from developed is not just a disparity in resources, but a disparity in knowledge and institutions
- **Development entails a structural transformation**
  - There can be growth without structural transformation—especially common in resource-dependent countries that abound in Africa
    - But such growth won't be sustained
  - Markets on their own don't manage these transformations well
    - Critical impediments imposed by capital market imperfections, important externalities and coordination failures
    - Government needs to assume an important role

New understandings have led to new strategies

New understandings have led to a shift in focus that places less emphasis on projects and more on policies and institutions

- Corresponding to the realization of the importance of not just physical capital but human capital, social capital, and knowledge capital
  - And a change in norms and mindsets
    - Including the mindsets about change is possible—a movement away from traditional society towards modernization
    - Major insights from behavioral economics—growth of *behavioral development economics*
  - In the West, associated with the Enlightenment

New understandings reflected in Stockholm Statement

1. **GDP growth is not an end in itself and GDP does not provide a good measure of success**
2. Development has to be **inclusive**
3. Environmental **sustainability** is a requirement, not an option
4. The need to **balance market, state, and community**
5. Providing macroeconomic stability—but this does not just mean balancing budgets or focusing exclusively on inflation

Stockholm Statement

6. Attending to the **impact of global technology and inequality**
    - Key issue is not developed vs. less-developed countries, but appropriate treatment of labor in both developed and developing countries
    - Requires investment in human capital
    - Creating new instruments of redistributions within and between countries
7. **Social norms and mindsets matter**
    - Bringing the insights of **modern behavioral economics** to bear in development economics
    - Effective ways of altering behavior (savings, fertility, etc.), typically at low cost

Stockholm Statement

8. **Global policies and the responsibility of the international community**

- Recognizing the interdependence of countries
  - That the policies of the large, rich countries have large externalities on the rest of the world, which they often don't take into account (including their monetary, regulatory, trade, and migration policies)
  - But tax havens affect all countries
- International agreements cover only part of these arenas
  - Climate change agreements do not go far enough
  - Do not cover cost of adaptation by poor countries
- Developed countries have not lived up to their commitments of 0.7% of GDP in aid

Marked change from the Washington Consensus

- With its narrow conception of the goals and instruments of development and participants in the development process
- **Broader goals** to reflect challenges of the 21st century
  - Inclusive growth
    - Trickle-down economics doesn't work
    - Greater inclusivity can lead to more robust growth
      - There are policies that can simultaneously increase equality and growth
    - Employment generation is central to inclusive growth
  - Climate change and other environmental goals
  - Good macro-economics is more than price stability

More instruments

- More instruments for monetary policy and macro-stability
- More instruments for developmental transformation—notably industrial policies, including for agriculture and services (more appropriately labeled as learning, industrial and technology [LIT] policies)
- More instruments for maintaining full employment—active labor market policies
- More instruments for restraining and managing “financialization” and tax avoidance (especially shifting profits and taxes away from developing countries)

Other major differences with Washington Consensus

- **Clearer distinctions between means and goals**
  - Privatization, markets are not ends in themselves—they are only (possibly) *means* to the broader goals
- **Greater participation**: a balance between markets, government, and society
  - Not just markets, but government and civil society
- **Seeing equality and growth as complements** rather than substitutes is major change in development thinking

III. Deconstructing success of export-led manufacturing model is essential for developing new strategies of structural transformation

Open economy allowed one to avoid complexity of material balance equations—all one had to have was enough **foreign exchange**

- Export-led growth generated necessary foreign exchange

- Didn't need to generate demand to absorb new supply
  - No need to worry about demand constraints
  - Flexible and correctly managed exchange rate, open economy, and "attentive" producers suffice to absorb supply

Deconstructing success

- Exports provided basis for **learning**
  - What separates developed and less-developed countries is a gap in knowledge
    - Transfer of technology could be accomplished in numerous ways (buying technology, FDI)
  - Important spillovers to other industries
    - Institutional spillovers (e.g. education) even to other sectors
    - Demand for educated individuals—of benefit elsewhere in the economy
- Exports provided basis for **tax revenues**
  - Finance needed for government expenditures—infrastructure, education, technology
  - Hard to tax informal sector

Deconstructing success

- Generated **employment** in urban sector—key in supporting structural transformation and widely shared growth
  - Generated jobs for new entrants into the labor force and raised real wages
- Export-led manufacturing naturally combined structural transformation and urbanization, movement to a learning economy, openness that meant one could simply focus on foreign exchange constraint (ensuring that one had the foreign exchange one needed), and job creation for new entrants into the labor force to maintain reasonably high employment and rising wages

