



Education and Social Mobility in Europe: Levelling the Playing Field for Europe's Children and Fuelling its Economy

Working Paper no 80

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January 2015



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Work Package 103

***MS19 "Policy paper on social and educational policy
conclusions"***

Working Paper no 80

This document can be downloaded from www.foreurope.eu
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THEME SSH.2011.1.2-1

*Socio-economic Sciences and Humanities Europe
moving towards a new path of economic growth
and social development - Collaborative project*

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no. 290647.

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Wilfried Altzinger, Jesús Crespo Cuaresma, Bernhard Rumlmaier, Petra Sauer, Alyssa Schneebaum (WU)

Contribution to the Project

This policy paper summarizes the results obtained in the framework of the WWWforEUROPE project concerning the current challenges related to the intergenerational persistence of educational attainment in Europe. Policy options are discussed under the light of new empirical results and novel educational attainment projections for the region developed in the project.

Keywords:

Academic research, Ageing, Demographic change, European economic policy, Full employment growth path, Labour markets, Migration, Policy options

Jel codes:

E24, F22, H52, J62

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Executive Summary

The persistence of socioeconomic outcomes across generations acts as a barrier to a society's ability to exploit its resources efficiently. In order to derive policy measures which aim at accelerating intergenerational mobility, we review the existent body of research on the causes, effects and the measurement of intergenerational mobility. We also present recent empirical works which study intergenerational mobility in Europe, around the Globe, and its relevance for economic growth. We recommend four policy measures to reduce the negative impacts of intergenerational persistence in economic outcomes: universal and high-quality child care and pre-school programs; later school tracking and increased access to vocational training to reduce skill mismatch and facilitate technological development; integration programs for migrants; and simultaneous investment in schooling and later social security programs.

1. Introduction

Children inherit some of their characteristics from their parents; this is true of social and economic characteristics as well as their genetic traits. At least in part because of the social, economic, and cultural capital transmitted across generations, children of more highly educated or higher earning parents are more likely to attain higher levels of education and earn more themselves compared to descendants of other parents. In this report, we discuss the current thinking on why this is the case and present empirical findings from the literature on the degree of intergenerational persistence for different groups of people across Europe. The main objective of this report is to suggest public policy to guide the degree of intergenerational persistence towards a level that sustains and stimulates welfare, wealth, and work in Europe, and which will foster an environment conducive to steady economic growth. It is useful to start with a general discussion about what exactly intergenerational persistence is, why it exists, and how we can measure it before proceeding to a discussion of the existing state of knowledge in the field, its relation to economic growth, and our subsequent policy recommendations.

A society is said to face intergenerational persistence when the outcomes of descendants are correlated with, or dependent upon, the outcomes of their parents. In measuring intergenerational persistence, social scientists usually study persistence in income, social class, and educational attainment. Thus a question asked in this field may be, “given a parent’s level of earnings or education, how likely is it that their descendants will also have that level of education and earnings?”

The process of transmission that causes intergenerational persistence is complex. Parents influence their offspring in many ways, for example by passing on hereditary abilities and characteristics, through the time spent with the children and the goods provided, and through direct financial investment in resources for the children’s development. All of these influencing factors interact with each other and the sum of them all creates a foundation for a descendant’s social and economic outcomes. Figure 1, based on a framework by Leibowitz (1974) and further developed by Haveman and Wolfe (1995) and Schnitzer and Altzinger (2013), presents the underlying process of parental transmission of income and education to children, which strongly influences their later outcomes. The horizontal line of thought in the center, starting with parents’ abilities and education and moving to descendant income, shows that parents matter in

their contributions to descendants via their genetic traits, their quality and quantity of time and resources given to the descendants, and in the income/financial resources they provide to the household. These “home investments,” or those investments which are made in childrens’ development by private households, influence the level of education and ultimately the income of the child. The financial resources available to the family, which are determined in part by the parents’ education, influence the quantity and quality of time and goods invested in the children. A household’s financial situation is often also important in determining a child’s choice of school and eventually through direct transfers via inherited wealth, is important in determining financial position of the next generation. As Haveman and Wolfe put it (1995, p. 1834), “[g]iven their abilities (...) parents make a wide variety of decisions – including parental schooling, work effort, consumption, time allocation, and bequests – that are expected to be related to children’s schooling and labor market attainments.” In sum, parents have a strong influence on their descendants’ outcomes.

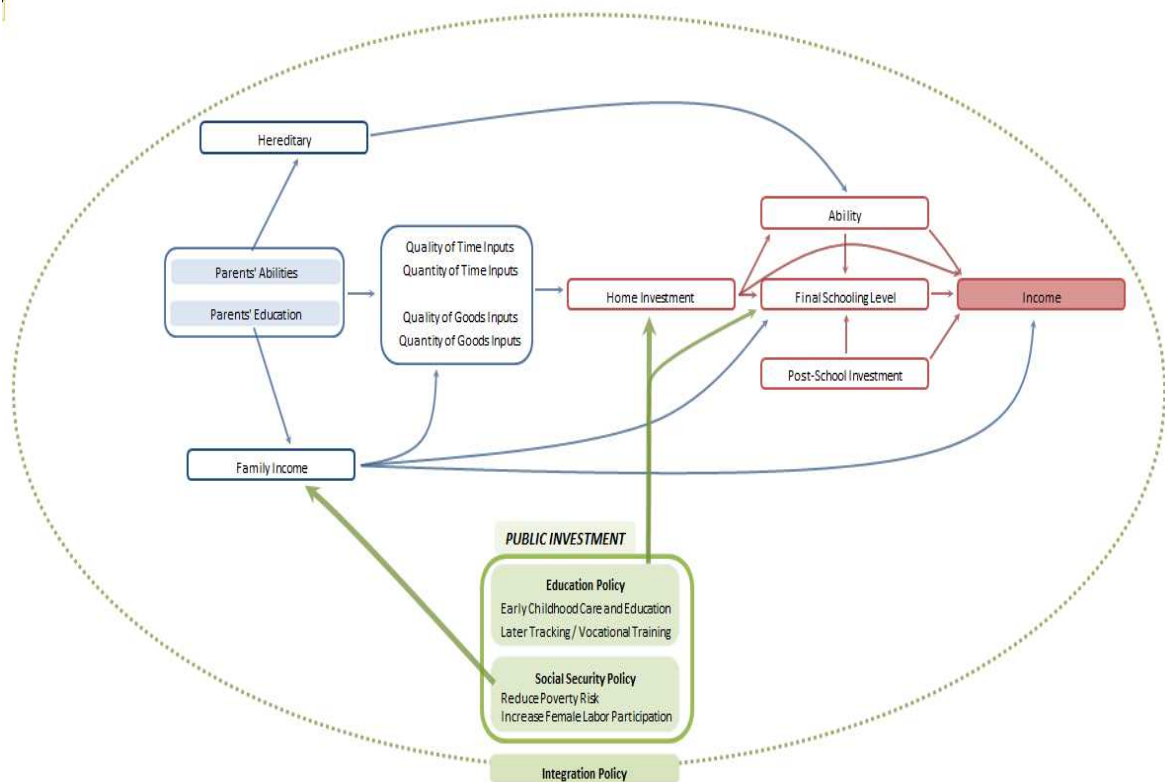


Figure 1 **Investments in Children’s Attainments**

Source: Haveman and Wolfe (1995, p.1833), and Schnetzer and Altzinger (2013, p.121), with own amendments

Haveman and Wolfe's (1995) model focuses entirely on private investments in a child's development. We have amended their model to include public investments. Figure 1 now also illustrates the effect of state intervention in the process of investing in children. European welfare systems, though widely different from each other, share a tradition of providing support for their citizens. Figure 1 and the following sections of this report discuss the importance of two channels of public investment: first, investment in education, which should create equal educational opportunities early on and for all children, and which supports those less well-off and enables them to make informed decisions about their educational careers; and second, social security policies, which aim to strengthen households' financial situations in order to give economic opportunities to all children, regardless of their family's economic background. Since liquidity constraints can restrict investment in children's education for those in less well-off households and consequently harm their development (OECD 2008), it is important for the state to provide private households with financial resources, not just educational programs, which are more of an investment in a child's future – not present – situation.

Public investments can diminish the differences in the investments that rich and poor families can make in their children. They help offset the unequal distribution of resources from parents by providing additional financial resources, quality care and education for socio-economically disadvantaged children, thereby lessening the social differences and reducing inequality and intergenerational persistence. As such, one of our policy recommendations concentrates on the provisioning of child care and pre-school programs to level the playing field for all children in Europe. Similarly, we further advocate later tracking in school systems as a way to promote equality of opportunity regardless of socio-economic background and to lessen the existence of skill mismatch in an economy, which we discuss further below.

We have also included integration policy as an important framing of the entire transmission of resources and skills across generations. There are increasingly greater numbers of people who migrate across countries living in Europe. Although migrants often move to increase their own and their children's chances at having a better life, being a migrant can have harmful effects on one's opportunities in a new country if migrants are not well integrated into society, or adequate resources to assist migrants in integrating. The children of low-educated migrants may have little chance to "move up" on their own if the host country does not provide equal resources to migrants. As

we discuss in greater detail below, the integration of migrants into society is an important aspect of social equality and a society's use of all of its resources, and we thus frame all investment in children in the context of integration – which may have to be achieved via additional policy.

The importance of public investments, the specific design and programs needed, as well as the empirical foundations upon which they are built will be presented in detail in the following pages of this report. Figure 1 serves as a guideline and an overview of these policies and their intervention in child development. But why intervene, and combat strong intergenerational persistence?

In a society with high levels of intergenerational persistence, the outcomes of children are defined by their parents' background; outcomes are dependent not on personal effort and investment, but instead are determined by the social background of one's family. The consequences of intergenerational persistence can be severe, as it leads to a waste of personal potential, harming not only the individual but society and the economy as a whole. A high level of intergenerational persistence is troubling not only because it necessarily means that a society does not provide equality of opportunity to all of its members, but also because it is economically inefficient. With high levels of intergenerational persistence, descendants from low-income and less educated families will have fewer chances to succeed in school and in the labor market, even if the descendants are highly intelligent and skilled. In times of rapidly changing societies and a globalized economy, no country can afford not to make the most of its population's productivity. Thus, policies targeted at keeping persistence low and enhancing an individual's opportunities independent of social origin also reduce the social costs of skill mis-match and are beneficial to technological development. As such, they are of utmost importance to European prosperity.

