

Investing in Children and their Life Chances

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Abstract

Parents who have children and invest well in their future create, all at once, private and collective welfare. The increasingly large gap between the desired number of children and actual fertility must be interpreted as a welfare failure for families but also as a major problem for our economy and society. If, additionally, we invest too little in our children's skills the outcome is negative both for their life chances and for our future productivity. The new low-fertility equilibrium together with a substantial number of early school leavers that we see in many advanced countries poses, accordingly a policy challenge of considerable urgency.

The challenge is clearly not limited to the rich OECD nations. Fertility has fallen sharply in East Asia and now also in a number of Latin American countries. As a whole, Latin American fertility has fallen from an average of 4.5 births per woman in the late 1970s to 2.5 in the new Century. There are several Caribbean nations that are approaching low fertility, meaning less than 1.6 per woman, and Chile seems headed in a similar direction (Guzman et.al., 2006).

Latin America also faces a major skills challenge. While school enrolment rates are generally high in Latin America, there is great unevenness in terms of post-lower secondary level attainment. From the PISA studies as well as the International Adult Literacy Surveys it is quite evident that key Latin American nations, such as Brazil, Chile and Mexico, perform internationally poorly in terms of developing cognitive learning skills. In the 2000 PISA study, the mean Brazilian score is one standard deviation below the OECD mean, a truly huge gap. Similarly, from the IALS data we see that a full half of the Chilean population scored in the bottom quintile in terms of both prose and quantitative abilities.¹ This suggests that youth in the economically most advanced Latin American countries are poorly prepared for the evolving knowledge economy.

¹ In comparison to 7% in Sweden, 14% in Germany, and 21% in the UK and US (OECD, 2000: Table 2.2)

The skills needed to ensure good life chances are rising (and changing) and, despite decades of education reforms, there has been little progress in terms of equalizing opportunities. The impact of social origins on child outcomes persists, and may even strengthen. All this suggests that the pursuit of more equality and future productivity come together. A major challenge is to minimize the dispersion of skills. The foundations of policy lie in the realization that learning abilities are formed very early in life and, most crucially, during the first years of childhood.

From a welfare and efficiency perspective, an optimal policy needs to address both n and q , to use Gary Becker's terminology for the quantity and quality of children, respectively. Such policy will need to consider at least four issues: one, the obstacles to parenthood in the first place; two, the uneven capacity of parents to invest in children; three, the impact of mothers' employment on child outcomes; and, four, the potential benefits of early pre-school programmes.

1. The n and q Challenge

In Western civilizations the family is treated as a sanctuary of privacy and intimacy, a 'haven in a heartless World' wherein outside authorities must not interfere. The contemporary family does poorly on many welfare indicators and this has spurred a reassessment of the role and aims of family policy. Paternalistic approaches will without any doubt fail on legitimacy grounds. In any case, the main issue is not that citizens behave wrongly but that they encounter major obstacles in the pursuit of realizing their preferences. The real challenge is to forge policies that enable families to attain their private goals and, simultaneously, produce public goods.

Families create very important social externalities. Klevemarken (1998) has conservatively cashed out the average monetary value of parenthood at around \$22-29,000 for Swedish families. This is, in aggregate terms, equivalent to 20% of GDP. We have estimates from the US that the social value of an average child is equivalent to \$100,000 on a lifetime basis (Preston, 2004). There is undoubtedly a lot of dispersion around this average. The substantial returns that wonder-kids yield must be held up against the potentially large net cost of the failures. For example, the price of one year's incarceration in the US hovers around \$50,000. Poverty is one factor that promotes failures. Recent calculations show that the societal cost of child poverty in the US is equal to 4% of GDP, due mainly to the link between poverty and school outcomes, health, and criminality.²

Demographic aging means that there is a growing premium on maximizing fertility. All evidence shows that citizens desire to have at least two children. It is also evident that this desire is increasingly difficult to satisfy; parenthood has become more difficult to reconcile with other objectives. If, however, the average family ends up with no more than 1.3 children, our population will shrink dramatically.

² Testimony by Harry Holzer (Urban Institute) before the House Committee on Ways and Means, January 24, 2007.

