

Human capital development and the net worth of government: A review

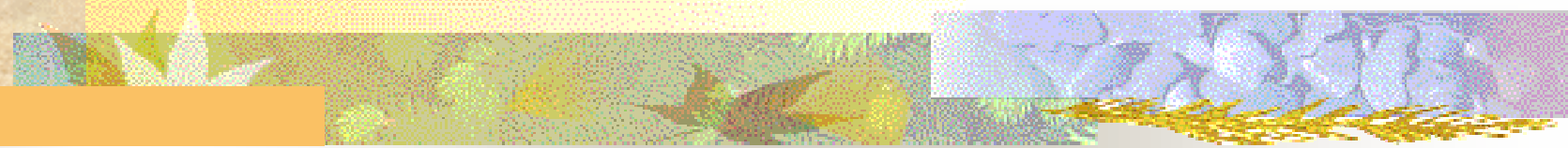


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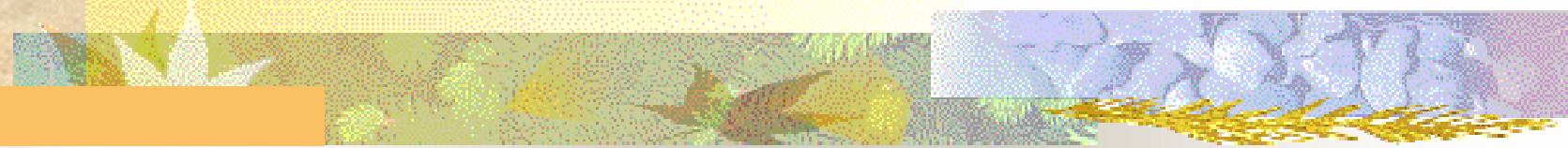
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- Several emerging market and developing countries in recent years registered remarkable growth rates, while others failed
 - Why is not always clear
- Explanations:
 - Non-economic reasons (unstable political systems and ethnic rivalry)
 - Abramovitz refers to lack of ‘social capability’
 - Romer, Lucas, Abramovitz and Shaw: positive relationship between economic growth and the level of human capital



- Hartog defines human capital as the knowledge, skills, competence and other attributes embodied in individuals that are relevant to economic activity. Human capital encompasses education and health care spending and any other form of expenditure that increases the productivity of an individual.


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- Jacob Mincer and the rate of return generated for every additional year with which the average level of education in a country or of a person increases.
 - Estimates vary between 5 and 15% for industrialised countries
 - In developing countries the return even exceeds 15%
 - Investment in health care may yield very high returns

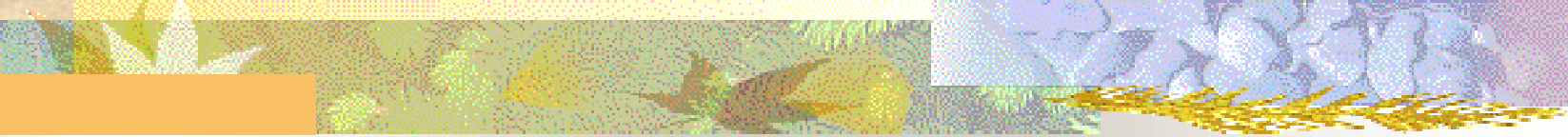
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- The question this paper addresses is how governments in developing countries with a small income and tax base, can improve human capital development and hence, achieve higher economic growth, while maintaining the net worth of government.

