OIDEL

Working Paper 21

Funding of Education Literature Review

OIDEL Siège international 8, rue Le Corbusier / CH-1208 Genève Tél. +41 22 789 29 49 Fax +41 22 789 22 22 oidel@oidel.org

Through a collection of direct quotes, this paper includes highlights of the most relevant issues connected to the funding of education from the following articles:

- **Hanushek, Link and Woessmann, 2011. *Does School Autonomy make sense everywhere?***
- **Hanushek, 2001. *Efficiency and Equity in Education***
- **Hanushek and Somers, 1999. *Schooling, Inequality, and the Impact of Government***
- **Hanushek and Woessmann, 2010. *The Cost of Low Educational Achievement in the European Union***
- **Woessmann, 2007*. Education Quality and Economic Growth***
- **Woessmann, 2009*. Do Better Schools lead to more growth?***
- **Hanushek and Woessmann, 2010. *How much do Educational Outcomes Matter in OECD Countries?*** [1]

In sum, one of the main findings of these investigations is that there is not direct link between funding and educational outcomes. They do not mean to argue that money does not matter, but that the focus in policy and research should shift from the quantity of education to the quality of education. In this sense, Woessmann and Hanushek suggest that incentives are fundamental to improve students' outcomes. More precisely, they argue for three interrelated policies: promoting more competition, autonomy in local decision making and the establishment of an accountability system (league tables are an example). In the case of school autonomy, however, a 2011 study shows that decentralisation has proven to be effective only in developed countries and not in developing countries. Another issue brought up by these articles is the question on whether policies and research should focus at the lowest or at the highest achievers. In particular, should countries focus more on basic skills or skills for scientists and engineers? The conclusion in this sense was that policies are complementary: providing a broadly educated population elevates the effectiveness of rocket scientists and vice versa. Moreover, through the investigation of educational outcomes in OECD countries, Hanushek and Woessmann also argued that the economic gains from education reform require a long-run perspective that fully considers the time horizon of a child born today, with the purpose to fully capture the consequences of the reforms.

Moreover, this paper includes direct quotes from the *OECD Education at a Glance 2013* – Highlights Document, underlining some statistics and issues related to the importance of education and its economic and social benefits. Finally, a short summary, including a list of innovative funding mechanisms and their definition, of the *Task Force on Innovative Financing for Education (February 2012)* is provided.

[1]This literature review was made by Ludovica Anedda

OIDEL Siège international 8, rue Le Corbusier / CH-1208 Genève Tél. +41 22 789 29 49 Fax +41 22 789 22 22 oidel@oidel.org

Hanushek, Link and Woessman, 2011.
Does School Autonomy make sense everywhere?

Is it better for school to have local autonomy?
Prime argument in favour of decentralisation: local decision makers have better understanding of the capacity of their schools and the demands that are placed on them by varying student population. This knowledge in turn permits them to make better resource decisions, to improve the productivity of their schools and the demands that are placed on them by varying student population.

Prime argument against decentralisation in decision-making: with local autonomy it comes the possibility that individual schools pursue goals other than achievement maximization and a potential threat to maintaining common standards across the nation.

Four significant issues in this context:

1. Concept of local decision-making and local autonomy is complex and difficult to measure on a consistent basis. Moreover, conceptually, some decisions are more appropriately made locally than others where standardisation may more desirable.
2. The impact of autonomy may vary well with other elements of the system.
3. Much of the evidence on autonomy comes from cross-sectional analyses where any effects are not well identified.
4. Many aspects of the locus of decision-making are set at the national level

The conclusions of this paper show that the effect of school autonomy in decision-making is positive in developed countries, but in fact turns negative in developing countries.
The significant interaction of autonomy with the level of economic development prevails when interactions of autonomy with measures of democracy, government effectiveness, cultural values and effective school environments are additionally taken into account. Moreover, the results suggest the autonomy reforms do not affect inequality between students with different social backgrounds in either developed or developing countries.

Does school autonomy make sense everywhere? The impact of school autonomy on student achievement is highly heterogeneous, varying by the level of development of a country.

In particular, this overall result may have broader implications for the generalizability of findings across countries and education systems. It suggests that lessons from educational policies in developed countries may not translate directly into advice for developing countries, and vice versa.