Family formation –optimizing n

To come to grips with contemporary fertility we need first to recognize the large gap between preferences and reality. From several studies we now know that citizens by and large remain faithful to the two-child norm, stating a preference for 2.2-2.4 children on average in almost all countries (Sleebos, 2003). The distance to actual fertility ranges from substantial to dramatic. In Southern Europe, fertility seems stuck at 1.2 (with some regions at 0.8), and the EU mean is 1.5. The Nordic countries, with France and the UK, occupy the high end of European fertility (about 1.8); the US is a rare case of reproduction fertility.³ If, as these numbers suggest, citizens cannot form the families they aspire towards we have identified a truly problematic welfare deficit.

Low fertility accelerates population aging, and even minor differences in equilibrium fertility will have huge long-term effects. While a TFR at 1.9 produces only a 15% population decline over the Century, a TFR of 1.3 will result in a population that is only 25% of its present size (McDonald, 2002). To illustrate, Spain's population will drop to only 10 million. And due simply to differences in fertility, the Spanish old age dependency ratio in 2050 will jump by 138% compared to Sweden's 36% increase. The associated macroeconomic consequences can be non-trivial. ECOFIN estimates that aging-cum-population loss will lower EU GDP growth by 0.7% points a year (McMorrow and Roeger, 2003; Sleebos, 2003).

For policy we need to know what lies behind the child gap. In the conventional view, fertility was primarily a function of the earnings capacity of the (male) breadwinner, and the opportunity cost associated with motherhood in terms of women's lifetime earnings.⁴ This offers a credible explanation for why low educated and non-active women's fertility was traditionally the highest. But it comes short in contemporary society. Firstly, cross-national data show that the employment-fertility correlation is now positive. The highest rates of fertility are found in countries with widespread female employment, and vice-versa (Ahn and Mira, 2002). Secondly, in some countries – like Spain – the traditional pattern continues to prevail while in others, most notably in Scandinavia, fertility is greater among high educated than low educated women (Esping-Andersen, 2002).

The key to contemporary fertility lies, as all are agreed, in the new role of women and, in particular, in their embrace of a lifelong commitment to employment (McDonald, 2002). This certainly does not imply any major incompatibility with motherhood, as the Nordic countries show. In any case, policy that seeks to boost fertility by inducing women to reduce their labour supply would be massively counter-productive. As I discuss below, poverty is hugely problematic for child outcomes. The probability of child poverty is, however, sharply reduced when mothers work. Low levels of female employment are also associated with lower GDP and more household income inequality (Esping-Andersen, 2007). Using simulations, Pasqua (2002) suggests that Spain's national income would be 15% larger if female employment was identical to the Danish. We should also not forget that financial sustainability in aging

³ The low-low fertility syndrome is increasingly also spreading to East Asia and Latin American countries, too. Barbados and Cuba's fertility stands at 1.5-1.6, a rate similar to the EU average. Chile's fertility has been dropping steadily in the past decades and stands now at 2.0, slightly below the US level.

⁴ Hotz et.al. (1997) present an excellent overview of fertility theory and research.

societies requires maximum female employment. The good news is that a growing majority of women insist on having jobs and being economically autonomous.

The quest for children must accordingly be pursued co-jointly with women's new role. This implies, firstly, that the male's role as breadwinner will diminish in importance while the opportunity costs of motherhood become more crucial. It is well-established that the child penalty rises with mothers' earnings power. As a rule of thumb, postponement of first birth reduces the opportunity cost substantially and this explains, of course, why, in all countries, we observe postponement of births. The data in fact suggest that postponement is especially pronounced where reconciliation is most difficult (Gustafsson, 2001; Kohler et.al., 2002). It is accordingly not surprising that Spain heads the postponement rankings with 31 as the mean age of motherhood.

Delaying motherhood need not result in low fertility; it all depends on catch-up. In Denmark and Italy, age of first birth is identical (at 29) and yet Denmark ends up with a 50% higher fertility rate. Differences in childlessness cannot account for such variation. Basically the issue boils down to the conditions that favour or disfavour second and higher order births. And, as is well known, the problems of reconciling motherhood and careers are relatively modest for one child but mount decisively with 2+ children.