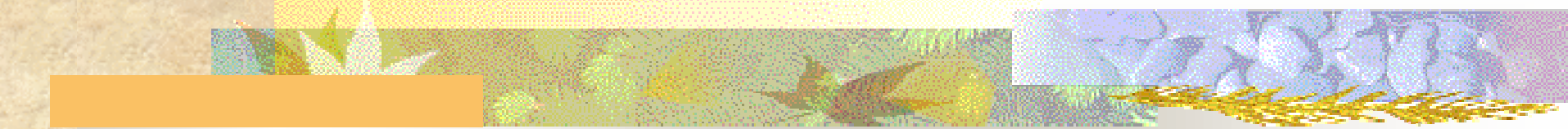


1. Low growth and the poverty trap

- The Human Development Report (HDR 1996) estimates that overall:
 - Human capital: 64 % of total national wealth (physical capital: 16 % and natural capital 20 %)
 - In developed countries human capital: more than 80 % of national wealth
 - In developing countries: less than 50 per cent
- Many hold to traditional definition of saving and investment: excludes human capital investment

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- Nordhaus: “Our tools for measuring savings are stone-age definitions in the information age”
 - Problem government accounting classify it as current expenditure
 - Therefore, government consumption is overstated
 - Zero current deficit with the overstated consumption: Collect more taxes to finance higher human capital investment
 - Many developing and emerging market countries have a limited tax base.

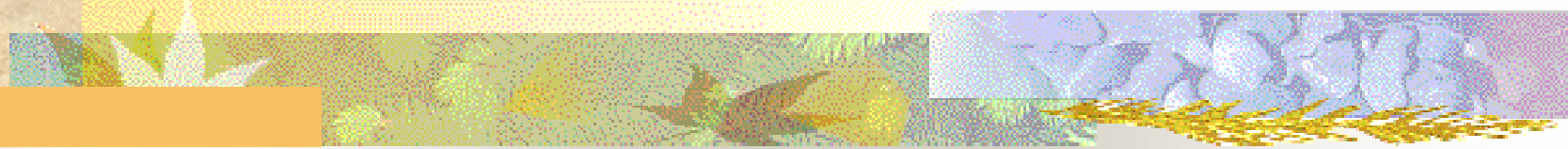
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- Public expenditure on education in:
 - High income countries (1995-97): 5 % of GNP,
 - Medium and low income countries it was 4.6 per cent and 2.5 per cent respectively
 - In 1995 GNP per capita in:
 - High income countries: \$24 930
 - \$2 390 and \$430 in medium and low income countries respectively

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- Thus, absolute monetary value of 1% of GNP spend on education in a high income country quite different from the absolute monetary value of a percent of GNP spend in a low income country
 - In absolute monetary terms low and medium income countries invested much less in human capital than high income countries.

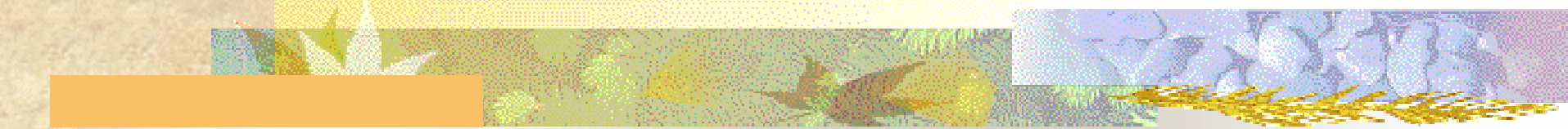


2. The role of government in the creation of human capital

- Reasons for government involvement
- Public goods nature of human capital
 - Individual income may be too low
 - Households may be credit constrained (human capital is an inalienable)
 - Supply more labour to acquire the resources to finance human capital creation merely create an oversupply of labour (unemployment)



- Without government assistance no avenue open to individuals to increase their levels of human capital.
- An active role for government raises several questions.
 - First, how does one measure human capital?
 - Secondly, how much human capital should government finance
 - Thirdly, how should government finance it, with taxes or debt?