OIDEL Siège international 8, rue Le Corbusier / CH-1208 Genève Tél. +41 22 789 29 49 Fax +41 22 789 22 22 oidel@oidel.org

Hanushek, 2001
http://www.nber.org/reporter/spring01/hanushek.html
Efficiency and Equity in Education

Professor Hanushek in his study argued that there is no clear, systematic relationship between resources and student outcomes. There are reasons why government resources may be inefficient: including lack of effective competition, bureaucratic decision-making, the costs of moving to a different school district, and the lack of good measures for assessing the "value-added" of schools.
The main conclusion of his research is that policy decisions should not focus on school resources, because the impact of resources on student achievement is unknown at this time. The solution is to establish teacher incentives – rewards or consequences related to student outcomes – and then to permit local schools to make appropriate choices.

Unfortunately, not much is known about alternative incentive schemes: how to structure them and what kind of outcomes can be expected.

In conclusion, he argues that measuring student achievement only by resource investment could lead to distortion.

Hanushek and Somers, 1999
Schooling, Inequality, and the Impact of Government

The central analysis focuses on how governmental schooling policies – particularly those related to the level and distribution of school spending – affect the distribution of worker quality and of income. The main conclusion of the study is that the direct government policies toward school spending, as carried out in the past, have not ameliorated inequalities in incomes.

The traditional focus – both in research and policy – on the quantity of schooling neglects the rising importance of quality of schooling. Moreover, expansion to consider spending on schools the most common operational surrogate for quality, does not remedy the distortions in focus.

Hanushek and Woessmann, 2010
The Cost of Low Educational Achievement in the European Union

They highlight the importance of cognitive skills as a key determinant of economic growth. The uniform result of the empirical analyses is that the international achievement measures provide an accurate measure of the skills of the labour force in different countries and that these skills are closely tied to economic outcomes.

Three theoretical model frameworks have been applied to the modelling of economic growth. All approaches see education as having a positive effect on growth.

OIDEL Siège international 8, rue Le Corbusier / CH-1208 Genève Tél. +41 22 789 29 49 Fax +41 22 789 22 22 oidel@oidel.org

A wide variety of policies have been implemented within various countries without much evidence of success in either achievement or economic terms.

The work on achievement determinants is generally labelled 'education production functions'. The extensive work has taken a variety of perspectives and approaches. The general objective is to sort out the casual impacts of school factors (things that can potentially be manipulated through policy) from other influences on achievement including family background, peers, neighbourhood influences, and the like (which are less readily amenable for policy change).

Evidence on School Resources: Many policies undertaken involve substantial flows of resources – direct spending, changes in teacher salaries, reductions in class size and the like – made within the context of current school organisation. However, the practice shows the difficulties with such policies.
The research does not say that money never matters or that it cannot matter. It simply underscores the fact that there has historically been a set of decisions and incentives in schools that have blunted any impacts of added funds, leading to inconsistent outcomes. That is, more spending on schools has not led reliably to substantially better results.

Teacher Quality: Another conclusion is that teacher quality is enormously important in determining student achievement. There is an inability to identify specific teacher qualities: this makes it difficult to regulate or legislate having high-quality teachers in classrooms. It also contributes to the conclusions that changes in the institutional structure and incentives of schools are fundamental to improve school outcomes.

Institutional Structures and Incentives in the School System: another difficulty is having a highly functioning education system without a supportive institutional structure. In this field, we must notice, there is lack of sufficient experience, analysis and evidence. Nevertheless, the unifying theme of the institutional studies is that the key to improvement appears to lie in better incentives, that will lead to managerial decisions keyed to student achievement and that will promote strong schools with high quality teachers. Three interrelated policies come to the forefront:

- promoting more competition: by this way the parental demand will create strong incentives to individual schools

The major issue on choice and competition is still the limited experience. Nonetheless, the benefits of competition are so well documented in other spheres of activity that it is quite inconceivable that more competition would not be beneficial for schools.

- autonomy in local decision making, so that individual schools and their leaders will take actions to promote student achievement

Given the available evidence, support for autonomy also strongly rests on a conceptual basis.

- accountability system that identifies good school performance and leads to rewards based on this

League tables are an example.

OIDEL Siège international 8, rue Le Corbusier / CH-1208 Genève Tél. +41 22 789 29 49 Fax +41 22 789 22 22 oidel@oidel.org

Clearly, research on how school policy can successfully advance educational achievement is an expanding field that still leaves many open questions. At the same time, our reading of the available evidence is that institutional reforms that create incentives for improving outcomes and focus in particular on teacher quality have substantial potential to create the kinds of learning gains that our results above show to be linked to immense long-term economic benefits.

