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Development and growth I:

Which relationship?

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Growth

Growth and development are seen and interpreted as two faces of the same coin and thus as a result of income growth, for instance:

"By the problem of economic development I mean simply the problem of accounting for the observed pattern, across countries and across time, in levels and rates of growth of per capita income. This may seem too narrow a definition, and perhaps it is, but thinking about income patterns will necessarily involve us in thinking about many other aspects of societies too, so I would suggest that we withhold judgement on the scope of this definition until we have a clearer idea of where it leads us" R.E. Lucas (1988).

Development and Growth: which relationship?

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Development

But development, for some, is something more complex and long-term planned objective:

We should never lose sight of the ultimate purpose of the exercise, to treat men and women as ends, to improve the human condition, to enlarge people's choices ... A unity of interests would exist if there were rigid links between economic production (as measured by income per head) and human development (reflected by human indicators such as life expectancy or literacy, or achievements such as self-respect, not easily measured). But these two sets of indicators are not very closely related P.P. Streeten (1994).

Development and Growth: which relationship?

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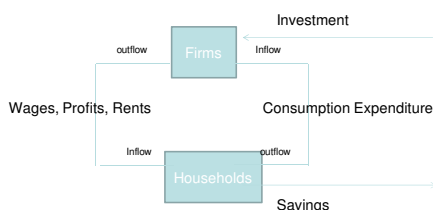
Macroeconomics and analytic models

- Macroeconomics consider the National Income (GDP), Consumption, Saving and Investment as important tools for national accountability;
- This is very important in terms of forecast and in terms of final analysis.
- This means, national account and macroeconomics are highly linked and are very important in order to model the future and to plan national investment through simulation and econometric analysis or CGE (Computable General Equilibrium) and SAM (Social Accounting Matrix);
- In fact, through CGE-SAM it's possible to model and simulate different socio-economic and industrial options

Sviluppo e crescita I: quale rapporto?

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The models



Sviluppo e crescita I: quale rapporto?

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Macroeconomics, the principal variables and their relationship

• 6.1 $Y(t) = C(t) + S(t)$

• 6.2 $Y(t) = C(t) + I(t)$

• 6.3 $S(t) = I(t)$

Development and Growth: which relationship?

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Kapital and Saving

• 6.4 $K(t+1) = (1-\sigma)K(t) + I(t)$

• 6.5 Save rate $\frac{S(t)}{Y(t)} = s$

• 6.6 Kapital rate $\frac{K(t)}{Y(t)} = \theta$

Development and Growth: which relationship?

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Kapital and Saving

• 6.7 $K(t+1) = (1-\sigma)K(t) + S(t)$

• 6.8 If look at the saving rate $S(t) = sY(t)$
• compared to GDP

• 6.9 if look at Kapital rate $I(t) = \theta Y(t)$
• compared to GDP

Sviluppo e crescita I: quale rapporto?

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The relationship amongst GDP, Kapital and Saving

• 6.10 then $\theta Y(t+1) = (1-\sigma)\theta Y(t) + sY(t)$

• 6.11 we have $\frac{Y(t+1)-Y(t)}{Y(t)} = \frac{s}{\theta} - \sigma$

• 6.12 Harrod – Domar Model (1939 – 1946) $\frac{s}{\theta} = g + \sigma$

Development and Growth: which relationship?

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Harrod – Domar Theory

• 6.12 Harrod - Domar $\frac{s}{\theta} = g + \sigma$

• 6.13 where $g = \frac{Y(t+1)-Y(t)}{Y(t)}$

However growth rate is one of the variable that influence the national wellbeing. Another variable very important is the population growth rate as well as. Therefore H-D should take into account the growth and the population rates as endogenous variables.

Development and Growth: which relationship?

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H-D model and the population growth rate

If the population growth rate is given by

• 6.14 $P(t+1) = P(t)(1+n)$

• Getting bakc the 6.10

$$\theta Y(t+1) = (1-\sigma)\theta Y(t) + sY(t)$$

Development and Growth: which relationship?

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H-D model and population growth rate variable

Then the relationship between the GDP and the population growth rate will give us the income per capita hereafter

• 6.15 $y(t) \equiv \frac{Y(t)}{P(t)} = \theta$

• Dividing the two parts with the population will get

• 6.16 $\theta y(t+1) \frac{P(t+1)}{P(t)} = (1-\sigma)\theta y(t) + sy(t)$

Development and Growth: which relationship?

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H-D model with endogenous population growth rate

- Dividing

- 6.17 $y(t)\theta$

- Si we get

- 6.17
$$\frac{y(t+1)}{y(t)} \frac{P(t+1)}{P(t)} = (1-\sigma) \frac{s}{\theta}$$

Development and Growth: which relationship?

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The two H-D Models

- 6.12 the original one
$$\frac{s}{\theta} = g + \sigma$$

- 6.18 the new H-D with endogenous population growth rate
$$\frac{s}{\theta} = (1+g^*)(1+n) - (1-\sigma)$$

- 6.13 where
$$g = \frac{y(t+1) - y(t)}{y(t)} \quad \frac{P(t+1)}{P(t)} = 1+n$$

Development and Growth: which relationship?

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U.S.S.R. Case

The U.S.S.R. five years plan were based on the H-D model and I-O table developed by Leontief.

	1927 – 28 (real data)	1932 – 33 (plans)	1932 (reals data)
GDP	24,4	49,7	45,5
Industrial Production	18,3	43,2	43,3
Intermediate Products	6,0	18,1	23,1
Final Product	12,3	25,1	20,2
Agriculture Production	13,1	25,8	16,6

Development and Growth: which relationship?

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