Even if there is general agreement that strong intergenerational persistence should be combated, it is questionable whether mobility is a goal in itself. While there is a social value in a societal trend of upward mobility, i.e. mobility from low to high education levels or incomes, downward mobility is able to produce social losses. Moreover, the mechanisms which encourage downward mobility can be quite different and would have to be addressed by different policies. Atkinson (1981) was one of the first to address this issue. Using an Earnings Survey for Britain, Atkinson (1981) shows that the transition matrices for hourly earnings are asymmetric. He shows that wage

persistence is in particular strong at both the top and the bottom part of the distribution. He concludes that there is less mobility down from the top than there is upward from the bottom. A similar conclusion has been provided by Dearden et al. (1997) with a longitudinal dataset that follows a cohort of individuals born in Britain in March 1958. They conclude that upward mobility from the bottom is more likely than downward mobility from the top. However, all these contributions measure intergenerational mobility in terms of earnings. Schneebaum et al. (2015), on the other hand, provide empirical evidence for Austria using EU-SILC data on intergenerational educational mobility for 2011. Using four different educational rankings, they show that the vast majority of mobility is upwards with only limited episodes of downward mobility. Most descendants either have the same or a higher level of education than their parents.

Independently of whether intergenerational mobility of education is a goal in itself, the empirical evidence shows that most of the mobility takes place upwards. This is in particular true if we focus on educational mobility. Hence in what follows we argue that mobility is first an indicator that educational attainment is independent from parental education. Second, educational mobility seems to be to a rather large extent upward mobility which will improve the human capital stock and thereby also the growth prospects of the economy.

In the following pages, we lay out all the important elements of intergenerational persistence and its implications for economic growth. The main aim of this policy report is to draw on the most recent evidence concerning the linkages between human capital accumulation and intergenerational persistence of economic outcomes in order to draw policy conclusions for Europe. The importance of human capital accumulation as a mediating variable in the relationship between income inequality and economic growth has been recently emphasized in the literature (see for instance Cingano, 2014). We thus concentrate on the linkage between intergenerational persistence of educational attainment and economic outcomes in this report. In Section two, we start with a detailed explanation of the concept and measurement of intergenerational persistence, indicating the central models and literature on the topic. We reference some of the most relevant pieces of empirical literature in the field, discussing their findings and putting them in the context of the “big picture” of intergenerational persistence across Europe. While the first three sections treat intergenerational persistence of socio-economic outcomes in general, the second part of the paper focuses on education. In Section three, we summarize the additional

empirical analyses on this topic recently conducted for Europe. Section four presents a new approach of creating an aggregate measure of intergenerational education mobility. Section five discusses the relevance of intergenerational education mobility for economic growth, and section six offers policy recommendations, with detailed background, explanations, and support from the literature.

2. Intergenerational Persistence: Measurement and Interpretation

In trying to explain why intergenerational persistence exists, Becker and Tomes (1979; 1986) develop the archetypical model of human capital transmission, which is still central in the literature today. The model shows that socio-economic outcomes are positively correlated across generations because parents invest in their descendants' education and are able to invest more as they have greater access to economic resources. Increases in descendant education levels enables them greater access to more income. Unlike Figure 1 above, the model by Becker and Tomes focuses entirely on financial transmission and does not take into account the other aspects of human, economic and social development. Solon (2004) makes important extensions to this model to study differences in intergenerational persistence over time and across countries, finding that intergenerational persistence is positively related to the "heritability of income-related traits, the efficacy of human capital investment, and the earnings return to human capital," and that persistence is negatively related to public investments in human capital (p. 38). In other words, the more children get their characteristics from their parents and the less the state intervenes in supporting child development independent of parental investment, the more intergenerational persistence a society will face.

The models in Becker and Tomes (1979; 1986) and Solon (2004) focus on the role of human capital in intergenerational persistence, but it is important to note that (dis)advantages are transmitted across generations via investments in other forms of capital, as well. Indeed Esping-Andersen (2005, p. 14) states that it might not be unequal investments in children's formal education alone that drive intergenerational persistence, but instead that "[i]t is in early childhood that parental transmission is key."

As discussed in Esping-Andersen (2005), cultural and social capital¹ is transmitted to children from their earliest days and influences their social, economic, and educational success throughout their lives. Cultural capital includes style of speech, physical appearance, skills, knowledge, attitudes, and formal educational training. How parents project themselves in the world and to their children, then, has meaningful consequences for the behaviors that children learn for themselves. The various forms of capital, including human, social, cultural, and financial capital, interact with each other; more of one makes the others more easily accessible. Thus parental advantages are passed to children in part through investments in descendants' human capital and additionally through the culture of the family, its social networks, and its level of financial resources.

It is important to note that the earlier a child is exposed to these advantages, the more beneficial they can be. Capital accumulation is dynamic in nature; not only is an early foundation necessary to prepare children for later, more advanced investments in their development, but the timing of the construction of this foundation is important, as well. The earlier the investment in human capital takes place, the longer a person has to build on it and benefit from it. In other words, knowledge and skills that are acquired in one's early years do not only provide the direct advantages of having these skills, but they also serve as a baseline upon which more can later be built. Building on a solid foundation of knowledge and the ability to process new information facilitates future learning and the acquisition of human capital (Cunha and Heckman 2009). Thus, the earlier these foundations are constructed, the more that can be developed further as a child gets older.

However, not all children have the same access and exposure to social, cultural and financial capital. Children of poor or uneducated parents are more likely to be poor or uneducated themselves. While persistence in outcomes across generations is highly advantageous for children born into well-off households, it can be a tremendous barrier to children born into disadvantaged households. In this sense, high degrees of intergenerational persistence are unfair and undermine a society's meritocratic goals.

In general, a central goal of the academic work on intergenerational persistence is to contribute to our understanding of how public policy can affect

¹ See also the development of the theory of social capital in Bourdieu (1986).

intergenerational mobility. Speaking more broadly about intergenerational persistence, Becker and Tomes (1986, p.3) say that “[t]he degree of regression toward or away from the mean in the achievements of children compared to those of their parents is a measure of the degree of equality of opportunity in a society.” In other words, societies which have higher intergenerational persistence in social and economic outcomes provide less equal opportunity to their members than those with less persistence. While there is some degree of immobility in income as well as education in all countries around the world (Hertz *et al.* 2007; Corak 2013), differences in policy structures and institutional arrangements across countries can prevent or support intergenerational persistence. In terms of intergenerational persistence of income, the so-called “Great Gatsby Curve” in Figure 2 below, introduced in a speech to the US President by Alan Krueger using data from Miles Corak (2013), shows that “points cluster around an upward sloping line, indicating that countries that had more inequality across households also had more persistence in income from one generation to the next” (Krueger 2012). Or, vice versa, the more immobile incomes are, the more persistent is inequality in the distribution of income across generations. Andrews and Leigh (2009) provide further evidence of such a linkage based on analyzing the effects of past inequality on social mobility. This finding supports the idea that different social and economic policies across countries are associated with varying strength of intergenerational mobility. In this report, we emphasize how social and education policy can affect persistence in educational outcomes across generations.

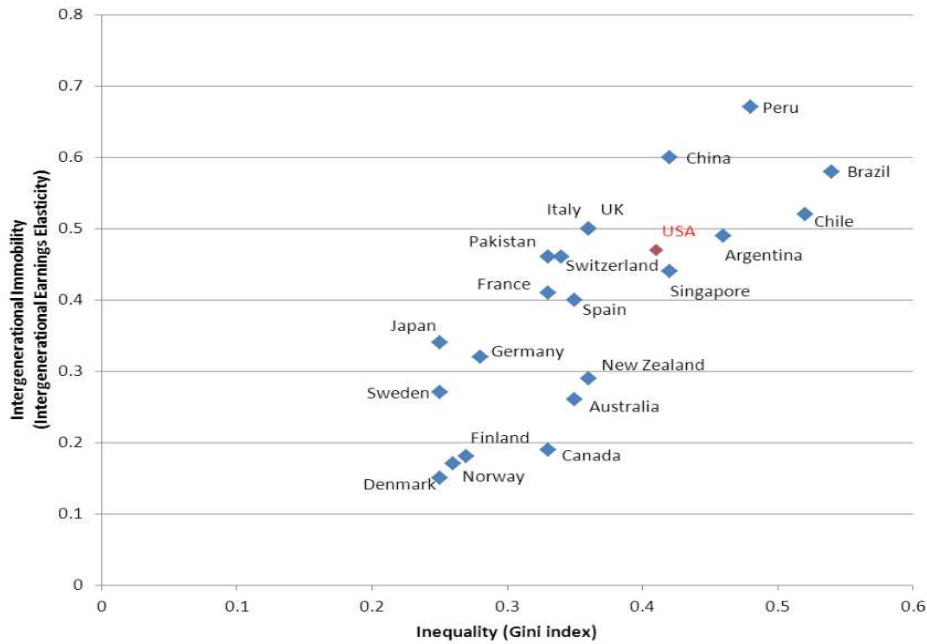


Figure 2 **The Great Gatsby Curve**

Source: Corak (2013)

Above we laid out the relevance of social, cultural, financial, and human capital in intergenerational persistence. Of course it is extremely difficult, if not impossible, to measure most facets of an individual's cultural or social capital. Chetty *et al.* (2014) found that areas of the United States with higher levels of social capital – as measured by higher voter turnout rates, higher percentages of households who return their Census form, greater participation in community organizations, more religiosity, and lower crime rates – have higher degrees of intergenerational income mobility. The importance of accounting for such contextual effects when integrating geography into the analysis of social capital and its relationship to education has been emphasized by Andersson and Malmberg (2014), for instance. In general, however, data on social and cultural capital are hard to come by and will always miss some aspects of one's entire bundle of capitals. Empirical research on intergenerational persistence of social and economic outcomes can instead utilize data on income and educational attainment. Every empirical research study studying a relatively simple outcome such as income or years of education has its limitations; neither outcome tells the whole story of one's economic and social success. However, measuring the intergenerational persistence of

income, educational attainment, and social class can provide important information about the inheritance of cultural, social, financial and human capital.