The main preconditions for catch-up and, hence, for arriving at fertility rates that match preferences are now well-documented. Not surprisingly, most attention has centred on child care and maternity leaves. Child care helps minimize interruptions around births and is one major way to reduce opportunity costs. The price of unsubsidized quality child care is inevitably steep, typically around 4-500 Euros per month on a full day basis. This means that lower income families are priced out of the market. It also implies an essentially regressive tax on female labour supply. There is empirical evidence that child care raises fertility (Blau and Robbins, 1998; del Boca, 2002; Aaberge et.al., 2005). For Norway, Kravdal (1996) found that a doubling of child care raises the TFR by more than 0.1 point. Knudsen (1999) estimates that universalizing child care in Denmark helped raise the TFR from 1.5 to 1.8. The effect of leaves is more ambiguous. If they are too brief (as in Spain), many mothers simply abandon employment; if they are overly long, the same may ensue (Gauthier and Hatzius, 1997; Billari et.al., 2002; Esping-Andersen, 2002; Meyers and Gornick, 2003; Del Boca, 2003).

There is now growing awareness that the standard family-friendly policy is a necessary but also insufficient condition for fertility. To begin with, all evidence suggests that income transfers to families with children have no real impact on births. This suggests that monetary compensation for the cost of children has no real bearing on the decision to form families. The crux lies in work-family tensions. To the extent that women increasingly condition births on first having a secure employment relationship, job precariousness becomes a major impediment. There is strong evidence that fertility suffers when women are on temporary contracts or are unemployed. In contrast, being employed in the public sector raises fertility (Esping-Andersen, 2002; De la Rica and Iza, 2004; Baizan, 2004).

Finally, and perhaps most importantly, the role of the male partner as breadwinner is becoming ever less crucial for fertility decisions while, at least for career women, his contribution to home production becomes salient (Del Boca, 2003; Esping-Andersen et.al., 2007). Essentially, as the opportunity cost rises, the mother will attempt to reduce housework

and caring time so as to maximize market hours. Her capacity to persuade the father to substitute depends in large part on her bargaining power. This is what we see in the Nordic countries, but similar research on Southern European couples fails to identify any substantial substitution (Alvarez and Miles, 2003). Where traditionalist gender norms predominate there will be less room to press for more gender equality in home production. If so, the choice menu for women with career commitments easily ends up zero-sum with regard to both partnership and motherhood: either accept major career penalties or renounce on marriage and children.⁵

All in all, it would appear that family formation in advanced societies is becoming subject to a set of qualitatively new rules. As McDonald (2000; 2002) in particular emphasizes, it pretty much boils down to gender asymmetries within the household. Women are gaining ground relatively to men in terms of their command of economic resources and their capacity to exercise autonomy. To illustrate, the average Danish woman now contributes 43% to total family income. The tempting conclusion is that women increasingly hesitate to become mothers if traditional gender norms continue to prevail within the family.

Translating these insights into a policy making framework, the promotion of socially optimal fertility should centre on policies that, firstly, diminish the penalty of motherhood (here affordable child care is crucial) and, secondly, that ensure mother-friendly employment conditions. We might very well add a third, namely policy that helps create more symmetry and less specialization in home production. In Section 2 I address the feasibility of policy.

Skills and Children – optimizing q

Skill requirements are rising and this entails that a poor start is likely to result in low earnings, precarious employment and, further on, in inadequate retirement wealth. Also the social value of children should rise, not least because small cohorts must shoulder huge dependent populations. By mid-Century, the EU working age population will diminish by almost 50 million while the elderly population will grow by 50%. Sustainability will depend on maximum participation and on the quality of our human capital stock.

Rather than focusing on raising the mean skill level, our concerns should centre on its dispersion. I take it as given that no one prefers a skill scenario with ‘islands of excellence in a sea of ignorance’. The model that most would favour would combine a high skill mean with minimal dispersion. The proportion of today’s youth with inadequate skills signals the likely size of tomorrow’s social exclusion problem.

A quick glance at today’s youth suggests substantial international differences. I present two telling indicators in Table 1: the share of young adults with no more than compulsory education (ISCED 1-2), and the ‘cognitive’ performance among 15 year olds from the 2000 PISA study.

⁵ This feature was also noted by Hakim (2003) in her comparison between British and Spanish women.

Table 1. A Skill Profile of Tomorrow's Workforce in Representative OECD countries.

	% with only ISCED 1-2 (age 20-24)	PISA (Math) Performance:		
		mean score natives	% below PISA minimum	%PISA 'Elite'
Denmark	15	521	15	8
Finland	8	547	7	19
Germany	15	527	21	9
Netherlands	22	552	10	
Spain	31	487	19	4
Sweden	10	518	12	11
UK	8	511	13	16
US *)	20	499	18	12
Mexico	44	422	44	1
Brazil	34	396	55	1

ISCED data from OECD (2003: Table C5.2). European PISA data directly from raw data files. PISA elite refers to the percent scoring in the top 5th level (in mathematics). Elsewise from OECD (2003).

