Growth and Development Models: Contemporary Perspectives

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WORLD INEQUALITY REPORT 2018

- Inequality has increased in nearly all world regions in recent decades, but at different speeds.
- Inequality levels are different among countries, even when countries share similar levels of development,
- It highlights the important roles that national policies and institutions play in shaping inequality.

WORLD INEQUALITY REPORT 2018

- Since 1980 till date, the global top 1% earners has captured twice as much of that growth as the 50% poorest individuals.
- The bottom 50% has nevertheless enjoyed important growth rates.
- The global middle class (which contains all of the poorest 90% income groups in the EU and the United States) has been squeezed.

WORLD INEQUALITY REPORT 2018

- Since 1980, very large transfers of public to private wealth occurred in nearly all countries, whether rich or emerging.
- While national wealth has substantially increased, public wealth is now negative or close to zero in rich countries.
- This limits the ability of governments to tackle inequality with important implications for wealth inequality among individuals.

WORLD INEQUALITY REPORT 2018

- In Russia and the United States, the rise in wealth inequality has been extreme, whereas in Europe it has been more moderate.
- Wealth inequality has not yet returned to its extremely high early-twentieth-century level in rich countries.

Capital in the Twenty-First Century: Thomas Piketty (2014)

- Piketty derives a theory of capital and inequality. As a general rule wealth grows faster than economic output, he explains, a concept he captures in the expression r>g (where r is the rate of return to wealth and g is the economic growth rate).
- Other things being equal, faster economic growth will diminish the importance of wealth in a society, whereas slower growth will increase it (and demographic change that slows global growth will make capital more dominant). But there are no natural forces pushing against the steady concentration of wealth.

Capital in the Twenty-First Century: Thomas Piketty (2014)

- Only a burst of rapid growth (from technological progress or rising population) or government intervention can be counted on to keep economies from returning to the scourge of increasing inequality.
- Piketty closes the book by recommending that governments step in now, by adopting a global tax on wealth, to prevent soaring inequality contributing to economic or political instability down the road.

Capital in the Twenty-First Century: Thomas Piketty (2014)

- SOME CRITICAL REBUTTALS:
  - **“The Rise and Decline of General Laws of Capitalism”:** Daron Acemoglu & James A. Robinson (2015): endogenous growth
  - **“Pareto and Piketty: The Macroeconomics of Top Income and Wealth Inequality”:** Charles I Jones (2015): Pareto distribution: Pr [Income > y] = $y^{-1/\lambda}$:λ= 0.6 for the US (Measure of Pareto Inequality)
  - “**Piketty’s Prediction meets technical progress in Harrod-Domar’s Dynamics and Solow-Swan’s Surrogate” :** Steve De Castro (2015)

HARROD-DOMER MODEL (1939,1946)

Main concepts used in the model:

1. Income, saving and consumption:

$Y = C + S.$ as $S = I \rightarrow Y = C + I$

All income is either saved or consumed:

$S = sY \rightarrow C = (1-s)Y$

2. Capital accumulation:

$K_{t+1} = I_t + K(1-d)$ where d -> depreciation

The model use the concept of capital-output ratio (efficiency of the production system measured in term of capital):

$cr = K_t / Y_t$

3. Rate of growth:

$$g = s / cr - d$$

HARROD-DOMER MODEL (1939,1946)

The three growth rates

- Actual rate of growth (g) (i.e. the real income change):

$$g = s / c = \frac{(S / Y)}{I / \Delta Y} = \Delta Y / Y$$

where: s -> propensity to save

c -> quantity of capital need to produce one unity of production

g is then equal to the ratio between the propensity to save and the current capital-output ratio

- Warranted rate of growth (gw) (i.e. the growth that leaves everyone satisfied with an increase in production (no more, no less) needed to pursue better resource's allocation, by impling a necessary increase ininvestments)

$$gw = \Delta Y / Y = s / cr$$

where: s -> propensity to save

cr -> extra quantity of capital needed

gw is then equal to the ratio between planned and propensity to save and the extra capital required per unit of product

