CREATING A LEARNING SOCIETY

A New Approach to Growth, Development, and Social Progress.

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Two themes

- Successful and *sustained* growth requires creating a learning society.
  - Especially in the 21st century, as we move to a knowledge economy.
- Markets on their own will not do this
  - There needs to be systematic interventions by the government

On the importance of Creating a Learning Society

- The transformation to “learning societies” that occurred around 1800 for Western economies, and more recently for those in Asia, appears to have had a far, far greater impact on human well-being than improvements in allocative efficiency or resource accumulation.
  - For hundreds of years standards of living had remained essentially unchanged
- Since Solow, we have recognized that the most important determinant of growth is technological change
  - Recognized earlier by Schumpeter, but Solow gave us first quantification
  - Our focus should be on the impact of policies on technological change, learning

Gaps in knowledge

- In case of developing countries, focus on diffusion of knowledge
  - From developed to developing country
  - What separates developing from developed countries is as much a gap in knowledge as a gap in resources

- But even in developed countries, large gaps between productivity of best and other firms
  - Undermines concept of an aggregate production function

Market failure

- Markets, on their own, are not efficient in promoting innovation.
  - Since Arrow, recognized that markets by themselves do not yield efficiency in the production and dissemination of knowledge
    - Knowledge as a public good
    - Spillovers/externalities
    - Other imperfections (capital markets, imperfect competition) inherently associated with innovation
- Changed presumption from Smith's invisible hand
  - Production of knowledge/learning different from production of conventional commodities
  - Results consistent with Greenwald-Stiglitz theorem
    - Whenever information is imperfect/asymmetric, risk markets imperfect markets are not (constrained Pareto) efficient
    - Information is similar to knowledge, so result not surprise

Government policy

- The policies that promote a transformation to a learning society are markedly different than those traditionally advocated by economists, which focus on improving the *static* efficiency of resource allocation and the accumulation of capital.
- Including policies that constituted the Washington Consensus.
- Indeed, from the perspective of creating a learning society, those policies may be counterproductive.

Long recognized conflict between static and dynamic perspectives

- Intellectual property restricts use of knowledge (a distortion—knowledge is a public good), and can even contribute to monopoly.
- Willing to accept because dynamic benefits outweigh static costs
  - May be negative dynamic benefits (US)
- Important to have a "developmentally oriented" intellectual property regime
  - With poorly designed IP regime, dynamic benefits less than the costs
  - TRIPS (regime of WTO) is *NOT* developmentally oriented
  - But important for countries to make full use of latitude given by TRIPS

Implies that a central question of growth and development should be:

- What should governments do to promote growth through learning (technological progress)?
  - Question is especially salient because such policies may be in conflict with conventionally advocated policies

- Book looks comprehensively at factors affecting learning
  - Education system
  - The economy's innovation system, including IPR and technology policy
  - Macro-economic policies, including exchange rate policy
  - Industrial and trade policies
  - Investment policies

Multiple dimensions

- How they affect capabilities of learning
- How they affect incentives to learn (motivate learning)
- How they facilitate learning and catalyze it
  - Including mindsets that are conducive to learning
    - Importance of the Enlightenment
- How they impose impediments to learning
- How does learning occur
  - Especial attention to learning by doing
- Learning to learn

- This lecture will focus on role of education system and trade and industrial policies

- Based on

Creating a Learning Society: A New Approach to Growth, Development, and Social Progress with Bruce Greenwald *(*Columbia University Press, 2014)

I. Education

- Needs to focus on “learning to learn”—life long learning
- Only small part of learning occurs in “formal” schooling
- Have to understand role of formal schooling vs. “life long learning”
  - Relationship changing with increasing pace of innovation, changes in labor market
  - Relationship changing with ability to access “knowledge” on internet
    - Need to know how to access, evaluate, and analyze knowledge base which is readily available
- Changes in technology are allowing changes in learning

Changes in education on the job

- Less provision of education by employers
  - With greater labor mobility
- Greater uncertainty about nature of future jobs

- Implying greater need for individuals to have access to relevant continuing education

Learning perspective has changed thinking about education in developing countries

- Importance not just of primary education but secondary and tertiary
- Learning skills that enable individuals to learn in the contexts in which they live
  - With many continuing to live in rural sector, a rural-based education—not just qualifying individuals for urban jobs

Among central messages of WDR *Knowledge for Development*

II. New perspectives on trade

- Standard theories
  - Focus on comparative advantage
  - One-time gain from liberalization, opening up markets

- Technology-based learning theories
  - Focus on diffusion of technology from developed to less developed countries
  - And **spillovers** from one sector to other
  - And learning within any sector
    - Within all countries, there are large differences between average and best practices
    - Suggesting large scope for “learning”
  - Localized learning—localized to technologies
    - Similar technologies can be used across sectors