*) The US figure refers to those who did not complete highschool (12%) plus those who obtained only GED diplomas (8%) (Haveman et.al., 2004: Table 4.8).

Falling below the PISA minimum implies cognitive dysfunction in understanding even basic information. The size of this group is alarmingly large in Brazil and Mexico, and about a fifth in Germany, Spain and the US. Considering the far smaller group in Finland and the Netherlands, there is clearly ample scope for reducing the problem. The early school-leaver group is, in some cases, huge and could likewise be limited to less than 10 percent. Since unemployment – and especially long-term unemployment – is more than twice as high among those with less than upper secondary schooling, this indicator also signals the scope of the problem that may lie ahead. Low cognitive test scores are similarly associated with a high incidence of unemployment (OECD, 1997).

A striking feature is that the skill dispersion seems unrelated to a country's mean performance. In other words, greater homogeneity need not be achieved at the expense of inferior standards. Finland suggests that polarization can be minimized even when the average performance is very high.⁶

There are, however, structural trends that to varying degrees jeopardize the pursuit of an optimal skill profile. One menace comes from rising income inequality and how it influences the opportunity structure. At one extreme we see top income households distancing themselves from the middle, in part because of rising returns to skills and, in part, due to

⁶ See also Woessmann (2004)

concentrations of high-earning dual-career couples. At the other extreme, low-educated couples face high probabilities of low income and joblessness (Katz and Autor, 1999; Karoly and Burtless, 1995; Juhn and Murphy, 1997; Burtless, 1999; Gregg and Wadsworth, 2001; Hyslop, 2001).

As inequality rises, parents' capacity to invest in their children will become more unequal. Most importantly, the effect is non-linear, especially pronounced at the top and bottom of the pyramid (Couch and Lillard, 2004). The rich can buy a secure future for even the least gifted offspring; the poor become ever more distanced from the opportunity structure. The often substantial – and rising – child poverty rates in many OECD countries and, of course, also in Latin America clearly warrant concern (Smeeding, 2004).

Another menace comes from demographic change -- particularly family instability with more lone parenthood and immigration – which is similarly likely to heighten inequalities in child outcomes. To illustrate, in Sweden the school system has ambitiously sought to rectify immigrant children's learning disadvantages and, yet, the probability of school failure is roughly 5 times higher for immigrants than for natives.⁷

Skills and the knowledge economy

There is substantial controversy over which skills are salient. The need for formal education continues to rise, and we can probably assume that upper-secondary equivalent qualifications will be *sine qua non* for any decent job. Yet, standard earnings regressions show that formal education is only a very small part of the story. As Juhn et.al. (1993) suggest, the rising returns lie mainly in unobserved abilities. Much attention has, for obvious reasons, focused on cognitive skills. Cognitive stimulation in early childhood is, to begin with, determinant for school success. Additionally, knowledge intensive production implies the capacity to understand, interpret and apply information. Farkas (2003) and Pryor and Schaffer (2000) insist that cognitive skills are becoming key to economic success. Carneiro and Heckman (2003) emphasize the centrality of non-cognitive abilities, such as initiative, communication skills or the capacity to plan ahead.

Green and Riddell (2001) and Esping-Andersen (2004) have re-estimated standard earnings equations with the inclusion of data on cognitive skills and find, for Canada and the US respectively, that the cognitive variable: a) reduces the education effect by 30 percent; b) eliminates the negative effect of immigrant status; and c) it increases the explained earnings variance by almost 20 percent. While it is evident that cognitive abilities are a precondition for school attainment, it is also clear that they tap a human capital dimension that is distinct from formal educational attainment.

As with an array of other difficult-to-observe abilities, cognitive skills are partially transmitted genetically and partially the result of nurturing – that is, of environmental stimulus (Bowles et.al., 2001; 2005; Bjorklund et.al., 2005). Carneiro and Heckman (2003) are undoubtedly correct in stressing the importance of non-cognitive skills, too. Yet, such are

⁷ This evidence derives from the author's participation in an OECD mission to Sweden in February 2005.

likely to be as strongly correlated with parental stimulus as are cognitive skills. Since both abilities influence school success and, subsequently, adults' life chances, the policy challenge is to ensure a strong start for all children. Virtually all research concludes that early childhood is key and, as a result, that the really important mechanisms lie in the family environment (Brooks-Gunn et.al., 1997).