In short, the two main points of this article are:

- Gains from improving cognitive skills are, by past history, enormous.
- It is hard to get these gains

Education policy requires a clear focus on learning outcomes, rather than mere school attainment. Current educational goals need to be transformed into a "Quality education for all", for example replacing the current Education for All goal of the international community that focuses much more on school attainment.

Woessmann, 2007
Education Quality and Economic Growth

Attention to the quality of education has been missing.
It is natural to believe that a productive development strategy would be to raise the schooling levels of the population. This is the approach of the Education for All initiative and a central element of the Millennium Development Goals.

There exist four uncertainties regarding these policies:

- Developed and Developing countries differ in myriad ways other than schooling levels
- A number of countries – both on their own and with the assistance of others – have expanded schooling opportunities without closing the gap in economic well being
- Poorly functioning countries may not be able to mount effective education programs
- Even when schooling is a focus many of the approaches do not seem very effective and do not produce the expected student outcomes.

There is growing evidence that changing the incentives in schools has an impact.
In sum:

- Educational quality – measured by what people know – has powerful effects on individual earnings, on the distribution of income and on economic growth
- The educational quality in developing countries is much worse than educational quantity (school enrolment and attainment), a picture already quite bleak
- Just providing more resources to schools is unlikely to be successful – improving the quality of education will take major changes in institutions.

OIDEL Siège international 8, rue Le Corbusier / CH-1208 Genève Tél. +41 22 789 29 49 Fax +41 22 789 22 22 oidel@oidel.org

Woessmann, 2009
Do Better Schools lead to more growth?

One of the main questions posed: is it better to concentrate attention at the lowest or at the highest achievers?
Many countries have focused on either basic skills or engineers and scientists. Tournaments among a large pool of students with basic skills may be an efficient way to obtain a large share of high- performers. At the end we observe that policies are complementary: providing a broadly educated population elevates the effectiveness of 'rocket scientists' and vice versa.

Hanushek and Woessman, 2010
How much do Educational Outcomes Matter in OECD Countries?

They provide a summary of education in theories of economic growth:

1. Standard characterisation of an aggregate production function where the output of the macro economy is a direct function of the capital and labour in the economy. That means education can be accumulated, increasing the human capital of the labour force and thus the steady-state level of aggregate income
2. A different view comes from the 'endogenous growth literature that has developed over the past two decades. In this work, a variety of researches stress the role of education in increasing the innovative capacity of the economy through developing new ideas and new technologies. They are called endogenous growth models because technological change is determined by economic forces within the model.
3. Final view centres on the diffusion of technologies. If new technologies increase firm productivity, countries can grow by adopting these new technologies more broadly. ¨

The basic characterisation of growth in this paper indicates that higher cognitive skills offer a path of continued economic improvement, so that favourable policies today have growing impacts in the future. However, the full ramifications of schooling outcomes will not become apparent until reasonably far into the future. The economic gains from education reform are surely not reaped within matters of one or two political legislation periods. They rather require a long-run perspective that fully considers the time horizon of a child born today. In the discussion of climate policies, it has become custom to consider expected outcomes that materialise several generations from now. Education policy needs a similar long-term perspective to fully capture the consequences of possible current reforms.

OECD – Education at a Glance 2013 – Highlights / The Economic and Social Benefits of Education

- How much more do tertiary graduates earn?

Earnings tend to rise in line with people's level of education, in all OECD countries. People with higher (tertiary) education in OECD countries can expect

OIDEL Siège international 8, rue Le Corbusier / CH-1208 Genève Tél. +41 22 789 29 49 Fax +41 22 789 22 22 oidel@oidel.org

to earn 1.5 times as much as a person with only an upper secondary or post-secondary non-tertiary education.
The difference in earnings between younger and older workers increases with educational attainment, on average across OECD countries, benefiting more educated older workers.
However, more education does little to narrow the gender gap in earnings. Men earn more than women at all levels of education, but the largest gap is among individuals with tertiary education, where women earn 72% as much as men.

- How does education affect employment rates?