- Natural growth rate (gn) (i.e. one that ensures growth that absorbs the available labor force in relation to its production capacity) as:

$$Y = L (Y / L)$$

- Full employment of capital and labor requires:

$$g = gw = gn$$

HARROD-DOMER MODEL (1939,1946)

- gw > gn, excess capital and savings, tendency to depression due to lack of work (g fails to stimulate growth in demand, i.e. the amount of savings that match with job)

  Typical aspects of the crisis of '29 and maybe of recent financial crises

- gw < gn -> overwork, inflation (g grows more that is necessary to match savings for labor), unemployment and lack of capital investment

- Typical aspects of developing countries

HARROD-DOMER MODEL (1939,1946)

- HARROD-DOMAR MODEL IS RIGID, LIGHT, ONE SECTOR AND SPECIFIC WITH RESPECT TO THREE PARAMETERS.
- A CONSTANT PROPORTION OF INCOME IS ASSUMED TO BE SAVED (S_T/Y_T). THE FULL CAPACITY CONDITION MEANS A CONSTANT CAPITAL OUTPUT RATIO (C/O) AND FURTHER THE CONDITION THAT ON FULL EMPLOYMENT THE DEMAND FOR LABOUR (ASSOCIATED WITH FULL CAPACITY OUTPUT) MUST GROW AT THE CONSTANT RATE (N).

INTRODUCTION OF FLEXIBILITY

- FLEXIBLE CAPITAL OUTPUT RATIO (C/O) : SOLOW (1956): **TECHNOLOGICAL CHANGE**
- FLEXIBLE PROPORTION OF INCOME IS SAVED (S_T/Y_T): KALDOR (1957), PASINETTI (1962): CHANGE IN INCOME DISTRIBUTION: **AN INCREASE IN THE INCOME-INVESTMENT RATIO (I/Y) WILL RESULT IN AN INCREASE IN THE SHARE OF PROFITS OUT OF TOTAL INCOME (P/Y), AS LONG AS IT IS ASSUMED THAT BOTH s_W AND s_P ARE CONSTANT AND FURTHER THAT $s_P > s_{W.}$** IF $s_P < s_{w,}$ STEADY STATE GROWTTH DEPENDS ON s_w
- FLEXIBLE GROWTH IN DEMAND FOR LABOUR: ROBINSON (1956): **CAPITAL FORMATION DEPENDS ON THE MANNER OF DISTRIBUTION OF INCOME AND RATE AT WHICH LABOUR IS UTILIZED DEPENDS UPON THE SUPPLY OF CAPITAL AND THAT OF LABOUR. PROFIT RATE IS A FUNCTION OF LABOUR PRODUCTIVITY (P) AND REAL WAGE RATE (W/P) AND CAPITAL LABOUR RATIO.**

DEVELOPMENT = GROWTH+CHANGE

- EMPHASIS GIVEN ON TECHNOLOGICAL CHANGE SUGGESTED BY SOLOW: ARGUMENT OF CONVERGENCE: EMERGENCE OF TWO GAP THEORY OF DEVELOPMENT COOPERATION
- THE PERSPECTIVE OF INCOME DISTRIBUTION NOT SHOWN MUCH CONCERN TILL EMERGENCE OF ENDOGENOUS GROWTH THEORIES