Blanden (2013) gives an excellent overview of different approaches and methods to measure intergenerational persistence of various outcomes used in the literature. For the most part, measuring persistence in income and education is done by calculating so-called intergenerational elasticities and correlations, using regression analysis to predict a descendant's outcome based on the income or education of their parent(s). The level of persistence is the level of income or education a descendant acquires relative to the income or education of the parent. Elasticities measure the percentage change in the outcome (income or years of schooling) of a descendant given a percentage change in the outcome for a parent. Correlations, on the other hand, adjust for distributional changes to the attainment of income or education for the entire population across generations. This adjustment is important because the spread of educational attainment levels and income tends to grow over time from one generation to the next. Ignoring these changes would suggest higher levels of intergenerational mobility because the younger descendants appear so much better off than their parents, but in reality, the greater mobility one would observe comes only from the fact that the distribution of the entire generation has changed. The intergenerational correlation is often higher than the elasticity; this occurs when the outcome is more widely dispersed for the younger generation than for the parents, which is often the case. Controlling for distributional changes gives a more accurate picture of the relationship between a descendant's outcomes relative to his or her parents, because it eliminates the broad increases in the distribution of education and income that entire generations may have experienced. Intergenerational elasticities and correlations range between 0 and 1, with higher values signalling higher intergenerational persistence (Black and Devereux 2011). Income correlations in Europe are typically between 0.2 and 0.4, while those for education are typically between 0.4 and 0.6.

Correlations and elasticities are widely used in part due to the fact that they can be interpreted in a relatively straightforward manner and compared across groups of individuals and countries. There are, however, less straightforward methods to measure intergenerational persistence. Education can be measured in terms of educational classes, based on degrees obtained. In this case, the methods of choice would be either a mobility matrix analysis (as discussed in Shorrocks 1978) or odds

ratios (as in Blanden 2013), which quantify the likelihood of class changes over generations.

Elasticities, correlations, mobility matrices, and odds ratios are very informative measures of the relationship between parental and descendant outcomes, but they do not report a *causal* relationship of outcomes across generations. As Holmlund *et al.* (2011) point out, the causal effects of parent's education on the educational attainment of their children can only be studied via twin parents or adoptee studies, or by using instrumental variable methods such as educational reforms in a quasi-experimental design. However, these methods do not always yield consistent results and it is consequently unclear whether "causal" studies are preferable at all. Indeed Holmlund *et al.* (2011) found that employing these three causal methods on the exact same dataset yielded quite different results. Thus, it is wise to recognize the limits of each of the methods to measure intergenerational persistence discussed here, and instead to consider these measures as *indicators* of intergenerational persistence and its strength, not as absolute measures.

Income is either measured as household or individual income. Ideally, we would like to know the income of the subjects over their entire lifetimes, but that data would be exceptionally difficult to collect. Thus, researchers typically use an average of the income earned over three to five years as an approximation of lifetime earnings. A study on intergenerational income mobility by d'Addio (2007) shows that between 20% and 50% of parental income differences are passed on to the next generation in OECD countries, revealing not only that the descendant earnings are likely to be similar to those of their parents in countries throughout the EU, but also that there is a great amount of variation in the degree of intergenerational persistence across countries. Jäntti and Jenkins (2013) suggest that it is unclear how much of these differences are due to differences in measurement or data sources, but there are some common patterns across most studies. The lowest persistence is found in the Nordic countries, while in the UK and Italy a higher share of parental income is passed on to descendants (d'Addio 2007). Very similar results appear in studies by Solon (2002) and Corak (2006), both supporting the finding that Nordic countries are the most socially mobile ones compared to other European nations. While results in the US have sometimes been higher (e.g. Jäntti *et al.* 2006), a recent analysis using a very large amount of reliable administrative data found the intergenerational elasticity to be 0.34, which is comparable to Western European levels (Chetty *et al.* 2014).

A second outcome measure typically used in the literature, educational attainment, is measured using either schooling years or the highest degree obtained. Aside from education being an important measure of well-being in its own right, measuring the intergenerational persistence in educational attainment rather than in income offers some crucial advantages. First, since income changes through different life stages, obtaining reliable information about lifetime earnings is difficult, at best. Parental education levels are a contributor to their *permanent* income levels, which have a much more positive role than *current* income in determining descendant outcomes (Carneiro and Heckman 2005). Thus, education offers a more straightforward measure of economic and social status that generally remains constant after a certain age (Nguyen *et al.* 2005). Second, reporting income – or any monetary measure – is subject to response bias, in which respondents systematically under- or over-report their income based on an impression that they want to give to interviewers (Bielby *et al.* 1977). Individuals may be less inclined to misreport their educational attainment, as it is a less cut and dried measure of present well-being than income is. Finally, survey respondents, who are generally the descendants in the intergenerational persistence literature, are much more likely to *know* their parents' level of education than their parents' income at any point in time, producing less recall bias (see e.g. Nguyen *et al.* 2005; Black and Devereux 2011).

When looking at the intergenerational educational persistence, Hertz *et al.* (2007) compare 42 countries worldwide over a time-period of 50 years. Among the European nations, persistence is high, although again lowest in the Nordic countries, but slightly decreasing over the last decades overall in European countries. While there are many studies looking at intergenerational mobility on a country level, only very few compare more than a handful of countries, making the study by Hertz *et al.* (2007) a distinct contribution to this field. International studies of more than just one country are so important because they should allow the researcher to control for variation in survey design and time frame, thus giving space to recognize differences in outcomes in the framework of variation in social policies across countries (Solon 2002). As we discuss in the next section, recent research has been carried out to compare intergenerational educational persistence across European countries (Schneebaum *et al.* 2014b) and construct new aggregate measures of intergenerational education mobility for a broad panel of countries (Crespo Cuaresma *et al.* 2013).

Finally², the persistence of “social class” across generations has been an important field of research in the sociological literature. Most studies of social class or social status construct socio-economic indices based on income, education, and occupation³ to account for one’s social position, consumption possibilities, and decision-making power. These indices are then used to calculate odds ratios or log-linear models in order to measure the relationship between descendant and parental social class. Blanden (2013) and Black and Devereux (2011) give excellent overviews of all of the methods and issues in choosing an outcome and measuring intergenerational persistence.

3. The Empirics of Intergenerational Persistence in Europe

A key foundation of the policy recommendations in this report is an analysis of studies of intergenerational *educational* persistence, measured by intergenerational correlations for different countries. On the one hand, we are interested in education as a socio-economic outcome in its own right. On the other hand there is a close relationship between education and income, but educational attainment is a more reliable measure of one’s socioeconomic position than (lifetime) earnings (see Section 2). Thus, we measure how similar descendants’ educational attainment is to their parents’ and concentrate on these results in our policy prescriptions. This section discusses two new pieces of research and puts them into context with previously existing relevant studies.

New research results concerning measures of intergenerational persistence in Europe have recently emerged. Schneebaum *et al.* (2015) analyze differences in intergenerational persistence based on gender and migration background in Austria,

² Another option slowly growing in the literature would be to measure the persistence of self-reported *well-being* across generations. A recent study shows that results across Europe are similar to the results for educational attainment, even along the gender dimension we discuss below (Molina *et al.* 2011).

³ Occupation is usually based on employment status (self-employed or employee) and the number of employees that an employer has. Indices are then built to rank occupational status (see Erikson and Goldthorpe, 1992, for an overview of the methods).

while Schneebaum *et al.* (2014b) provide an extensive analysis of the role of gender across countries and policy systems in 20 European countries over time.

In general, Schneebaum *et al.* (2014b) show the level of intergenerational educational persistence to lie between 0.41 in Denmark and 0.62 in Bulgaria, yielding comparable results to the existing literature. An additional year of parental education leads on average to about another half year of educational attainment for the descendants, indicating quite strong educational persistence all across Europe. Still, there are significant differences in the degree of persistence across countries and regions. In accordance with the literature, the authors find the highest mobility for the Nordic countries, while Southern and Eastern European nations appear to be the most persistent (see Section 2).

In Schneebaum *et al.* (2014b), the authors further study the development of intergenerational persistence over time. Looking at the development of intergenerational mobility over the past decades and across 20 European nations, distinct patterns are found across country clusters. While in the Nordic and Southern countries persistence has fallen over time – though the Southern cluster started at a higher level and thus also could, and did, end with relatively high persistence – there is no significant change over time in the rest of Europe. Especially in the case of Eastern European countries, this development is alarming, as the level of persistence is very high in these nations. The finding of high persistence in Eastern Europe may also be somewhat surprising given these countries' communist past; one would expect to see higher intergenerational mobility in this region, yet the opposite is true.

Analyzing these developments of intergenerational persistence by gender offers a more comprehensive picture of the changes over time. The reduction of intergenerational persistence in the Nordic and Southern countries has been largely driven by women's falling dependence on parental outcomes for their own educational success. Persistence for women has decreased significantly during the 20th century and thus powered the overall decrease of intergenerational persistence in those clusters. Furthermore, women in the Continental cluster have also become less dependent on the educational attainment of their parents over these decades. Thus in three of five clusters, women's mobility has increased, while for men this is only true in the Continental and Anglo-Saxon cluster. Yet these last two do not display any significant changes over time for the overall population. In sum, the major changes in

intergenerational persistence over the past century took place in the Nordic and Southern countries and while the political approaches in these two regions are different as highlighted below, the increase in intergenerational mobility in *both* regions is due to the expansion of women's educational attainment and much greater intergenerational mobility.

One's gender is related to other interesting aspects of intergenerational mobility, as well. The results in Schneebaum *et al.* (2014b) show that women in a majority of European countries (14 of 20 in the study) are more dependent on the educational attainment of their mothers, while sons' education is always more highly correlated with that of the father (Portugal being the only exception). Accounting for migration background reveals a slightly different picture, though.

Schneebaum *et al.* (2015) study second-generation migrants from non-EU countries (mainly Turkey and the former Yugoslavia) moving into Austria and find that migrants have different levels of intergenerational educational persistence than natives. Descendants of parents who migrated face higher persistence than natives overall. Taking the analysis one step further and dividing the sample of migrants and natives by gender allows a more nuanced story to emerge. Migrant men are *more* mobile than both native men and women. Moreover, they are more likely to move into a higher educational class than their parents. Migrant women, on the other hand, comprise the group facing the most intergenerational persistence, hardly ever leaving the educational class that her father has. The fact that migrant men are more mobile than native women suggests that gender is the more constraining factor to educational mobility compared to migration background. Second generation migrant women, who face a "double disadvantage," in that they are members of two marginalized populations, are by far the most immobile group and have the worst educational outcomes. Their educational success is more heavily dependent on their parents' educational attainment than any other group.

Another aspect of the gender-specific analysis assesses differences in persistence based on the gender of the descendant *and* the parent in question. The results in Schneebaum *et al.* (2015) show that daughters benefit strongly from a mother having tertiary education, while fathers' educational attainment is a more important predictor of native sons' educational success than native daughters'. However, fathers' education also plays an important role for migrant daughters. These findings suggest

that the reproduction of gender role ideology may be stronger in native families; it is there that sons follow fathers and daughters follow mothers. The benefit of having a highly educated father is stronger for migrant women than it is for native women.