Towards a new strategy

- Similar outcomes will require a multifaceted growth strategy with different facets reflecting different aspects of manufacturing export-led growth
  - Manufacturing
  - Agricultural
  - Resources
  - Services
- Choosing subsectors within each that together achieve what export-led manufacturing growth did for East Asia
  - But there are still many lessons to be learned from East Asia's success: importance of structural transformation, education, savings, equality, the role of government (including industrial policies), managing finance and rents such that they serve productive transformation and innovation

IV. Developing countries' response to innovation

- New technologies expand possibilities, but often lead to new market equilibrium with more inequality
  - And a political equilibrium that may make it difficult to address inequalities
- Historically, it took a long time before the advances of the first industrial revolution led to increases in standards of living for ordinary workers even given the opportunities for European labor to migrate to the new world and the "new" land of the latter
- New technologies may be even more "biased" to advantage those in advanced countries
  - Facilitating on-shoring
  - Problems exacerbated by international agreements ensuring flow of patent-rents to advanced countries and undermining flow of tax revenues to developing countries
  - May reduce demand for natural resources
  - Crypto-currencies may exacerbate corruption and capital outflows

Some key insights concerning innovation

- Innovation often gives rise to increased inequality
- But—like globalization—if well managed can make everyone better off
- But it is very hard to manage it well—most countries have not been doing so
- And the political economy makes it even more difficult—the winners use their power to perpetuate power.

Big concern

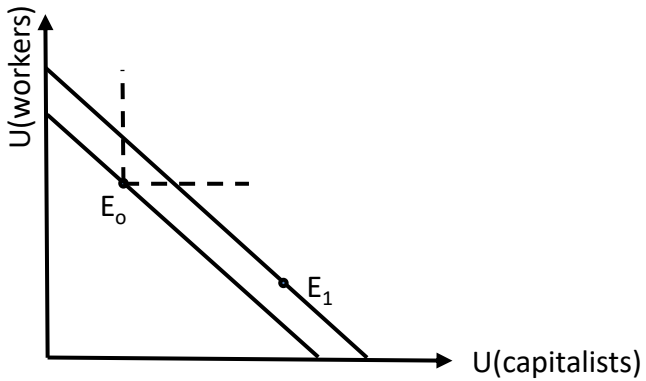
- **Growth of labor-replacing robots will lead to even more inequality and unemployment**
  - Machines have long been stronger than humans, better able to do many physical jobs
  - Computers are better at processing large amounts of information
  - AI means that robots may even be better at learning
  - Extent to which they can replace or outperform humans in immediate future uncertain—large variance in estimates
  - Alternative perspective: advances (including robots) could be **labor-augmenting (IA: intelligence-assisting**), increasing productivities of large proportion of population

Based on A. Korinek and J. E. Stiglitz, "Artificial Intelligence, Worker-Replacing Technological Progress and Income Distribution," with Anton Korinek, NBER Working Paper No. 24174, December 2017, forthcoming in *Economics of Artificial Intelligence*, NBER/University of Chicago Press

Technological possibilities and utility

Consider arrival of a new technology that replaces workers.
Would their standard of living *necessarily* collapse?

1) If (i) the world is 1st-best and (ii) redistribution is *costless*,
the utility possibilities frontier (UPF) moves out (even if competitive equilibrium wage decreases):

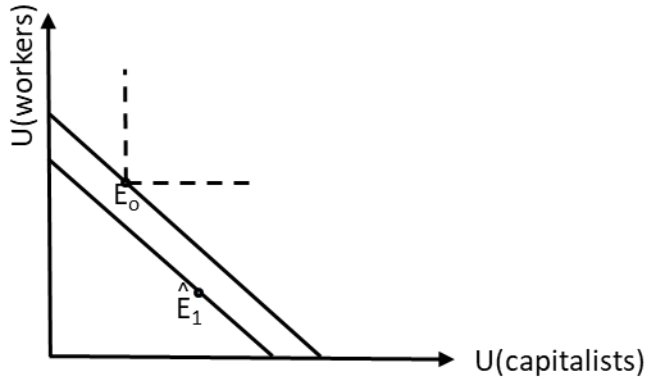


→ Redistribution can ensure that everyone is better off

Technological possibilities and utility

Consider arrival of a new technology that replaces workers.
Would their standard of living *necessarily* collapse?