ENDOGENOUS GROWTH MODELS

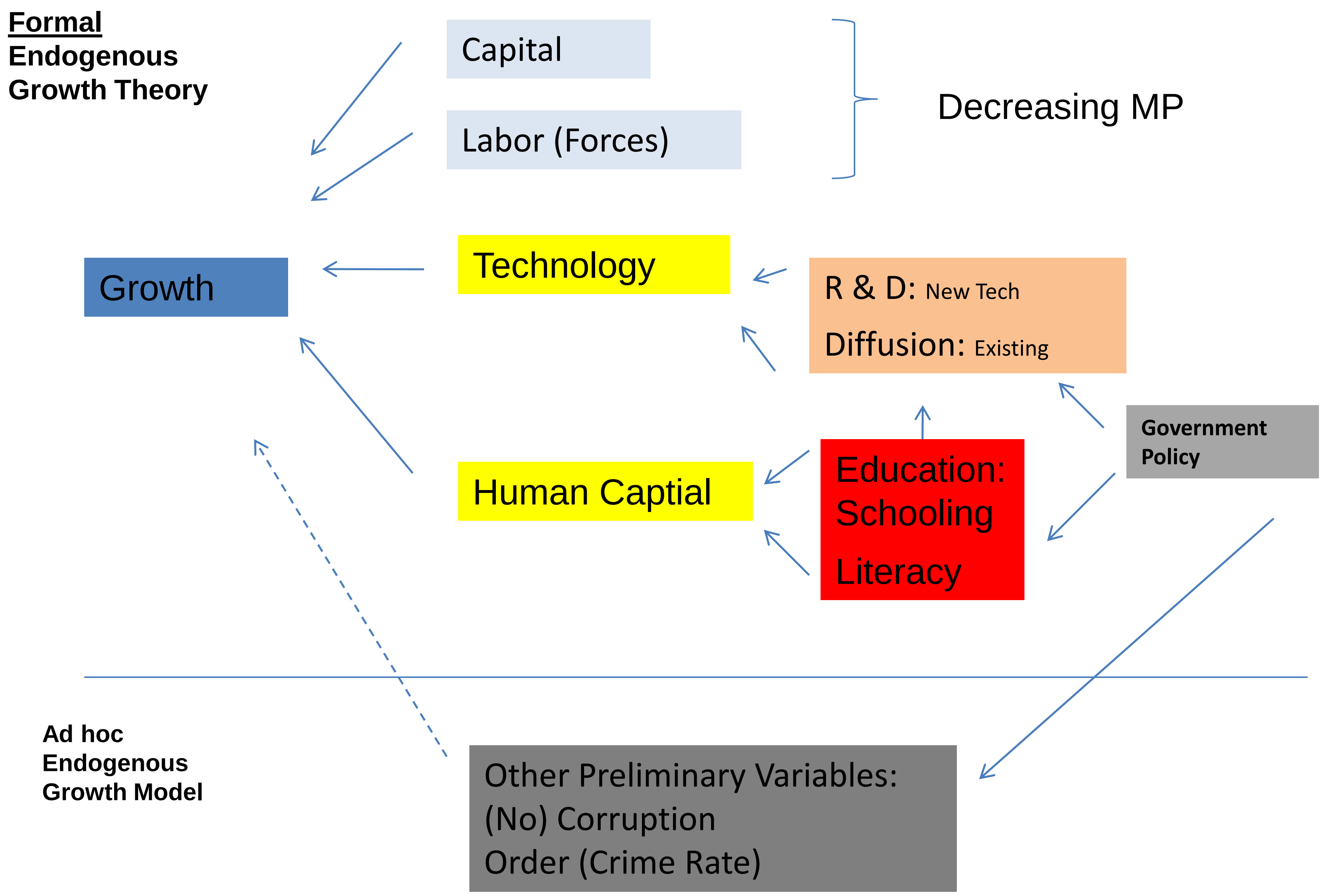
- ALL INPUTS ARE ACCUMULABLE: AK MODEL: TO ENSURE CONSTANT RETURNS TO CAPITAL: $g=sr$ (REBELO 1991): s: average propensity to save (given), r= rate of return on capital.
- DUALISM MAINTAINED: MODIFIED AGGREGATE PRODUCTION FUNCTION: BUT RETURNS TO CAPITAL BOUNDED FROM BELOW (JONES AND MANUELLI 1990): $h(k)=f(k) + bk$ and $g=sb$

ENDOGENOUS GROWTH MODELS

- HUMAN CAPITAL FORMATION (LUCAS 1988) – **INFLUENCING CHANGE IN SUPPLY OF LABOUR** **–** AND KNOWLEDGE ACCUMULATION (ROMER 1986) – **INFLUENCING TECHNOLOGICAL CHANGE** – : POSITIVE EXTERNALITIES TO OFFSET ANY FALL IN THE MARGINAL PRODUCT OF CAPITAL.

IN TUNE WITH PRINCIPLES OF SSC?