The existing literature on intergenerational educational persistence provides inconsistent results on tests of the relevance of having a migration background on a group's intergenerational persistence. First, some studies using data from the United States conclude that immigrants face higher mobility than natives (Borjas 1992; d'Addio 2007); similar results are found for Germany (Gang and Zimmermann 2000). However, studies for Sweden (Hammarstedt and Palme 2005) and Switzerland (Bauer and Riphahn 2006) find that the persistence among migrants is higher than among natives.

Being a migrant into a new country is an important factor of social and economic intergenerational persistence, and one's country of origin plays an important role in determining this persistence. Bauer and Riphahn (2006) for Switzerland, Aydemir *et al.* (2013) for Canada, and Hammarstedt and Palme (2005) for Sweden all find that there is great heterogeneity across ethnic groups coming into a country. Depending on where the migrants come from, their dependence on their parents' educational outcomes can be more or less important. The analysis in Schneebaum *et al.* (2015) supports these findings: EU-migrants to Austria (mainly from Germany) have significantly higher education levels than non-EU migrants (mainly from Turkey and the former Yugoslavia), and EU migrants are much more mobile across generations than non-EU migrants. Thus several dimensions of a person's migration background can influence his or her intergenerational persistence.

In sum, we can highlight four main results coming out of the surveyed recent research. First, there are large differences in intergenerational persistence for men and women, and results differ by the gender of the parent as well: children's educational outcomes are most persistent with respect to their same-gender parent. Second, women with a migration background – facing the double disadvantage of being in two marginalized groups – face the strongest intergenerational persistence and rarely surpass the educational levels of their parents, while male migrants seem to be quite mobile, perhaps much because of their vocational training. Third, the decreases observed in intergenerational persistence in the last decades have been driven mainly by improvements in women's mobility. Finally, the cluster of European Nordic countries shows the greatest intergenerational mobility, which presumably has been fuelled by

promoting gender equality as well as their simultaneous investments in both educational and later social security policies. These results serve as drivers for our policy recommendations to increase access to vocational training, implement integration programs for migrants, have later school tracking, and offer universal child-care.

4. An Aggregate Measure of Education Mobility

Intergenerational persistence is understood as the dependence of children's socio-economic outcomes on the conditions and resources of their parents. Research usually approaches intergenerational dependence from a micro perspective. With respect to education, this means comparing parental educational attainment to that of their descendants using individual survey data (see Sections 2 and 3). From a macro perspective, on the other hand, intergenerational persistence of education can be understood as the educational outcomes of younger generations to resemble those of their parent generation, on average. A recent paper by Crespo Cuaresma *et al.* (2013) takes on this idea in order to compute an aggregate measure of intergenerational education mobility. In this section, we survey their data, method and results in order to provide additional policy relevant insight into the dynamics of intergenerational mobility across countries over time.

A comparison of educational outcomes across generations is rendered possible by the recently developed global dataset of populations by age, sex, and levels of education from the International Institute for Applied System Analysis and the Vienna Institute of Demography (IIASA/VID). Building upon these new data, Crespo Cuaresma *et al.* (2013) construct a dataset of measures of inequality as well as mobility in educational attainment for 175 countries, spanning the period from 1960 to 2010. Based on the shares of the population with no formal, primary, secondary or tertiary education, in conjunction with the formal duration it takes in order to complete each level, education Gini coefficients by age and gender are computed. As with the income Gini, the education Gini ranges from zero to one, with higher values reflecting a less equal distribution. An education Gini of zero means that the entire population attains the same education level, regardless of which. An education Gini of unity implies one person has tertiary, and the rest does not attain any education.

The demographic structure of the dataset enables Crespo Cuaresma *et al.* (2013) to create a broad measure of intergenerational education mobility which is

based on comparing the distribution of educational attainment among older and younger cohorts. More specifically, education mobility is defined as the ratio between the education Gini coefficients of the 25-54 and the 55+ age groups. At a value equal to one, the distribution of the young generation over the four education categories resembles that of the older generation. The closer the ratio is to zero, the more equally is education distributed among the youth than among the elderly, with the reverse being true for a value above one. From an intergenerational point of view, the relationship between the education distributions of the broad age groups is thus consistent with perfectly immobile education levels in the former case, *equalizing* and *segregating* mobility in the second and latter case respectively. Looking at the relative distribution of education across generations captures the relation between inequality and mobility: with little or no mobility, an unequal society in one generation will end up being an unequal society in the next generation too. Only if intergenerational mobility is accelerating, younger generations can be more equal societies than their ancestors.

As opposed to the micro level measures presented in previous sections, Crespo Cuaresma *et al.* (2013) provide a simple catch-all measure of intergenerational education mobility at the aggregate level which relies on the assumption that a more equal distribution of education among the youth than among the elderly implies that education has been mobile across generations. Thus, cohort effects such as a general increase in the spread of education from one generation to the other might lead to an overestimation of education mobility at the aggregate level. Moreover, elasticities and correlation coefficients based on individual data are bound between zero and one, while the aggregate measure might exceed one. Such a scenario resembles a downward-mobility pattern if the majority of the older age group attains secondary but some of their descendants attain only primary education. However, especially for already highly educated economies, a scenario in which the share of tertiary educated among the young increases at the expense of the middle part of the education distribution is more relevant. Even if micro and macro measures are not directly comparable, they provide a similar picture of cross-country patterns in the degree of intergenerational mobility in educational attainment.

Figure 3 presents a scatter plot relating the education Gini coefficient of the total population aged 25 and above to the aggregate measure of intergenerational mobility. Each dot represents a country-time observation of the full panel dataset in Crespo Cuaresma *et al.* (2013); red dots correspond to 41 European countries as defined by

the United Nations' macro geographical (continental) region. Between a Gini of 0.6 and 0.2, the relation resembles the "Great Gatsby Curve" plotted in Figure 2 for income. However, over the whole range of the education Gini, the two indicators hint at a U-shaped relationship. If each generation reproduces equally high levels of educational inequality, the education Gini as well as the education mobility index is close to one. Such high inequality and persistence in educational attainment are mainly observed in Sub-Saharan and South Asian countries. As exemplified by Brazil and the education expansion dynamics of South Korea, approaching a lower degree of education inequality is only feasible by equalizing the education distribution among the youth relative to that among the elderly.

As the overall education Gini coefficient approaches zero, the room for additional improvements narrows and education becomes increasingly immobile across generations, in the sense captured by the aggregate indicator. However, also within the low-inequality group, quite different dynamics can be observed. In the United Kingdom, education was relatively persistent in the 1980s, compared to other European countries, but a phase of accelerating mobility started thereafter. Denmark and Finland, on the other hand, sustained a relatively high mobility level as they reduced educational inequality. Denmark shows a mobility index above unity since 1990, indicating a higher degree of education inequality among the younger than among the older age group. This is due to a relatively strong increase in the share of tertiary educated people in the population aged 25-54 from 9 % in 1960 to 28 % in 2010, compared to the population aged 55 and over, thereby widening the gap between the lower and the upper tails of the education distribution. On the other hand, in Finland the share of tertiary educated fluctuated around 40 % in each of the two age groups since 2000, suggesting high intergenerational persistence in the educational attainment structure.

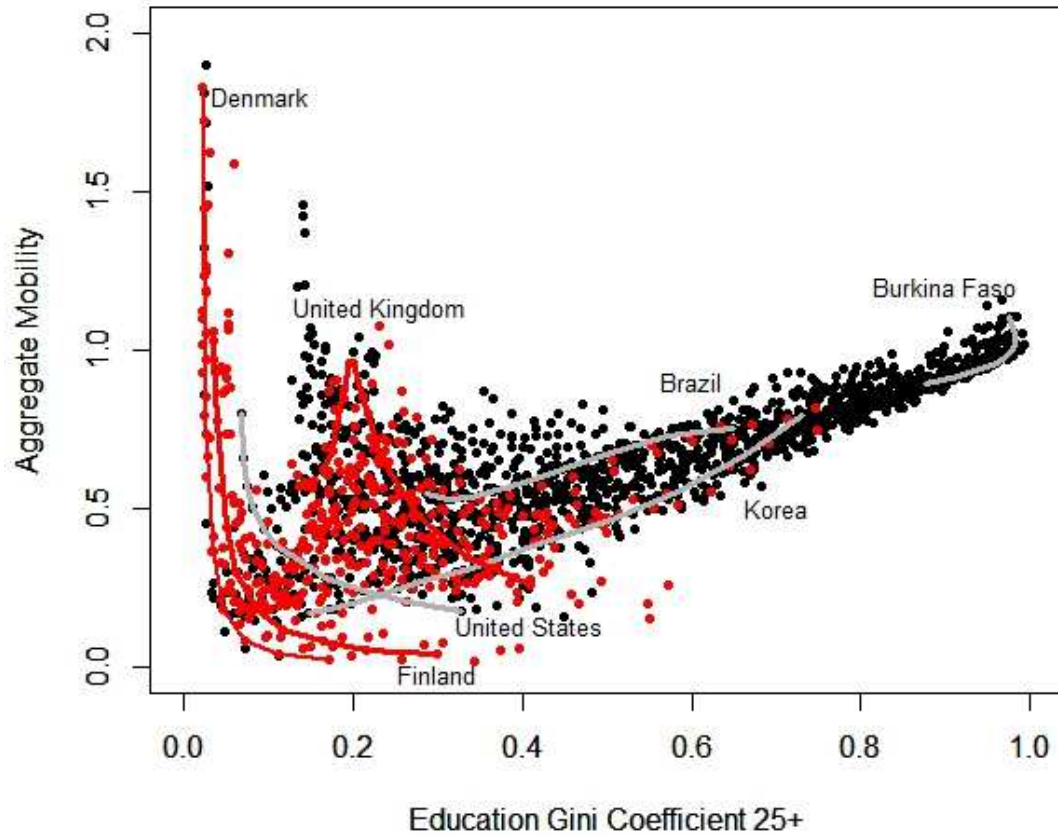


Figure 3: Education Inequality vs. Aggregate Education Mobility. Source: Crespo Cuaresma et al. (2013), with amendments.

Panel A of Figure 4, which depicts the dynamics of the education mobility indicator by European subregion over time, demonstrates that these patterns are representative for the broader country groups. In the Anglo-saxon cluster, the ratio of young-to-old education Gini coefficients increased until 1985, before consistently decreasing thereafter. Northern Europe started out as a highly mobile economy in 1960, but is characterized by persistency in the education structure since 2000. An increasing value of the aggregate mobility measure is also observed in Continental and Eastern European countries. This tendency was, however, stronger in Continental Europe. On the contrary, education became increasingly mobile in Southern and South-Eastern European countries.