2) If the world is *not 1st-best*, the utility possibilities frontier may move inwards (even with costless distribution):



→Limiting technological change may then be desirable

Role for government

- Intervening in the innovation process may generate societal improvements
  - Market produces too much “unskilled labor-replacing” innovation, too little environmental and labor-augmenting (intelligence-assisting) innovation
  - Market produces too much digital addiction and High Frequency Trading (HFT) innovation, too little “inclusion” innovation
- Important role for industrial and regulatory policies to shape the direction of innovation
- Role for government to **write rules of game** and engage in **redistribution** to prevent adverse distributional consequences

An optimistic view

- Innovation typically gives rise to rents
  - **Rents can be taxed without creating distortions**
- **Proceeds of taxes can be used to ensure inclusive growth**
- **Broader institutional reforms** include careful attention to regulatory, tax, and IPR regime
  - Implications for domestic competition, developmental resources, and potential for developing countries to "catch up"
  - Further implications for society (privacy, inequality, spread of noxious ideologies undermining enlightenment ideals)
    - Surveillance mechanisms can quickly morph from private to public, undermining democracy and basic rights
  - If the world splinters into competing trade areas, with different standards, developing countries may face difficult choices in choosing sides
    - Choice is a long-run choice, with multiple ramifications
    - Shouldn't be excessively swayed by current terms (price, credit)

Important international dimension

- Analysis above was for a single economy
- In practice, the gainers are "superfirms" located in advanced countries, taking advantage of a technology with low MC and global IPR agreements
  - Lowering globally of real un/low-skilled wages has adverse terms of trade effects on developing countries
  - New technologies/changes in structure of demand may result in lowering of incomes of natural resource providers
  - Technologies associated with global market power—in the advanced countries
  - Inevitable that over the long term they will be using their market power to redistribute income from developing countries and emerging markets to themselves
- Result: Likely to be large redistributive effects between developed and developing countries and within developing countries
  - ***Unless the rules change***
    - Especially because it is unlikely, regardless of investments in education and technology made by emerging markets, that many (any) can close the knowledge gap to be effective competitors
    - The rules are set, to too large an extent, by the special interests in the advanced countries that are the main beneficiaries
- Redistributions required to ensure everyone is better off necessitate cross-country redistributions—even less likely to occur than intra-country redistributions

V. Aspects of the policy response

- Changing IPR rules
- **Taxation**
- Regulation
- Competition Policy
- Trade
- Reforming other global rules that constrain developing countries, e.g. ISDS, renegotiations of unequal/corrupt natural resource contracts
- All of the above require rolling back the proliferating bilateral trade and investment agreements that bypass multilateral frameworks

Changing IPR rules

- IPR is a social construction designed to promote innovation
- With strong distributive consequences
  - With adverse effects on efficiency in the short run—inefficient use of the public good that is knowledge
- Rules in TRIPS and post-TRIPS trade and investment agreements were designed to benefit particular industries in the advanced countries—not to promote global growth, let alone broader sense of global well-being, let alone to promote development
- Need to rethink the rules, including use of compulsory licenses
  - Rules affect both ability of developing countries to catch up and standards of living in developing countries
    - More about distribution of income between developing countries and advanced countries than the pace of global innovation
  - Rules affect health of the poor around the world, but especially in developing countries
  - Rules affect climate change and the availability of food
- Alternatively or in addition: use of taxation of IPR rents to prevent or mitigate adverse terms of trade effects

Taxation

- Important not to give digital commerce tax preference over non-digital
  - Could argue that it may be desirable to do reverse: presence of stores affects nature of community
- Important to tax digital multinationals
  - Important source of revenues
  - Virtually all of revenues are rents, so that optimal tax rates should be high, and especially so in developing countries and emerging markets
  - Should be viewed as part of broader program to combat tax avoidance/evasion by multinationals (global initiative) and to ensure appropriate global allocation of tax revenues from multinationals
  - Tax "bad" innovations and subsidize "good" ones
- May be desirable for developing countries to encourage digital *national* companies
  - There is considerable validity to the infant industry and infant economy argument
    - Learning by doing arguments/learning spill-overs
    - Central theme of Greenwald and Stiglitz, *Creating a Learning Society: A New Approach to Growth, Development, and Social* Progress

Regulation

- Major change in perspective on regulation in last few years
  - Self-regulation will not work—hasn't worked in other areas, and hasn't been working in this arena
- Intersecting concerns over competition/privacy/security/addiction/manipulation (political, individual)
- Multiple attempts—all so far inadequate, but moves in the right direction