Across OECD countries, people with a tertiary education are more likely to have a job and to be working full-time, than those without.
Unemployment rates are nearly three times higher among people who do not have an upper secondary education (13% on average across OECD countries) than among those who have a tertiary education (5%).
People with at least an upper secondary education are more likely to have a job than those without this level of education. Men generally have higher employment rates than women, although the gap is narrowest among tertiary-educated individuals and widest among those without an upper secondary education. In conclusion, education has a substantial impact on employment prospects.

- What are the incentives to invest in education?

People invest about USD 55000 to obtain a tertiary degree in OECD countries, but men can expect to earn USD 330000 more in their lifetime than those without this level of education, and women USD 240000 more.
Education does not only pay off for individuals; it also contributes to the public good in the form of greater tax revenues and social contributions.
The net public return on an investment in tertiary education is over USD 100000 for me on average across OECD countries- nearly three times the amount of public investment – and around USD 60000 for women.

Higher educational achievements benefits both individuals and society, not only financially, but in the well-being with which it is associated. The efforts people make to continue education after compulsory schooling can be thought of as an investment with the potential to bring rewards in the form of future financial returns. Society, in turn, profits through reduced public expenditure on social welfare programmes and revenues earned through taxed paid once individuals enter the labour market.

- What are the health benefits of education?

Adults with tertiary education are likely to live longer than those without. Adults with a tertiary education are half as likely to be obese as those with only upper secondary education, on average in OECD countries. Adults with a tertiary education are 16 percentage points less likely to smoke, on average, than those with below upper secondary education in OECD countries (healthier lifestyle).

OIDEL Siège international 8, rue Le Corbusier / CH-1208 Genève Tél. +41 22 789 29 49 Fax +41 22 789 22 22 oidel@oidel.org

Paying for Education

- How much is spent per student?

Spending per student is largely affected by teachers' salaries. OECD countries on average spend USD 9313 per student each year between primary and tertiary education: USD 7974 per primary student, USD 9014 per secondary student, and USD 13528 per tertiary student. Some 94% of total spending per student in primary and secondary education is devoted to core educational services. Greater differences are seen at the tertiary level, partly because expenditure on research and development (R&D) represents an average of 31% of total spending per student. Spending per student on primary secondary and post-secondary non-university-level education increased by 17 percentage points on average across OECD countries between 2005 and 2010. However, between 2009 and 2010, investment in education fell in around one-third of OECD countries as a result of the economic crisis.

- What share of national wealth is spent on Education?

OECD countries spend 6.3% of their GDP on educational institutions on average. Spending on all levels of education combined increased at a faster rate than GDP growth between 2000 and 2010 in almost all countries for which data are available.
GDP rose in most countries between 2009 and 2010, but public spending on educational institutions fell in one third of OECD countries during that time, probably as a consequence of fiscal consolidation policies.

Countries invest in educational institutions to help foster economic growth, enhance productivity, contribute to personal and social development, and reduce social inequality.

- What share of public spending goes to Education?

Education accounts for 13% of total public spending, on average in OECD countries, ranging from less than 10% in the Czech Republic, Hungary, Ireland, Italy and Japan, to more than 20% in Mexico and New Zealand. The proportion of public spending devoted to education increased slightly between 1995 and 2010 in most countries. Public spending on education grew faster than public spending on all other services between 2008 ad 2010 in almost half of the OECD countries, although there was no clear global trend. Most OECD countries spend more than twice as much on primary, secondary and post-secondary non-tertiary education as on tertiary education.

- What is the role of private spending?

Public funding accounts for 84% of all funds for educational institutions, on average in OECD countries. Some 92% of funds for primary, secondary and post-secondary non-tertiary education come from public sources, on average across OECD countries; only in Chile, Korea and the United Kingdom is this share less than 80%. Tertiary institutions obtain the largest proportions of funds from private sources, with 32%. Pre-primary institutions come second with 18%. Public funding for education increased between 2000 and 2010 in all countries. However, with more households sharing the cost of education, private funding increased at an even greater rate in more than three-quarters of countries.

OIDEL Siège international 8, rue Le Corbusier / CH-1208 Genève Tél. +41 22 789 29 49 Fax +41 22 789 22 22 oidel@oidel.org

- How much do tertiary students pay?

Tuition fees vary widely in OECD countries. University students pay more than USD 1 500 in tuition fees for public institutions in their own country in a third of OECD countries, while in eight countries they pay nothing. Countries with high levels of tuition fees tend to be those where private sources such as companies also contribute the most to funding tertiary institutions. An increasing number of OECD countries charge higher tuition fees for international students than for national students. An average of 22% of public spending on tertiary education is devoted to supporting students, households and other private entities.