Summary


Formal Endogenous Growth Theory
Capital
Labor (Forces)
Decreasing MP
Growth
Technology
R & D: New Tech
Diffusion: Existing
Government Policy
Human Captial
Education: Schooling
Literacy
Ad hoc Endogenous Growth Model
Other Preliminary Variables:
(No) Corruption
Order (Crime Rate)

ENDOGENOUS GROWTH MODELS

- USING A MODEL WHERE WELFARE DEPENDS ON THREE GOODS: LEISURE, A FREE ENVIRONMENTAL RENEWABLE RESOURCE, AND A NON-STORABLE OUTPUT, ANTOCI & BARTOLINI (1999) ARGUES THAT THE ENVIRONMENTAL RESOURCE IS SUBJECT TO NEGATIVE EXTERNALITIES, GROWTH GENERATES A FURTHER DETERIORATION OF THE ENVIRONMENTAL RESOURCE, THUS GIVING RISE TO A SELF-FEEDING GROWTH PROCESS.
- ECONOMIC GROWTH IS THEREFORE TREATED AS A SELF-REINFORCING PROCESS WHEREBY GROWTH GENERATES NEGATIVE EXTERNALITIES AND NEGATIVE EXTERNALITIES GENERATE GROWTH.

NEED FOR SDGs??

- GROWTH IS FUELLED BY A DIMINUTION IN FREE CONSUMPTIONS AND BY ITS SUBSTITUTION WITH COSTLY ONES – LEADING TO INCREASED INEQUALITY – BOTH INTRA-COUNTRY AND INTER-COUNTRY.
- DECLINING GREEN GDP ACROSS THE DEVELOPING WORLD.

TO CONCLUDE…

- PIKETTY’S QUEST FOR GENERAL LAWS IGNORES BOTH INSTITUTIONS AND POLITICS, AND THE FLEXIBLE AND MULTIFACETED NATURE OF TECHNOLOGY, WHICH MAKE THE RESPONSES TO THE SAME STIMULI CONDITIONAL ON HISTORICAL, POLITICAL, INSTITUTIONAL, AND CONTINGENT ASPECTS OF THE SOCIETY.
- ANY PLAUSIBLE THEORY OF THE NATURE AND EVOLUTION OF INEQUALITY HAS TO INCLUDE POLITICAL AND ECONOMIC INSTITUTIONS AT THE CENTER STAGE, RECOGNIZE THE ENDOGENOUS EVOLUTION OF TECHNOLOGY IN RESPONSE TO BOTH INSTITUTIONAL AND OTHER ECONOMIC AND DEMOGRAPHIC FACTORS. (ACEMOGLU& ROBINSON, 2015)

TO CONCLUDE…

- THE THEORETICAL ANALYSIS BEHIND PIKETTY'S PREDICTION OF RISING WEALTH INEQUALITY OFTEN INCLUDES A KEY SIMPLIFICATION IN THE RELATIONSHIPS BETWEEN VARIABLES: FOR EXAMPLE, ASSUMING THAT CHANGES IN THE GROWTH RATE G WILL NOT BE MIRRORED BY CHANGES IN THE RATE OF RETURN R, OR THAT THE SAVING RATE NET OF DEPRECIATION WON'T CHANGE OVER TIME.
- IF THESE THEORETICAL SIMPLIFICATIONS DO NOT HOLD—AND THERE ARE REASONS TO BE DUBIOUS — THEN THE PREDICTIONS OF A RISING CONCENTRATION OF WEALTH ARE MITIGATED.
- THE FUTURE EVOLUTION OF INCOME AND WEALTH, AND WHETHER THEY ARE MORE OR LESS UNEQUAL, MAY TURN ON A BROADER ARRAY OF FACTORS. (JONES, 2015)

TO CONCLUDE…..

- THE POLICY RECOMMENDATION OF THIS LITERATURE, FOR THE GREAT MAJORITY OF THE WORLD'S POPULATION, SHOULD CONTINUE TO EMPHASIZE GROWTH IN *PER CAPITA GDP*, AT LEAST WHILE THE GAP WITH THE RICH ECONOMIES IS SO WIDE. THE ISSUE REMAINS INCOME DISTRIBUTION, NOT THE ONES WITHIN EACH ECONOMY, PIKETTY'S CONTRIBUTION, BUT RATHER THE ONE ACROSS THEM ALL. (De Castro, 2015)