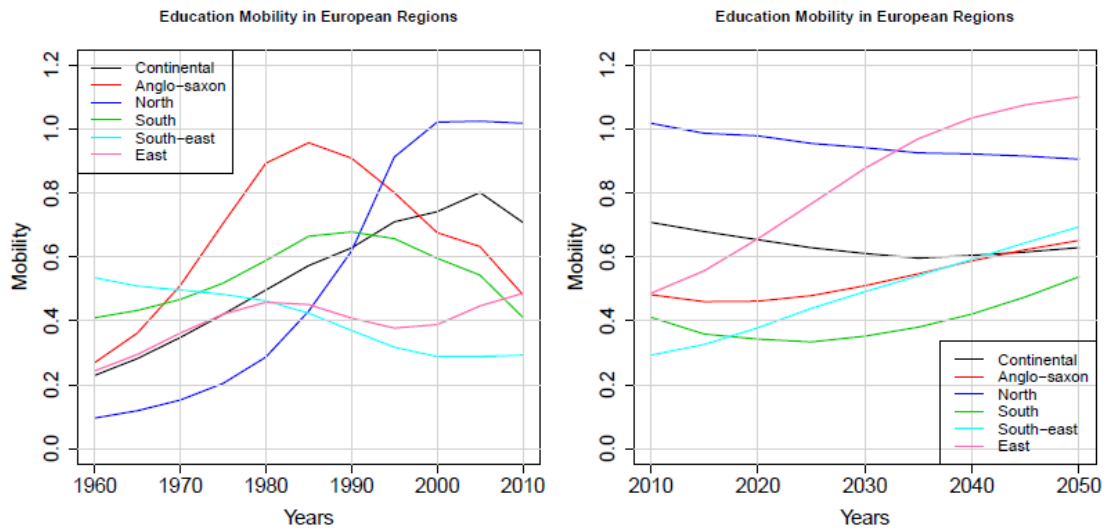


Figure 4: Education Mobility in European Regions 1960-2050. Source: Crespo *et al.* (2013).

Anglo-Saxon Europe: United Kingdom, Ireland; Continental Europe: Belgium, France, Germany, Luxembourg, Netherlands, Switzerland; Eastern Europe: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Russian Federation, Slovakia, Slovenia, Ukraine; Southern Europe: Cyprus Greece, Italy, Malta, Portugal, Spain; South-Eastern Europe: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, Republic of Moldova, Romania, Serbia, TFYR Macedonia, Turkey.

Crespo Cuaresma *et al.* (2013) also provide projections of the aggregate education mobility measure from 2010 to 2050 which are presented in Panel B of Figure 4. In general, convergence among European regions to a value slightly below one is projected by the Global Education Trend (GET) scenario, proposed by KC *et al.* (2010), which corresponds to extrapolating the historical trends in educational attainment observed for the world sample of countries. This is due to the fact that European economies are relatively mature with respect to their distribution of educational attainment. Since Southern, South- Eastern and Anglo-Saxon economies started out with a relatively low mobility ratio of around 0.4 in 2010, these countries are projected to gradually close the gap in education inequality between young and old age groups. On the other hand, in Continental and Northern Europe, the degree of inequality in the education distribution is projected to slightly decrease among subsequent young cohorts. After 2030, the education distribution of the youth is predicted to be more unequal than that of the elderly in Eastern Europe. The mobility ratio is therefore projected to increase above one in several Eastern European countries.

5. Intergenerational Persistence of Education and Economic Growth

From the preceding sections it follows that encouraging intergenerational mobility, thus providing for everybody to have the same life chances independent of his or her circumstances, should be at the top of a policy agenda which pursues equality of opportunity and outcomes. Beyond that, the degree of intergenerational persistence is relevant for the society and the economy as a whole. Societies in which a constant or increasing part of the population is being left behind are impaired by a range of factors, including high crime rates, political instability and civil unrest. While these consequences of social segregation are of importance in their own right, they are also relevant economically. Social discontent and political instability create an environment of distrust and uncertainty about prospective social and economic developments which is detrimental to physical and human capital investment, thereby not only affecting short-run growth rates but also the long-run growth path of an economy. In their influential article, Alesina and Perotti (1996) provided evidence that inequality favours socio-political instability which is in turn detrimental to private and public physical capital investment and thus to income growth.

Moreover, intergenerational mobility – especially with respect to education - is related to economic growth in a more direct way. A high degree of intergenerational persistence in educational attainment implies that children of each well-off parent generation have access to higher education levels, while children from disadvantaged socio-economic backgrounds may not proceed above primary or lower secondary education, irrespective of their intelligence and talents. Thus, a share of the population is prevented from developing and applying its skills in the labour market. The resulting misallocation of human capital dampens the productivity of the labour force. Most importantly, a broad base of talented and educated people is essential for sustainable economic growth based on innovation and technology creation or adoption.

While an extensive literature highlights the special role of human capital for technological progress based on education externalities (Lucas, 1988), idea creation and innovation (Romer, 1990), or imitation and adoption (Nelson and Phelps, 1996; Aghion and Howitt, 1996), Galor and Tsiddon (1997) provide a theoretical framework for explaining the interaction between intergenerational mobility of human capital,

technological progress and economic growth. Even though individuals' educational attainment depends on the level of human capital of their parents to some extent, technological progress tends to increase the overall wage rate by the same amount and creates incentives for human capital accumulation for the skilled as well as the unskilled. This reduces the role of family background, thus accelerating intergenerational mobility and generating a more equal distribution of education among the descendant generation than among the parent generation. As technologies mature and returns to skills diminish, incentives for additional investments in education vanish and the existing educational composition persists until the next technological impulse. The observed and the predicted period in Figure 4 nicely reveal a pattern of phases of intergenerational mobility alternating with phases of persistence in the educational structure, resembling these theoretical predictions by Galor and Tsiddon (1997). At the same time, mobility provides for the existence of a broad pool of talented people who invent, adopt and imitate technologies. In the framework of this model, intergenerational mobility of education thus plays a central, mediating role in inducing as well as absorbing technological progress as a basis for economic growth.

An increasing body of recent research analyzes the relevance that the degree of inequality in the distribution of educational attainment has for economic growth, in addition to the effect of the average level of human capital (Castelló-Climent, 2011; Sauer and Zagler, 2014). The empirical work by Crespo Cuaresma *et al.* (2013) builds on and adds to this literature by studying the link between intergenerational education mobility and economic growth at the macroeconomic level using the global dataset of education inequality and mobility presented in the previous section. In order to empirically test for the presumed positive relation between education mobility and economic growth, Crespo Cuaresma *et al.* (2013) set up a regression model which relates the average growth rate of real GDP per capita to the initial level of income per capita, the capital stock and population growth rates, the average level of educational attainment, measured by the mean years of schooling in the population aged 25 and over, and, most importantly, to the aggregate measure of intergenerational education mobility. Doing so provides strong evidence for the existence of a relationship between intergenerational persistence in education and income growth. The effect is sizeable: increasing the measure of intergenerational persistence by 0.25 points, for instance, tends to decrease income growth by 0.93 percentage points per year. This effect is additional to that of the accumulation of human capital, which implies that education

policy targeting educational expansions that allow in parallel to reduce intergenerational persistence appear to bring the highest return in terms of sustained income growth rates.

In order to assess quantitatively the potential economic growth returns of future changes in intergenerational persistence and thus in the distribution of education, we perform a simple projection exercise. Using the economic growth elasticity implied by the panel regressions in Crespo Cuaresma *et al.* (2013) and the expected changes in the distribution of education across age groups computed using the methods in KC *et al.* (2010), we compare the projected income per capita growth rates for the forthcoming four decades with counterfactual projections that assume no change in the distribution of education. The difference in annual growth rates of GDP per capita from the two alternative scenarios which is implied exclusively by the effect of distributional changes in educational attainment is depicted in Figure 5. These differentials imply negative expected effects for the group of European economies which have the lowest average income per capita levels and thus suggest that intergenerational persistence dynamics may act as a barrier of further income convergence in the continent.

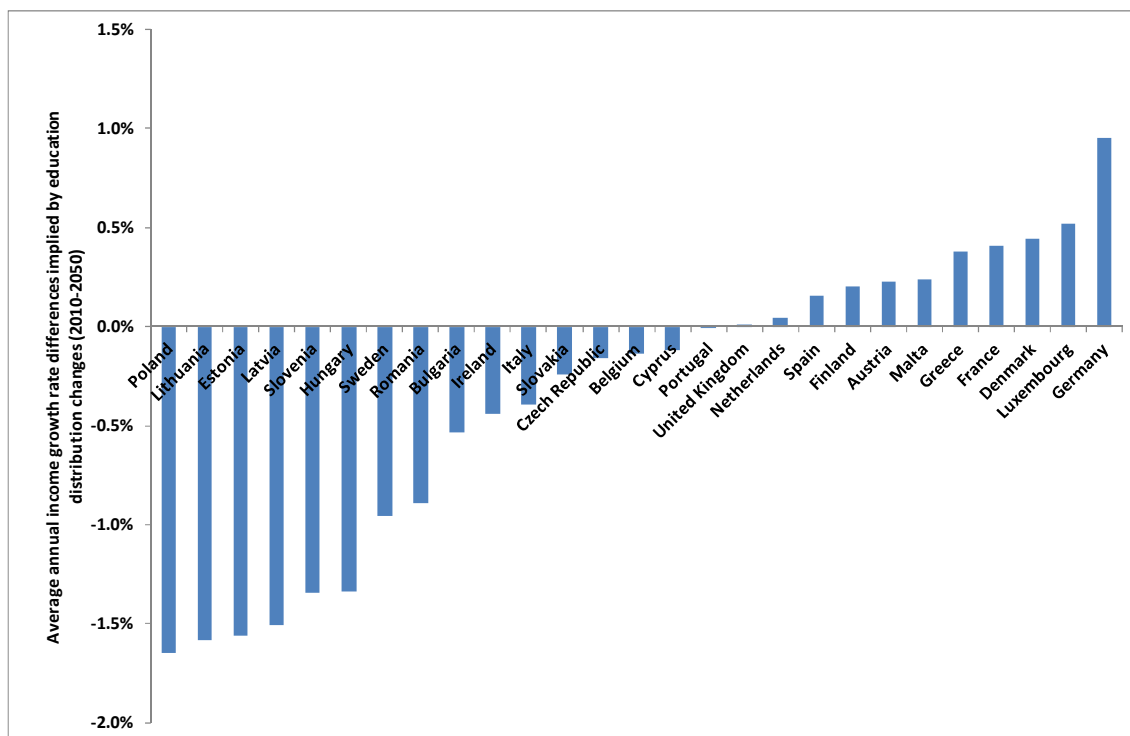


Figure 5: Projected average income growth differentials from distributional changes in education: GET scenario versus no-change scenario. Source: Authors' calculations.