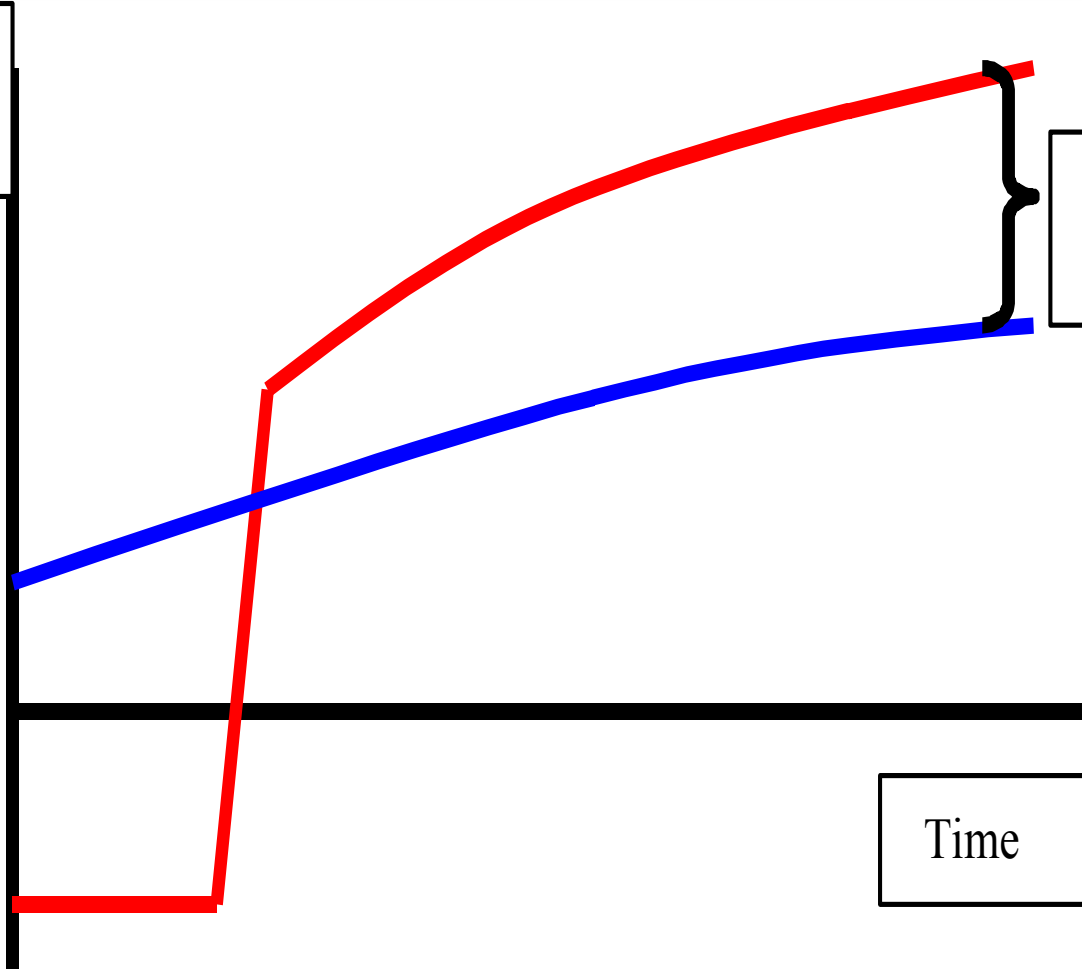
3. The valuation and measurement of human capital and the quantity that gov. should finance

- The notion of valuing human capital is not new: Blaug (1970) and Becker (1975)
- Recent development in private sector financial management to measure intellectual capital



- Added value: net increase in the expected future stream of company income. Added profits are discounted to establish the value that the additional human capital adds to the valuation of the company.
- The gross value added to the sum of human capital is then determined as the present (discounted) value of the additional income (**PVA**) that the human capital is expected to earn its owner:

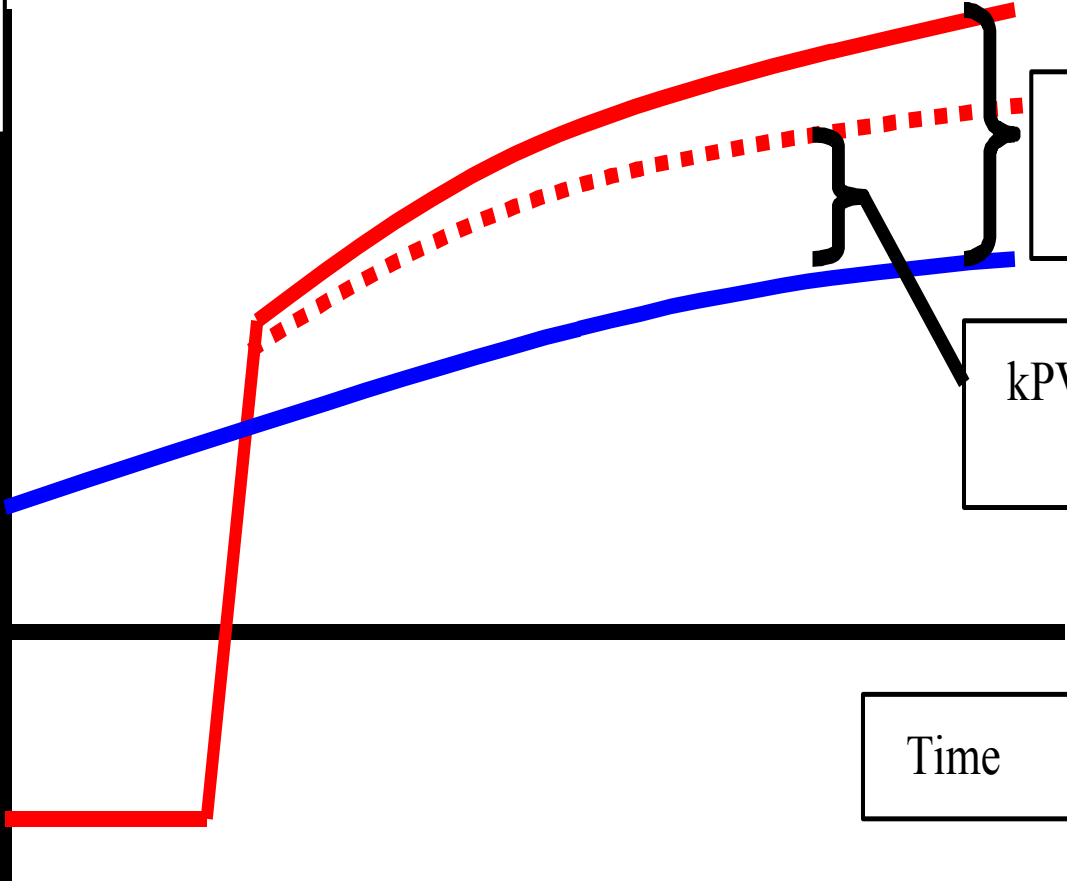
Income



PVA

Time

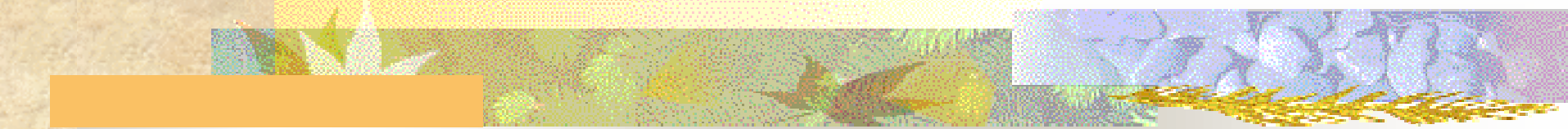
Income



PVA

kPVA

Time

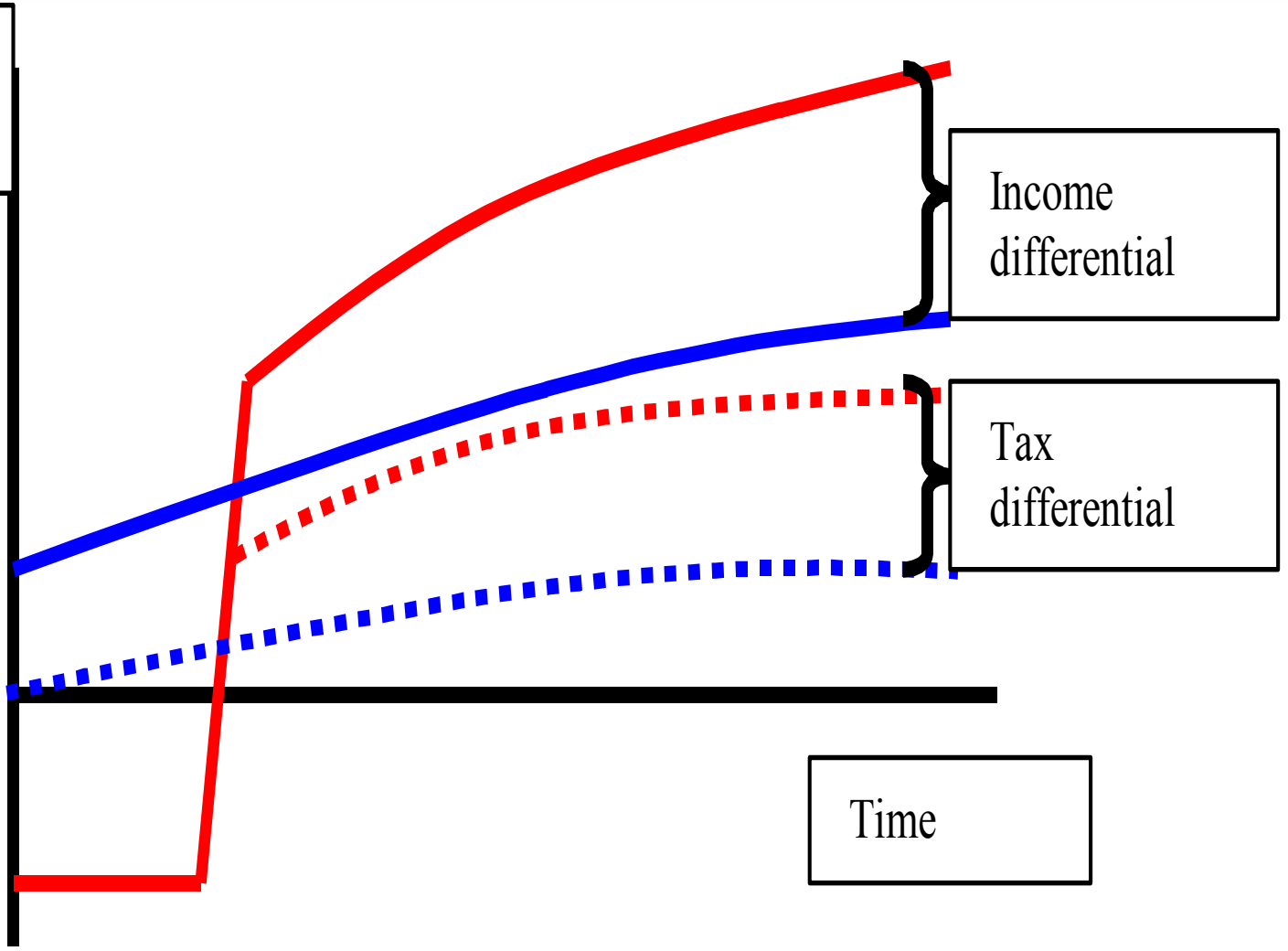
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- **kPVA** also the present value of taxes that government will collect without increasing tax rate
 - Thus, for a project that covers all individuals in the aggregate:
$$\Sigma kPVA \geq \Sigma E$$
 - As long as the net present value of the project equals or exceeds the cost, the financial position of government remains sustainable and its net worth does not deteriorate.