Dynamic comparative advantage—comparative advantage is endogenous

- With learning by doing affected by what a country produces

- Central then is understanding the structure of learning within an economy—including within and across sectors
  - Many processes, practices, and institutions entail cross-sector learning/increases in productivity
    - Inventory control processes
    - Labor management processes
    - Computerization
    - Financial services

Infant industry argument

- Infant industries—economies of scale
  - Losses during “learning phase” serve as entry barriers, putting developing countries at disadvantage

- In fact, learning by doing itself provides little basis of industrial policy
  - Consider a two-country, two-product Ricardian world with Cobb-Douglas utility functions, with one product with learning and the other stagnant (learning internalized in country)
  - Consider equilibrium in which “developed” country specializes in dynamic sector
  - With competition, full benefits of learning are shared with developing country through price declines

Infant *economy* argument for protection

- The industrial sector (broadly understood, including modern services) may not only exhibit a larger learning elasticity, but also more spillovers to the rural/agricultural sector
- Markets fail to take into account of these externalities on their own
- Korea provides an example of effective use of such policies

Other market failures endemic to "learning"

- Two cases:
- Learning external to the firm
  - Failure to take into account learning benefits to industry as well as spillovers
- Learning limited to the firm
  - Natural monopoly
  - If there were no cross-sectoral spillovers, rational firm would take into account all learning benefits
  - But distortion from monopoly power
- In both cases, in general, market equilibrium not efficient

*Advantages of industrial sector

- Large—high returns to scale
- Long-lived—high returns from continuity (learning to learn)
- Stable—high returns from completion
- Concentrated—high rates of diffusion

*Strong industrial sector is basis for:

- More research–
  - More resources and incentives for research and development
  - More internalization
  - Greater ability to support public research and development
  - More human capital formation, including public support for human capital accumulation
- The development of a robust financial sector
- Learning to learn and cross-border knowledge flows

Implication: Rate of productivity increase related to (relative) size of industrial sector.

Policies

- Optimal to impose some subsidies, even if taxes to finance subsidies are distortionary

- Optimal subsidies lead to expansion of those sectors that have larger societal learning benefits, taking into account both direct learning and cross sectoral spillovers.
  - If the learning elasticity of some sector is much larger than that of others, and there is some sector that is a substitute for the high-learning sector, then it may pay to tax that sector, in order to encourage learning in the high-learning sector
- Book provides precise formulae (analogous to Ramsey formulae) for optimal subsidies and taxes

Trade protection is an alternative

- Especially relevant where government cannot raise revenues through taxation to finance subsidies
- Quotas, tariffs can encourage industrial sector

Industrial policy in the presence of WTO constraints

- Exchange rate policy may be an effective alternative
  - Lowering exchange rate below "equilibrium" (trade balance) leads to larger industrial sector and faster learning and trade surplus
  - Avoids the problem of "picking winners"
  - Avoids the problems posed by WTO restrictions

- Even pays to have a *perpetual* current account surplus
  - Surprising — "capital" that one never uses
  - But learning benefit exceeds the opportunity cost of funds

- But even if it were not desirable to do it *forever,* it may be an important element of development strategy
  - Problem with using steady-state models

Extensions

- Trade policy can affect factor prices, and therefore the level of investment, and therefore the level of learning
  - More than offsetting the social costs of distortion

Learning to learn

- **We have focused on "learning," but even more important is "learning to learn"**
  - Industrial and trade policy can enhance an economy's learning capacities
    - Introduces complex strategic questions

Political economy objection

- Ideal government intervention might improve matters
  - But real world interventions do not

- Political economy objections may be true—but conclusion based on political analysis, not economic analysis
  - Political analysis often more simplistic than economic analysis
  - Moreover, liberalization is also a political agenda
    - Not “perfectly applied”
    - Asymmetric application can have adverse welfare effects

Political economy objections

- Critique of infant economy argument in particular
  - Government can't pick winners
  - Infants never grow up
  - Better ways of providing assistance than protection—direct and transparent subsidies
- Replies to critiques
  - Almost every successful country has had "industrial policies"
    - US from 19th century (telecommunications, agriculture)
      - Today mostly through Defense Department
      - Including Internet and biotech
        - With private sector playing central role in bringing innovation to market
      - Successful countries learned how to manage "political economy" problems

- Point of industrial policies is not to pick winners, but to identify externalities and other market failures
  - With imperfect capital markets, can't borrow to finance initial losses
  - Imperfections of capital markets are endemic (asymmetries of information)
    - Especially in developing countries
- Besides, we don't reject "monetary policy" simply because there have been failures

lesson

- Design of industrial policy has to reflect capacities and capabilities of government
- Broad-based export subsidies (as in East Asia) may be a desirable way of promoting industrial sector (including through exchange rate policies)