To sum up, looking at an aggregate measure of intergenerational mobility which is based on comparing the degrees of education inequality across age groups provides insights into the dynamics of persistency and inequality for a broad panel of countries over long time horizons. We observe differences in persistence not only at a global but also at a European level. Moreover, a higher degree of intergenerational mobility is associated with higher growth rates of income per capita. Such a result emphasizes that policies aiming at providing broad-based access to schooling, which are oriented towards reducing the intergenerational persistence of educational attainment, have returns in terms of economic growth that go significantly beyond those implied by the improvement in overall educational attainment.

6. Policy Recommendations

Based on the set of theoretical and empirical results discussed above, we make four main policy recommendations to curb intergenerational persistence and contribute to income per capita growth in Europe through human capital formation. These are:

- universal and high-quality child care and pre-school programs;
- later tracking and more access to vocational training, with a focus on avoiding skill mismatch and facilitating technology development;
- integration programs for migrants;
- a two-pronged government spending approach: investment should target education and social support policies at the same time.

As Figure 1 shows, our four policies work as particular types of subsidies of family income and “home investment,” meaning all resources that children receive from their parents, giving all households adequate opportunity to invest in their young members. Early childhood education policy and the later tracking policies augment and enhance the skills learned at home, while the social support policy enhances the positive effects of family income. The policy to help migrants integrate ensures that all members of a society have a chance to succeed. We discuss more specific background and support for these recommendations in turn.

Provision of Universal, High-quality Childcare and Pre-school Programs

Blau and Currie (2006) provide an outstanding review of the literature on the demand and supply of child care and pre-school programs, and the effects on the “quality of child” that they produce. There is overwhelming evidence of positive effects of child care and pre-school programs for their participants (Blau and Currie 2006; Currie and Almond 2011; OECD 2010a). Overall, children who participate in a child care program between the ages of 0 and 5 show stronger cognitive development, general knowledge, cooperative behavior, and peer interaction (Blau and Currie 2006, table 8). Further, participation in a pre-school program has strong and positive effects on later academic achievement. Children who were enrolled in a pre-school program have higher IQ scores throughout their time in compulsory school; have better high school grade point averages (GPAs); are more likely to graduate from high school; and they have higher earnings at age 27 (Blau and Currie 2006, table 16). The evidence of positive effects on the skills, educational attainment, and socio-economic situation of participants in child care and pre-school programs is quite convincing.

Heckman (2006) shows that early intervention helps reproduce positive effects via the dynamic nature of cognitive and non-cognitive abilities. “Skill begets skill; motivation begets motivation” (Heckman 2006), which means that earlier investment in education and development leaves a greater amount of time for future development . These investments pay off not only by increasing individuals’ schooling levels and income, but by reducing crime and improving health, thus reducing the need for public spending on the health system and public safety later on. Thus, investments in early childhood programs pay off multiple times over and have highly positive benefit-cost ratios, where a euro spent early is associated with several euros earned and saved later (Heckman 2006). The workings of investment in child development in Figure 1 makes these mechanisms clear: public investment in and provisioning of high quality universal early childhood care and education programs can assist parental home investments and provide positive stimulation for children’s abilities, throughout their schooling and later life.

Besides personal positive effects, early childhood programs can have strong positive effects on a society’s well-being. They can help reduce the persistence of intergenerational persistence in education and income, and they can also play an

important role in promoting gender equality in the economy. Recall that Schneebaum *et al.* (2014b) study gender differences in intergenerational educational mobility across Europe and find that sons' educational attainment is more highly correlated with their fathers' than their mothers', while daughters' educational attainment is more dependent on the outcomes of their mothers than their fathers. In most countries, fathers' education is also more influential for the educational attainment of the sons than for that of the daughters. Because of labor market discrimination, women's occupational choice, and labor market supply (the number of hours spent in the labor market), women's investment in higher education does not pay off as much as men's. Women are more likely to engage in part-time work and are often segregated into lower-paying industries and occupations. Public policy offering universal and high quality child care can help bridge the gap between high education and labor market equality for women, and will also help distill intergenerational persistence. This is the case for several reasons.

First, child care can be made high-quality, by demanding more highly educated caregivers, and providing high-paying jobs for highly educated employees – who are, in that sector, mainly women. Second, it would promote women's employment in other sectors that demand highly educated workers with flexible schedules by providing care for their children while they are at work. Thus women's labor market supply could increase and women could become more willing to enter traditionally male-dominated fields. Third, at the same time, the stereotype of women's lesser commitment to work would fade as their opportunities to do more work would expand. These changes could reduce discrimination against women, further enhancing the first two effects. The literature does indeed find that state-subsidized child care and pre-school programs have significant positive impacts on mothers' employment (Blau and Currie 2006, table 13). Finally, the children of these highly educated mothers – and especially daughters, following the results in Schneebaum *et al.* (2014b) – would benefit by positive gains to their own education, by having more income in the household, by receiving better childcare, and by having a positive role model in the household. Thus a virtuous circle of women's advancement in the labor market could develop.

Not only daughters would benefit from these policies. Sons are also often constrained by the financial restrictions of their parents, and those benefits would positively affect them, too. Especially but not exclusively in the case of single mothers,

universal child care can help reduce the risk of child poverty by increasing mothers' ability to work and provide sufficient financial resources. Sons *and* daughters would then benefit and face more educational opportunities, leading to higher intergenerational mobility. The positive effects of early education programs on a child's later outcomes are widely recognized (Heckman 2008; Schütz *et al.* 2008; Cunha and Heckman 2009; Currie and Almond 2003; OECD 2010a). However, insufficient supply or a lack of quality of these programs leads to restricted chances for children to benefit from them, and make it more difficult for mothers to work and contribute to household income. Consequently, early childhood programs and their link with female employment help explain the lower intergenerational persistence in Nordic European countries. Investment in pre-school and early education programs in Nordic countries has been helpful in promoting intergenerational mobility, combating poverty, and stimulating growth, and we recommend it as a universal policy plan for all of Europe.

Later Tracking and Access to Vocational Training; Distillation of Skill Mismatch

As Schütz *et al.* (2005) show in an analytical model and confirm with empirical results for 54 countries, including almost all EU countries (Schütz *et al.* 2008), tracking students into different school types hinders educational equality by enhancing the effect of family background characteristics on a student's educational success. In particular, they find that lowering the age of first tracking by four years leads to an increase in the effect of family background characteristics on a person's educational outcomes by 25%. Tracking locks students into an educational path determined by their socio-economic background. The earlier this tracking occurs, the more likely it is that the students will follow their parents' paths in education. Having early tracking systems means that children need to decide what educational path they will take without having full information of their options and opportunities; this situation makes them strongly dependent on parent or teacher recommendations. Indeed Schneeweis und Zweimüller (2014) study the tracking system in Austria and show that the young age at which Austrian students are tracked (at 10 years old) is especially harmful to the later educational success of younger students in each grade (those born later in the year than their classmates) and students from poorer socioeconomic backgrounds. Thus, we suggest that later tracking – or no tracking at all – would benefit Europe by

distilling the dependence of descendant educational outcomes on the education of their parents.

Hand in hand with their relation to intergenerational persistence, tracking schemes also have important consequences for economic and social inequality. OECD research has shown that tracking programs are associated with greater inequality in educational outcomes within and across countries, as evidenced by differences in PISA test scores (OECD 2010b, p. 15). Further, immigrants into countries with stratified educational systems (i.e. tracking) are less likely to obtain higher education degrees than those in countries without tracking. Thus, eliminating tracking programs or starting tracking at a later age can reduce intergenerational persistence as well as inequality in schooling outcomes within and across countries (Gringa und Hadjar 2014).

Along with later tracking to counteract descendants' dependence on parental outcomes and educational inequality, vocational training can be very helpful in providing equal opportunity. Vocational training is helpful for several reasons. First, vocational training programs benefit society by training people to be able to do socially useful and relevant skilled work. Second, they give students the choice between the type of education they would like to pursue, and allow students interested in an academic track or a vocational track the opportunity to become skilled in their field of choice. Third, formal vocational training ensures that those who complete it have some formal qualification to depend on in the labor market (Scarpetta *et al.* 2010). Finally, vocational training programs are highly effective against youth unemployment (Scarpetta *et al.* 2010). An excellent review by Wößmann (2008) shows that the literature on vocational programs contains mixed findings on the overall effectiveness of vocational programs for promoting economic equality. On the one hand, these programs train workers in a specific field, allowing them to become highly qualified experts and thus raising their wages and employability. On the other hand, it may be the case that technological change can make vocational training obsolete relatively quickly, putting older workers with this training at risk (Hanushek *et al.* 2011). In this sense, adult education programs are an important complement to vocational training; these training programs for older workers are already implemented in some countries (Tessaring und Wannan 2004) . In any case, vocational training does increase the employment rate of young workers, and it is especially beneficial to workers who come from lower socio-economic backgrounds, who are more likely to enroll in vocational programs. The training increases employment rates, which is good for the workers

themselves and further benefits the children of young vocationally-trained fathers and mothers, who will benefit from growing up in a household with higher income – a major advantage for a child's own economic success. Investments in vocational training programs and later tracking of students therefore directly affects the educational attainment of children and can help socio-economically disadvantaged but high potential youth to fully develop their abilities, independent of their family background.

Later tracking and the implementation and promotion of vocational training can be very helpful in reducing skill mismatch in Europe's labor markets. Skill mismatch occurs when people in the labor force are well-trained but cannot find a job that requires their skills. Vocational training can help reduce this mismatch by providing educational programs geared at the exact needs of the economy. These needs may change rapidly and drastically, but stand-alone vocational programs should be able to adapt more quickly to these changes than entire school systems for all students. Later tracking would further mean that students could make more informed choices which field of work to enter, rather than being allocated there based mainly on their background. Giving students (who become workers) a better choice in their profession would increase the likelihood that they will select fields in which they are interested and talented, which would increase the chances for them to be able to get relevant work. This, in turn is expected to affect the rate of technological progress (and thus economic growth) by fuelling innovation.

Taken all together, later tracking and vocational programs can be beneficial to the European economy and society as a whole and their implementation is therefore recommendable.