In order to assess the returns to early childhood investments, Carneiro and Heckman (2003) propose an accounting method that is persuasive since it incorporates the positive synergy effects (learning begets learning) of early investments on the cost of later ones. The rate of return rises exponentially the younger is the child, suggesting that pre-school and early-school investments yield dis-proportionally high net returns. If the standard rate of return to schooling hovers around 10 percent (Card, 1999), we could anticipate returns to pre-school investments that are possibly more than twice this magnitude. And if, as Card suggests, the marginal returns are much greater for those who are most likely to fail in school, then early investments should produce a homogenization pay-off, an equal opportunities gain.

Research shows that inequalities in schooling and career attainment remain powerfully influenced by social origins – especially in the early stages (Shavit and Blossfeld, 1993; Karoly, 1998; Breen, 2004).⁸ There are four major mechanisms that individually and jointly influence opportunities: family income, family structure, parental dedication, and what we might call 'cultural capital', or the learning milieu within which children grow up.

The Impact of Income

The influence of income inequality on life chances is inherently ambiguous. Inequality should, on one hand, create incentives for people to invest in more human capital and, more generally, to be more motivated to get ahead. On the other hand, the prevailing level of inequality in the parental generation will influence the distribution of parents' capacity to invest in their children. The impact of family origins on children's life chances should be positively associated with the degree of inequality. The standard assumption behind postwar policy was that equalizing access to all levels of the education system (especially via public financing and targeted subsidies) would prove 'paretian' in the sense that it would cancel out the effect of parental resources on human capital acquisition with no need to alter the earnings or income distribution.

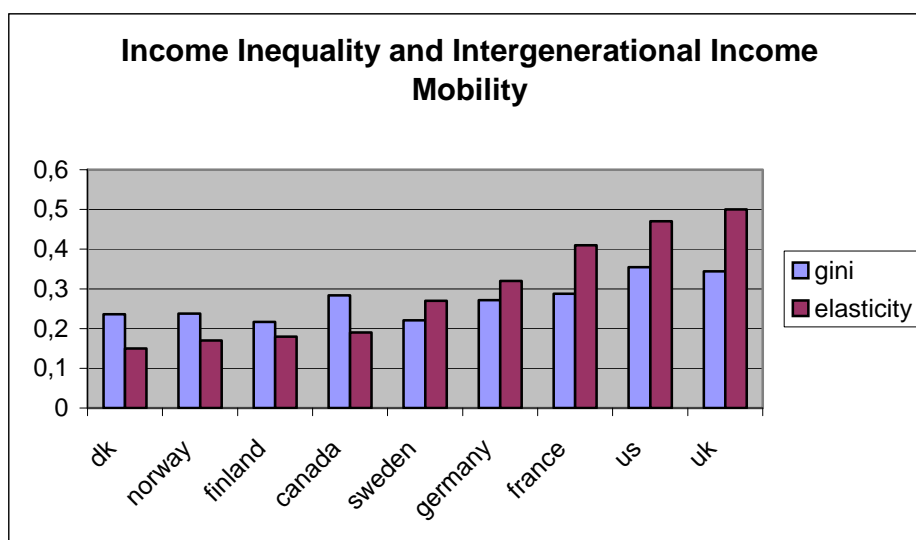
Recent research on inter-generational income mobility suggests that this has been an overly optimistic assumption.⁹ In the US, the UK, and France the association (elasticity) of parental income on children's income (as adults) is exceptionally strong, especially in comparison to the Nordic countries.¹⁰ As shown in Figure 1, the association lines up near-perfect with the Gini coefficient of income inequality.

⁸ We have very little comparable data on social inheritance effects for Latin American countries. The international TIMMS studies of children math and science abilities include Chile and Columbia. Regression estimates on these data suggest very strong social origin effects on children's performance in Chile, but not in Columbia. The social origin effect for Chile is roughly similar to the US, but about 50% stronger than in Denmark or Spain.

⁹ For an overview, see Solon (1999) and Corak (2005).