III. Other implications of new theory

- Theory of the firm
  - Not based on transactions costs (Coase)
  - Knowledge moves more freely within firms than across firm boundaries
  - Resource allocations within firm are typically not based on prices, or even contracts
  - Trade-off between “learning” and “allocative efficiency”

IV. General lessons

- Another example of 2nd best economics

- But whenever one talks about innovation, one is in the world of 2nd-best economics
  - Credit/revenue constraints are also likely to be particularly important
  - Imperfect competition/increasing returns to scale
  - Risk, with imperfect risk markets
  - All elements of standard Schumpeterian economics
  - Should be at the center of endogenous growth theory and growth policy

General lessons

- Policies often based on simplistic models
  - Simplistic models consistent with simplistic ideologies
  - And used by special interests to advance particular policy agenda
  - Trade and capital market liberalization can make everyone worse off (Pareto inferior trade and liberalization) if there are imperfect risk markets (Newbery-Stiglitz, 1982)

V. Growth, learning and innovation: To what end?

- Much of innovation in advanced industrial economies has been directed towards saving labor
  - But in many developing countries, labor is in surplus, and unemployment is the problem
  - Labor saving innovations exacerbate this key social problem

- It is natural resources/the environment which is "underpriced"
  - And innovation needs to be directed at saving resources and protecting the environment
  - Cannot just "borrow"/adapt technology from the North
  - Need a new "model" of innovation

- These environmental impacts are important for all countries, but especially for developing countries

- What matters is not GDP, but the quality of life, “well-being” and individual capabilities
  - What that entails—and how it can be increased— should and can be a subject of rational inquiry
  - Has been an area in which Sen has made major contributions
  - Subject of Sen-Fitoussi-Stiglitz International Commission on the Measurement of Economic Performance and Social Progress

V. Social transformation and the creation of a learning society

- *Perceptions (beliefs) affect actions (choices) and are shaped by cognitive frames*

- *The categories that shape cognition are social constructions.*

- *Because belief systems affect the equilibrium, e.g. by shaping perceptions, elites have a strong incentive to influence people's beliefs*
  - In contrast, in a RE equilibrium cognitive frames play no role

- *Those in "power" typically do not control all the determinants of the evolution of beliefs*
  - Cultures are always contested.

- *The general beliefs about the world are a state variable that determine which beliefs are acceptable.*

- How such belief systems change—and how those (like governments) who seek to deliberately change belief systems—is thus a core part of developmental analysis

(Analysis based on K. Hoff and J. E. Stiglitz, 2010, "Equilibrium Fictions: A Cognitive Approach to Societal Rigidity," *American Economic Review,* 100(2): 141-146)

VI. Democracy and the creation of a learning society

- Ideas concerning human rights and democracy have been among the most important in shaping what is and is not acceptable
- Democratic ideals question authority
- Same frame of mind which is so essential for creating a dynamic, learning economy and society
- A more open society generates more ideas, a flow of “mutations,” which provides not only excitement, but the possibility of dynamic evolution, rather than stasis

Non-inclusive growth can lead to a failure to create a learning society

- Unfortunately, even if in the long run, a more dynamic society benefits most members of society, in the short run, there can be (and normally will be) losers
  - Trickle-down economics doesn't work
  - WC policies were often anti-poor (worse than failure to be pro-poor)
- Democratic processes can be shaped, and there are incentives on the part of some to maintain existing inequities
- Democratic processes can then lead to the antithesis of an open and transparent society

The political economy of inclusiveness and openness

- Critique of non-inclusive growth goes beyond that it is a waste of a country's most valuable resource—its human talent—to fail to ensure that everyone lives up to his or her abilities
- Government needs to play an important role in any economy, correcting pervasive market failures, but especially in the "creative economy"
- In a society with very little inequality, the only role of the state is to provide collective goods and correct market failures
- When there are large inequalities, interests differ
  - Distributive battles inevitably rage
  - To prevent redistribution, role of government is circumscribed
  - But in circumscribing government, ability to perform positive roles is also circumscribed

Adverse dynamic

- More inequality—more circumscribed government
- Leading to more inequality
- In the long run—more unstable, lower growth
- Some fear that US has now embarked on this adverse dynamic
  - Less equality of opportunity, more inequality, than some countries of “old Europe”

VII. General principles of a learning society have broad implications

For entire economic regime:

- Financial and capital market liberalization
  - Affects ability to learn how to allocate capital
- The design of monetary policy and institutions
- Intellectual property regimes
- Investment treaties,
- Taxation, and expenditures on infrastructure, education, and technology
- Legal frameworks for corporate governance and bankruptcy

Objective of this lecture

- A new lens through which one can examine these and other policy choices facing developing countries in the coming years
- Countries might like to pretend that it could avoid matters of industrial policy—following the neoliberal doctrines that these are matters to be left to the market
- But they cannot
- The choices they makes in each of these arenas will inevitably shape the economy, politics and society, for better or for worse, for decades to come.