Integration Programs for People with a Migration Background

People who migrate into new countries or who come from families with a background of migration can face different conditions determining intergenerational persistence compared to natives, and migrants can face particular challenges which lead to less successful educational outcomes. A review of educational and income mobility at a global level by d'Addio (2007) shows that migrants face different circumstances and social processes which affect intergenerational mobility; depending on where migrants come from and into which country they migrate, they can face greater or lesser degrees of intergenerational persistence in economic outcomes. Students who come from a family with a migration background also tend to perform

worse on PISA tests (OECD 2010b). Consequently, policies targeted at the specific needs of people with a migration background are necessary to reduce any additional intergenerational persistence that migrants may face and to improve their educational outcomes.

One policy directed at increasing the educational opportunity of migrant populations is better access to and financial support for language courses. Proficient language skills are essential for educational and occupational opportunities and the success of migrants into a new country (Schneeweis, *Educational Institutions and the Integration of Migrants* 2011). Furthermore, the earlier these investments into learning the national language are made, the better the outcomes and the higher the returns can be. Yet it is not only the national language that should be acquired during the early childhood, but also cognitive and non-cognitive skills that lay the foundation for later life educational success. While pre-school programs offer positive effects for all children, studies in the literature find that individuals with a migration background benefit particularly strongly from them (d'Addio 2007).

Similarly, early tracking and the lack of availability of vocational training are correlated with higher intergenerational persistence for migrants (Gang and Zimmermann 2000). People with a migration background are often less aware of the educational system in their new country and the opportunities for educational advancement available to them. Gang and Zimmermann (2000) show that a students' dependency on teacher recommendations for knowledge about and admission into educational programs is related to higher intergenerational persistence of migrants than natives, in part because of implicit teacher preferences for majority groups and their values which can cause instructors to be less helpful to students with a migration background. Thus, to lower dependency on a small number of (potentially biased) teachers to help the child get an education, societies can keep students together and not put them into tracking programs until much later (if at all), and offer well-developed, degree-granting vocational programs to all. European countries should also recognize degrees granted by vocational training programs from abroad, to help integrate and benefit from the skills of all people living in a country, regardless of their background (Tessaring und Wannan 2004).

Vocational programs are of particular importance for migrants; however, migrants may not have equal access to them. Indeed Gringa und Hadjar (2014) show

that migrants into European countries without tracking plans, such as the Scandinavian welfare states and former state-socialist countries (e.g. East Germany) are more likely to get a vocational degree. Italy is another case of migrants having been able to take advantage of vocational training programs (Ragazzi und Sella 2013). Migrants in “tracking countries” (e.g. Austria, West Germany), on the other hand, are less likely to obtain vocational training. Indeed empirical findings for Austria (Altzinger *et al.* 2013) and Germany (Burkert and Seibert 2007; Worbs 2003) exhibit a relatively clear trend: while long established and well working vocational training programs exist in these countries, migrants often face limited access to them. Thus there is an important connection between tracking, the availability of vocational training, and migration background.

Differences by gender are sometimes discussed in this literature as well. Migrant women are less likely to enroll in vocational programs than migrant men (Altzinger *et al.* 2013). Thus for females the chances of gaining higher education through vocational training are limited. Creating vocational programs and reducing access barriers for migrants is hence of greatest importance for the integration of migrants.

Finally, central examinations could help prevent achievement gaps for students with a migration background, since they provide more objective measures of student achievement and help reduce the influence of non-performance aspects of education on the grading of children (Wößmann 2005). Therefore central examinations could be particularly positive for migrant students, though similar to later tracking and early childhood programs can benefit all children.

Policies targeted at the specific needs of children with a migration background are thus expected to promote educational mobility for all children, yet they are essential for the success of migrants. Raising the awareness of these requirements and policies aiming at specific subpopulations can help children with a migration background develop their full potential. Migrants have different background characteristics and the literature shows that specific groups of migrants face stronger intergenerational persistence, calling for special programs that take these differences and special needs into account. Addressing the needs of and supporting these particular groups is consequently of utmost importance as equality of opportunity implies equality for

natives and migrants alike. Consequently, programs targeted at the integration of migrants should frame all other programs and be the core element of all policy.

Simultaneous Investment in Educational and Social Security

Programs

In Figure 1, which shows how social policy can be used to support investments in children, we include policies aimed at both educational outcomes as well as social security. Our work for the WWWforEurope project has found that this two-pronged approach to public investment appears to be most helpful in combating intergenerational persistence and encouraging equality and growth. Schneebaum *et al.* (2014b) offer a country- and country cluster-level analysis of intergenerational educational persistence for 20 European countries, finding that as a whole, the Nordic cluster has the highest level of intergenerational educational mobility. The clusters were built based on similarity in policy across countries, following Esping-Andersen's groundbreaking work on classifying "worlds of welfare capitalism" (Esping-Andersen 1990) and later additions to the model by others (Ferrera 1996; Fenger 2007). The Nordic cluster is characterized by simultaneous investment in educational programs and social security programs. The Continental and Anglo-Saxon clusters focus on just one or the other policy (social security and education, respectively), and both clusters have higher rates of persistence than the Nordic cluster. The Eastern and Southern clusters have neither a particularly strong focus on either investment program nor the resources to implement them, and they have the highest rates of persistence.

The two-pronged approach to state investment taken in Scandinavian countries comes out being the one associated with the highest rates of intergenerational mobility because it supports people throughout the life-cycle. Investing in education alone puts pressure on reaping the benefits of this education on young persons, who may not yet be mature enough to receive the full benefits of the education offered to them. Further, a focus on educational programs does not protect people against labor market shocks that may require them to pursue more or different education as an adult. A focus on social security, on the other hand, may protect people against unemployment or labor market shocks, but it does not intervene early enough to get children off of the educational track already laid by their parents. Descendants of less educated parents face greater challenges to obtaining more education themselves and without intervention by the state to promote a system that gives all children equal educational

chances, descendants of families with a lower socio-economic background will have a harder time advancing on their own.

As described above, this two-pronged approach can also have important consequences for advancing gender equality. Greater investment in educational programs, including pre-school, can stimulate and support women's labor force participation. Later financial support of private households would also protect households from falling into poverty, a circumstance to which especially women are vulnerable.

Thus, while potentially expensive, a two-pronged approach that includes early childhood education in its educational spending, which does not prioritize early or late social support, but instead provides both, seems to be most effective for supporting educational mobility and social equality. Moreover, it creates and supports a prosperous economic environment. The Nordic countries can serve as an example on how to successfully adopt a system that leads to higher female labor participation, a more egalitarian society where everyone has the opportunities to live up to his or her full potential, and eventually foster economic growth and create a sustainable welfare state. We therefore recommend that countries attempt to provide support for education, including early education programs, and simultaneously invest in social security programs. It is this comprehensive approach that can reduce intergenerational persistence on a broader basis. Investment in either the education system or social security programs alone can never yield similar results. The joint investment of supporting families and creating education and care programs for the youngest children provides universal support and protection for those who need it most.

The first four policies suggested in this report will be most effective if implemented together. Support for a person's development throughout their lives would support and encourage their productivity. Europe's sustainable, fair, and inclusive development would benefit from the policies suggested in this report, which all recognize the importance of providing equal opportunities at all ages.

References

- Alesina, Alberto and Roberto Perotti. "Income distribution, political instability, and investment." *European Economic Review*, 40, 1996: 1203-1228.
- Aghion, Philippe and Peter Howitt. "Research and Development in the Growth Process." *Journal of Economic Growth*, 1(1), 1996: 49-73.
- Altzinger, Wilfried, Bernhard Rimplmaier, Alyssa Schneebaum, and Nadja Lamei. "Intergenerationelle soziale Mobilität in Österreich." *Statistische Nachrichten*, 2013: 48-62.
- Andersson, Eva K. and Bo Malmberg. "Contextual effects on educational attainment in individualised, scalable neighbourhoods: Differences across gender and social class." *Urban Studies*, 2014 (forthcoming)
- Atkinson, Anthony B. "On Intergenerational Income Mobility in Britain.", *Journal of Post Keynesian Economics*, 1981: 194-218.
- Bauer, Philipp, and Regina T. Riphahn. "Education and its Intergenerational Transmission: Country of Origin-Specific Evidence for Natives and Immigrants from Switzerland." *Portuguese Economic Journal*, 2006: 89-110.
- Becker, Gary S., and Nigel Tomes. "Human Capital and the Rise and Fall of Families." *Journal of Labor Economics*, 1986: 1-39.
- . "An Equilibrium Theory of the Distribution of Income and Intergenerational Mobility." *Journal of Political Economy*, 1979: 1153-1189.
- Bielby, William T., Robert M. Hauser, and David L. Featherman. "Response Errors of Black and Nonblack Males in Models of the Intergenerational Transmission of Socioeconomic Status." *American Journal of Sociology*, 1977: 1242-1288.
- Black, Sandra E., and Paul J. Devereux. "Recent Developments in Intergenerational Mobility." In *Handbook of Labor Economics*, by Orley Ashenfelter and David Card, 1487-1541. Amsterdam: Elsevier, 2011.
- Blanden, Jo. "Cross-Country Rankings in Intergenerational Mobility: A Comparison of Approaches from Economics and Sociology." *Journal of Economic Surveys*, 2013: 38-73.
- Blau, David, and Janet Currie. "Pre-School, Day Care, and After-School Care: Who's minding the Kids?" In *Handbook of the Economics of Education, Vol. 2*, by Erik Hanushek and Finis Welch, 1163-1278. Elsevier, 2006.
- Bourdieu, Pierre. "The Forms of Capital." In *Handbook of Theory and Research for the Sociology of Education*, by John Richardson, 241-258. New York: Greenwood Press, 1986.
- Burkert, Carola, and Holger Seibert. "Labour market outcomes after vocational training in Germany: Equal opportunities for migrants and natives?" *IAB Discussion Paper No. 2007,31*, 2007.
- Carneiro, Pedro, and James J. Heckman. "Human Capital Policy." In *Inequality in America: What Role for Human Capital Policies?*, by James J. Heckman and Alan B. Krueger, 77-240. Cambridge: MIT Press, 2005.
- Castelló-Climent, Amparo. "Channels Through Which Human Capital Inequality Influences Economic Growth." *Journal of Human Capital*, 118, 2010:394-450.