- How much do teachers cost?

Four factors influence the cost of teachers per student: how many hours students spend in the classroom, teachers' teaching hours, estimated class size and teachers' salaries. The cost of teachers per student varies significantly between countries; in most countries, the salary cost of teachers per student increases with the level of education taught. The cost of teachers per student increased substantially in most countries at the primary and lower secondary levels between 2005 and 2011. On average, it increased by more than 10%: from USD 2 398 to USD 2 627 at the primary level, and from USD 3 473 to USD 3 818 at the lower secondary level.

The relationship between resources devoted to education and student learning outcomes has been the focus of much education policy debate in recent years, as governments seek to ensure value for money in public spending while satisfying the educational needs of society and the economy. Indeed, various reforms implemented during the last decade in primary and secondary education have had important impacts in this area. Consequently, there is considerable interest in international comparisons of how various school systems allocate resources. Since teachers account for a major part of spending, their costs are of particular interest.

The school Environment

- How much are teachers paid?

Salaries for teachers in OECD countries with at least 15 years of experience average USD 36 135 at the pre-primary level, USD 38 136 at the primary level, USD 39 934 at the lower secondary level and USD 41 665 at the upper secondary level. Teachers' salaries at primary-school level represent 82% of average earnings for 25-64 year-olds with a tertiary education, against 89% at upper secondary level on average in OECD countries Salaries at the top of the scale are, on average, 58% higher than starting salaries at pre-primary level and 62% higher at upper secondary level.

Task Force on Innovative Financing for Education, February 2012

The Leading Group has identified five main categories to characterise the innovative mechanisms to fund education:

- Market mechanisms (auctioning of resources with quotas with the use of a fraction of it for development, e.g. CO2 auctioning in Germany)

OIDEL Siège international 8, rue Le Corbusier / CH-1208 Genève Tél. +41 22 789 29 49 Fax +41 22 789 22 22 oidel@oidel.org

- Guarantee mechanisms which influence the way resources are allocated over time (IFFIm – International finance Facilita for Immunization) or create economic incentives (AMCs- Advanced Market Commitments)
- Taxes based on globalised activities generally set up by a group of countries in a coordinated way and with a joint management (air-ticket solidarity levy, financial transactions tax..)
- Citizen contribution from individuals, companies or consumers (RED initiative) with sometimes the participation of States in various ways (Tax incentives, channelling of resources..)
- Debt management mechanisms (debt-2-health)

The task force has decided to put forward in this report four mechanisms which are most likely to efficiently raise money for education but which also are deemed ready to be implemented and best suited to overcoming inequalities in education. These mechanisms are:

- **The Education Venture Fund:**

The Education Venture Fund is a venture capital fund that would seek to mobilise additional resources for education through a range of mechanisms (bond issues, private giving, leveraged investments, voluntary levies etc) in order to invest in initiatives that promote innovation in the education sector.¨

- **The Debt Conversion Development Bonds**

The current proposal is to leverage the benefits of the additional "fiscal space" created by debt conversions by means of Debt Conversion Development Bonds (DCDBs), local currency government bonds used for developmental purposes and repaid from the future fiscal savings achieved through debt conversions.

- **The Diaspora Bonds**

A diaspora bond is a debt instrument issued by a country – or potentially a private corporation – to raise financing from its overseas diaspora. They offer governments a flexible mechanism for raising large scale funding to support national budgets and fill financing gaps in development programs.

- **Travellers Savings Fund for Development**

Tour operators will find that the fees they have agreed with hoteliers and transporters in other countries will increase or decrease in line with currency movements. Fuel prices are similarly affected. These problems can be mitigated by tourism businesses or NGOs if they 'hedge', that is, agree a price at a fixed rate of exchange for hotels or fuel in advance. This would be done through their banks or the proposed Travellers Savings Fund for Development

The Task Force has also worked on other possibilities to finance education in an innovative way. These mechanisms are promising at the national level and could be extended at the global level:

- Public Private Partnerships
- Private Fundraising Exercises
- Micro Donations from Individuals: the example of payroll giving

OIDEL Siège international 8, rue Le Corbusier / CH-1208 Genève Tél. +41 22 789 29 49 Fax +41 22 789 22 22 oidel@oidel.org