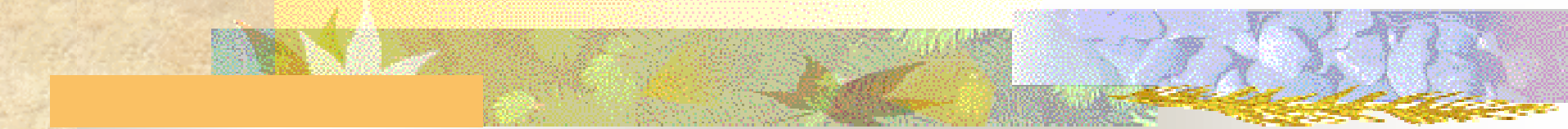
Income

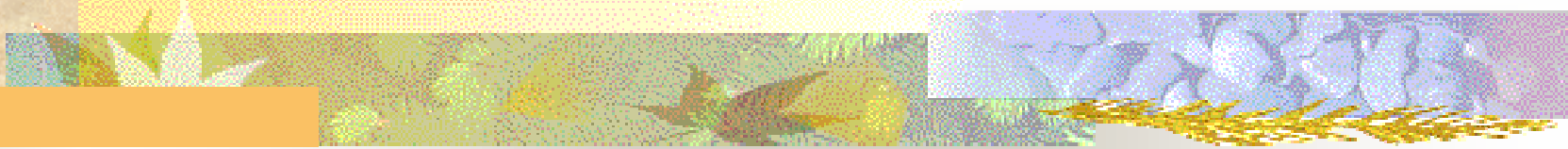
Income differential

Tax differential


Time



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- If $\sum \phi PVA_i \leq \sum k PVA_i$ the amount of taxes that government *needs* to collect in future to repay and service its debt equals (or is less than) the amount that it *will* collect, without raising tax rates, out of the additional income individuals earn because of their higher human capital.
 - This means that government can then borrow $\sum \phi PVA_i$, because it stands to receive the necessary taxation in future to service the additional debt without having to increase tax rates.
 - Note that if $\sum \phi PVA_i = \sum E_i > \sum k PVA_i$, the project has a negative net present value.



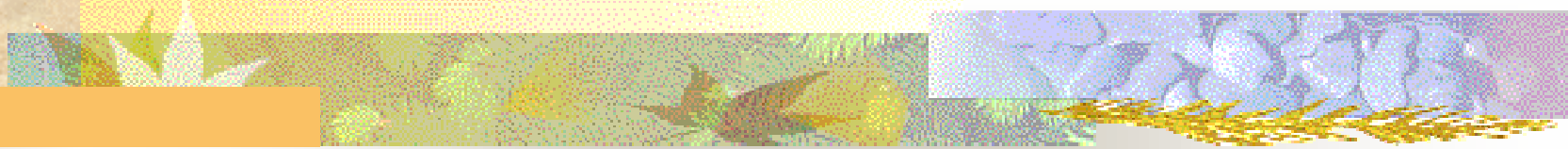
- Borrowing to finance human capital creation cause no deterioration in the net worth of government
- However, projects must have a positive or zero net present value.
- Additional liability appears on the balance sheet of government, but also an additional asset.
- The asset is the discounted stream of future tax revenue that government stands to collect in future and which represents the gross value of the human capital that government created.

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- This additional asset offsets the additional liability.
 - Why would a country then prefer to finance human or physical capital creation through debt rather than taxes?
 - If the tax base is large enough: neither taxes nor borrowing a problem
 - However, if *per capita* national income is small, the tax base may be too small.
 - Government needs to obtain offshore resources: cannot levy a tax.



4. Conclusion

- The debt/GDP ratio of developing countries may have to be higher than in developed countries where human capital can be financed through taxes.
- Analysts and international investors should be careful when using simplistic rules of thumb like ‘public debt should not exceed 60 per cent of GDP’.



- Instead, rules should be refined to account for human capital development.
- One such refinement is the use of a public debt/public asset ratio, where public assets include human capital alongside physical capital.