Competition policy

- Competition policy in most developing countries was never adequate—now it's even more important
  - Need broad-based "public interest" doctrines, along the lines of South Africa
- Competition policy in the advanced countries (especially US) has been eviscerated over last fifty years
- And in any case, failed to keep up with new technologies

What is needed now:

- Conventional restrictions on conflicts of interest/anti-competitive actions (Europe's actions against Google)
- Divestiture (Facebook, WhatsApp, Instagram)
- Restrictions on use/sale of information
  - Including for discriminatory pricing—which undermines efficiency of market economy, and has potentially large adverse redistributive consequences

Trade

- Lack of trust in trade in new digital products
- Does China's lack of concern about privacy give it unfair trade advantage?
  - Or US's relative lack of concern compared to Europe?
- **Increasing problem: rules of game for "fair trade" among countries with different values, regulatory regime**
  - Not likely to be full regulatory harmonization—nor should there be
- **Increasing concern about new geo-political order and the impact of trade**
  - Especially in US
  - No longer belief trade leads to "convergence" in values (Fukuyama, "End of History")
- But this will almost certainly have consequences for trade in other goods and services
  - Compounding tensions already created by Trump Administration
  - Need to prevent a new "cold war" forcing developing countries to choose sides
  - Need to keep rules-based order, to protect developing countries from being exploited by powerful advanced countries

ISDS

- In practice, highly unfair to developing countries
- Tilt balance of power in disputes towards rich countries' corporations and away from consumers, producers and governments in developing countries; of particular relevance to countries like African ones with potential disputes over nonrenewable natural resources
  - Adverse effects on health, inequality, environment, safety

VI. New technology offers many benefits for development—if countries seize them

Focused mostly on risks of new technologies and how they can be mitigated

- But new technologies also open up multiple new opportunities
  - **Financial inclusion**
    - But success has been more limited than at first hoped
    - Has failed to have broader benefits associated with other avenues of inclusion, such as micro-credit
  - Other Pro Poor
    - **Potential to raise smallholder agriculture productivity**
    - **Possible health and education (e.g. MOOCS) benefits**

Closing the gap in knowledge and facilitating structural transformation

- Easier access to international markets/lower barriers to entry
  - Access to credit, knowledge still necessary
  - But greater barriers to entry in platforms
    - Which is where much of the profits are
- Greater access to knowledge
  - But also bombarded by disinformation
  - Have to increase capacities to distinguish between the two and process knowledge
- Continuing worries about digital divide, both between and within countries

VII. Measurement of success

- Increases in GDP do not provide good measure of success, especially in Africa
  - Natural resource-rich countries have high levels and growth of GDP—but no structural transformation: growth will not be sustainable or employment-generating
  - Many African countries have been marked by high levels of inequality, with benefits of growth going only to a few
  - In many African countries, there has been extensive depletion of natural resources and environmental degradation

Beyond GDP

- Important unobserved aspects of growth and structural transformation, related to the quality of growth
  - Development of human capital and entrepreneurship
  - Development of social capital and trust
  - Development of knowledge
  - Creation of livable and dynamic cities
- Need to supplement GDP with a dashboard of indicators

Among key insights of the international Commission on the Measurement of Economic Performance and Social Progress and the recent reports of the High-Level Expert Group at the OECD on the Measurement of Economic Performance and Social Progress (released last November)

Concluding Remarks

- Successful development policy will need to be explicitly more multi-pronged, addressing separate "challenges" that manufacturing sector addressed simultaneously
  - A coordinated (Agriculture, Manufacturing, Mining, Service Sector) strategy has the prospect of attaining the same success as the old manufacturing export-led strategy
  - Will need to focus on structural transformation, creating new dynamic comparative advantages and responding to the challenges posed by technological change
    - Especially those associated with unemployment and inequality
  - Need to focus on quality of growth, not just "quantity"
    - Using a benchmark of indicators, not just GDP
- Government will need to play an important role in the new structural transformation towards modern agriculture and services sectors and from a rural to a modern urban economy

Comprehensive Development Strategy

- In short, what is needed is a comprehensive development strategy
  - Leading to inclusive growth
  - With inclusive participation
    - Including a balance between markets, government, and society
- Based on these new understandings of what leads to successful economic and societal transformation and the challenges posed by new technologies and the changing global scene