- Chetty, Raj, Nathaniel Hendren, Patrick Kline, and Emmanuel Saez. "Where is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States." *NBER Working Paper No. 19843*, 2014.
- Cingano, Federico. "Trends in Income Inequality and its Impact on Economic Growth." *OECD Social, Employment and Migration Working Papers No. 163*, 2014.
- Corak, Miles. *Do Poor Children Become Poor Adults? Lessons from a Cross Country Comparison of Generational Earnings Mobility*. Vol. 13, in *Research on Economic Inequality*, by John Creedy and Guyonne Kalb, 143-188. Emerald Group Publishing Limited, 2006.
- Corak, Miles. "Inequality from Generation to Generation: The United States in Comparison." In *The Economics of Inequality, Poverty, and Discrimination in the 21st Century*, by Robert Rycroft. Santa Barbara: ABC-CLIO, 2013.
- Crespo Cuaresma, Jesús, Petra Sauer and Samir KC. "Age-Specific Education Inequality, Education Mobility and Income Growth." *wwwforEurope Working Paper no 6*. WIFO, 2013.
- Cunha, Flavio, and James J Heckman. "The Economics and Psychology of Inequality and Human Development." *Journal of the European Economic Association*, 2009: 320-364.
- Currie, Janet, and Douglas Almond. "Human Capital Development Before Age Five." In *Handbook of Labor Economics*, by David Card and Orley Ashenfelter, 1315-1486. Amsterdam: Elsevier Science Publishers, 2011.
- d'Addio, Anna Cristina. "Intergenerational Transmission of Disadvantage." *OECD Social, Employment and Migration Working Papers 52*, 2007.
- Dearden, Lorraine, Stephen Machin and Howard Reed. "Intergenerational Mobility in Britain." *The Economic Journal*, 1997: 47-66.
- Erikson, Robert, and John H. Goldthorpe. *The Constant Flux: A Study of Class Mobility in Industrial Societies*. Oxford: Clarendon Press, 1992.
- Esping-Andersen, Gøsta. "Social Inheritance and Equal Opportunity Policies." *Maintaining Momentum*, 2005: 14-30.
- . *Three Worlds of Welfare Capitalism*. Oxford: University of Oxford Press, 1990.
- Eurydice. "Early Childhood Education and Care in Europe: Tackling Social and Cultural Inequalities." *Executive Summary*. European Commission. Education, Audiovisual & Culture Executive Agency, 2009.
- Fenger, H.J.M. "Welfare Regimes in Central and Eastern Europe: Incorporating Post-Communist Countries in a Welfare Regime Typology." *Contemporary Issues and Ideas in Social Sciences*, 2007.
- Ferrera, Maurizio. "The Southern Model of Welfare State in Social Europe." *Journal of European Social Policy*, 1996: 17-37.
- Galor, Oded and Daniel Tsiddon. "The Distribution of Human Capital and Economic Growth." *Journal of Economic Growth*, 2, 1997: 93-124.
- Gang, Ira N., and Klaus F. Zimmermann. "Is Child Like Parent? Educational Attainment and Ethnic Origin." *The Journal of Human Resources*, 2000: 550-569.

- Gringa, Dorit, und Andreas Hadjar. „Migrant Background and Higher Education Participation in Europe: The Effect of the Educational Systems.“ *European Sociological Review*, 30(3) 2014: 275-286.
- Hammarstedt, Mats, and Marten Palme. "Intergenerational Mobility, Human Capital Transmission and the Earnings of Second Generation Immigrants in Sweden." *IZA Discussion Paper No. 1943*, 2005.
- Hanushek, Eric A., Ludger Woessmann, und Lei Zhang. „General education, vocational education, and labor market outcomes over the life cycle.“ *NBER Discussion Paper No. 6083*. October 2011.
- Haveman, Robert, and Barbara Wolfe. "The Determinants of Children's Attainments: A Review of Methods and Findings." *Journal of Economic Literature*, 1995: 1829-1878.
- Heckman, James J. "The Economics of Investing in Children." *Policy Briefing 1, UCD Geary Institute*, 2006.
- Heckman, James J. "Schools, Skills, and Synapses." *Economic Inquiry*, 2008: 289-324.
- Hertz, Tom, Tamara Jayasundera, Patrizio Piraino, Sibel Selcuk, Nicole Smith, and Alina Verashchagina. "The Inheritance of Educational Inequality: International Comparisons and Fifty-Year Trends." *The BE Journal of Economic Analysis & Policy*, 2007: 1-48.
- Holmlund, Helena, Mikael Lindahl, and Erik Plug. "The Causal Effect of Parents' Schooling on Children's Schooling: A Comparison of Estimation Methods." *Journal of Economic Literature*, 2011, 49 ed.: 615-651.
- Jäntti, Markus, and Stephen P. Jenkins. "Income Mobility." *IZA Discussion Paper No. 7730*, 2013.
- Jäntti, Markus, et al. „American Exceptionalism in a New Light: A Comparison of the Intergenerational Earnings Mobility in the Nordic Countries, the United Kindom, and the United States.“ *IZA Discussion Paper No. 1938*, 2006.
- KC, Samir, Bilal Barakat, Anne Goujon, Vegard Skirbekk, Warren Sanderson and Wolfgang Lutz. "Projection of populations by level of educational attainment, age, and sex for 120 countries for 2005-2050." *Demographic Research*, 22, 2010: 383-472.
- Krueger, Alan B. "The Rise and Consequences of Inequality in the United States." *Speech at the Center for American Progress*. 2012.
- Leibowitz, Arleen. "Home Investments in Children." *Journal of Politcal Economy*, 1974: 111-131.
- Lucas, Robert. "On the Mechanics of Economic Development." *Journal of Monetary Economics*, 22(1), 1988: 3-42.
- Molina, José Alberto, Mariá Navarro, and Ian Walker. "Intergenerational Well-Being in Europe." *Kyklos*, 2011: 253-270.
- Nelson Richard R. and Edmund S. Phelps. "Investment in Humans, Technological diffusion, and Economic Growth." *American Economic Review*, 56(1), 1966: 69-75.

- Nguyen, Anh, Getinet Haile, and Jim Taylor. "Ethnic and Gender Differences in Intergenerational Mobility: A Study of 26-year-olds in the USA." *Scottish Journal of Political Economy*, 2005: 544-564.
- OECD. "A Family Affair: Intergenerational Social Mobility across OECD Countries." *Economic Policy Reforms: Going for Growth, Chapter 5*. OECD Publishing, 2010a.
- OECD. "Chapter VIII: Intergenerational Mobility: Does it Offset or Reinforce Income Inequality." In *Growing Unequal? Income Distribution and Poverty in OECD Countries*. OECD Publishing, 2008.
- . *PISA 2009 Results: Executive Summary*. 2010b.
- Ragazzi, Elena, und Lisa Sella. „Migration and work: the cohesive role of vocational training policies.“ *CNR-Ceris Working Paper 16-2013*. Torino, Italy, 2013.
- Romer, Paul. "Endogenous Technological Change." *Journal of Political Economy*, 85(5), 1990: 71-102.
- Sauer, Petra and Martin Zagler. "(In)equality in Education and Economic Development." *Review of Income and Wealth*, forthcoming.
- Scarpetta, Stefano, Anne Sonnet, and Thomas Manfredi. "Rising Youth Unemployment During the Crisis: How to Prevent Negative Long-Term Consequences on a Generation?" *OECD Social, Employment and Migration Working Papers, No. 106*, 2010.
- Schneebaum, Alyssa, Bernhard Rimplmaier, and Wilfried Altzinger. "Gender in Intergenerational Educational Persistence Across Time and Place." *Department of Economics Working Paper Series, 174*. WU Vienna University of Economics and Business, 2014b.
- Schneebaum, Alyssa, Bernhard Rimplmaier, und Wilfried Altzinger. „Gender and Migration Background in Intergenerational Educational Mobility.“ *Education Economics*, 2015 (forthcoming).
- Schneeweis, Nicole. "Educational Institutions and the Integration of Migrants." *Journal of Population Economics*, 2011: 1281-1308.
- Schneeweis, Nicole, und Martina Zweimüller. „Early Tracking and the Misfortune of Being Young.“ *The Scandinavian Journal of Economics*, 2014: 394-428.
- Schnetzer, Matthias, and Wilfried Altzinger. "Intergenerational transmission of socioeconomic conditions in Austria in the context of European welfare regimes." *Momentum Quarterly*, 2013: 108-126.
- Schütz, Gabriela. "Does the Quality of Pre-Primary Education Pay Off in Secondary School? An International Comparison Using PISA 2003." *Ifo Working Paper No. 68*, 2009.
- Schütz, Gabriela, Heinrich W. Ursprung, and Ludger Wößmann. "Education Policy and Equality of Opportunity." *CESIFO Working Paper No. 1518*, 2005.
- . "Education Policy and Equality of Opportunity." *Kyklos*, 2008: 279-308.
- Schweinhart, Lawrence J., Jeanne Montie, Zongping Xiang, William S. Barnett, Clive R. Belfield, and Milagros Nores. *Lifetime Effects: The High/Scope Perry Preschool Study through Age 40*. Ypsilanti: High/Scope Press, 2005.

- Shorrocks, Anthony F. "The Measurement of Mobility." *Econometrica*, 1978: 1013-1024.
- Solon, Gary. "A Model of Intergenerational Mobility Variation Over Time and Place." In *Generational Income Mobility in North America and Europe*, by Miles Corak, 38-47. Cambridge University Press, 2004.
- . "Cross-Country Differences in Intergenerational Earnings Mobility." *Journal of Economic Perspectives*, 2002: 59-66.
- Tessaring, Manfred, und Jennifer Wannan. „Vocational education and training - key to the future.“ *Cedefor synthesis for the Maastricht Study*. Luxembourg: Office for official publications for European communities, 2004.
- Worbs, Susanne. "The Second Generation in Germany: Between School and Labor Market." *International Migration Review*, 2003: 1011-1038.
- Wößmann, Ludger. "The Effect Heterogeneity of Central Examinations: Evidence from TIMSS, TIMSS-Repeat and PISA." *Education Economics*, 2005: 143-169.
- . "Efficiency and Equity of European Education and Training Policies." *International Tax and Public Finance*, 2008: 199-230.

Project Information

Welfare, Wealth and Work for Europe

A European research consortium is working on the analytical foundations for a socio-ecological transition

Abstract

Europe needs change. The financial crisis has exposed long-neglected deficiencies in the present growth path, most visibly in the areas of unemployment and public debt. At the same time, Europe has to cope with new challenges, ranging from globalisation and demographic shifts to new technologies and ecological challenges. Under the title of Welfare, Wealth and Work for Europe – WWWforEurope – a European research consortium is laying the analytical foundation for a new development strategy that will enable a socio-ecological transition to high levels of employment, social inclusion, gender equity and environmental sustainability. The four-year research project within the 7th Framework Programme funded by the European Commission was launched in April 2012. The consortium brings together researchers from 34 scientific institutions in 12 European countries and is coordinated by the Austrian Institute of Economic Research (WIFO). The project coordinator is Karl Aiginger, director of WIFO.

For details on WWWforEurope see: www.foreurope.eu

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