¹⁰ Research on the link between social origins and educational, as well as occupational, attainment shows a rather similar profile: social inheritance effects are substantially weaker in the Scandinavian countries than elsewhere.

Figure 1. Income Inequality and Intergenerational Income Elasticities^{*)}



^{*)} Income inequality is the Gini coefficient for disposable household income in the mid-1990s. Intergenerational mobility is the elasticity of parental income on children's income. Source: Ginis are from Luxemburg Income Study, Key Figures; Parent-child income correlations, from Corak (2005)

We can say nothing about the causal direction between inequality levels and mobility. The twain are bound to reinforce each other in any case. The point is that welfare and efficiency concerns coincide. From an equity perspective, childrens' life chances should depend less on the lottery of birth than on their own latent abilities. From an efficiency point of view high parent-child income correlations imply that society is under-investing in a sizable share of its children (and possibly also over-investing in some).

The single most important point lies in the non-linearity of the association and, in particular, in the adverse effects of poverty. US research estimates that poor children will have two years less schooling than the non-poor. They are also far more likely to suffer from poor health, engage in crime, and fall into unemployment as adults (Mayer, 1997; Duncan and Brooks-Gunn, 1997). Similar, if perhaps less dramatic effects have been found for Europe, too (Gregg et.al., 1999; Gregg and Machin, 2001; Maurin, 2002; CERC, 2004). For the UK, Gregg et.al. (1999) show that financial difficulties during childhood reduces by about a half children's likelihood of advanced vocational training and poor children are 3 times less likely to attain higher academic degrees. Their study controls for children's cognitive abilities at age 7, which means that the effects are *net* of abilities. The picture is fairly similar in France, but here there are no controls for 'ability'. The likelihood of leaving school with no completed degree is 4 times higher for children from poor as compared to non-poor families (CERC, 2004: 107).¹¹ Poverty is probably

¹¹ Unfortunately the French estimates do not control for children's abilities (via, for example, cognitive test scores)

not simply a question of spending power. As Breen (2001) argues, an additional effect comes from a sense of insecurity that produces risk adversity and may lead parents to curtail children's schooling prematurely. In either case, the result is pretty much the same. Hence, if child poverty and parental economic insecurity rises we should expect adverse consequences for educational attainment and, further along, for employment and earnings in adulthood .

Child poverty is particularly high in lone mother families. The share of children in single mother households now ranges from a low of 5 percent in Southern Europe to a high of 15-20 percent in Scandinavia and North America.¹² Lone mother poverty rates are everywhere exceptionally high, almost 50 percent in the US, and between 30-40 percent in many EU countries. Scandinavia, unsurprisingly, occupies the low end with roughly 10-13 percent. The problematic effects of growing up in lone mother families have been widely documented for the United States (McLanahan and Sandefur, 1994) and the UK (Gregg et.al., 1999). Coleman (1988) reports that US school drop out rates are 30 percent higher in these families. While the effects are clear, it is less easy to sort out the precise mechanisms. Biblarz and Raftery (1999) argue that the adverse effects are mainly related to poor socioeconomic conditions rather than to solo parenthood *per se*. Gregg et.al. (1999) conclude similarly that the negative lone parent effect disappears when controlling for financial distress. Bernal and Keane (2005), in turn, emphasize negative nurturing and socialization effects.

Most research on lone mother effects refers to the US and we should be cautious about generalizing beyond. For one, in the US there is a large over-representation of teen-age and minority mothers; for another, divorce in the US is more skewed towards low-income couples than in Europe. We should also not forget the very high incarceration rate among young American males. In fact, from my own analyses of the PISA data, the strong negative effect of lone motherhood (controlling for immigrant status, SEI, and mother's education) on children's test scores in the US does not extend to most EU countries. Indeed, the results for countries as different as Denmark, the Netherlands, and the UK suggest that children of lone mothers score comparatively better *if* the mother is employed. In line with Bernal and Keane's (2005) conclusions, I will argue below that positive effects of lone motherhood (when she works) are related to the quality of external child-care.

If income matters one would expect welfare state redistribution to have a major effect on opportunities. Government income support to families with children varies tremendously across countries both in scope and generosity (Gornick and Meyers, 2003).The poverty reduction effect is relatively minor in the Netherlands (a 2 percentage point reduction) and the US (about 4 points) and very substantial in the Nordic countries (a 13 point reduction in Sweden) and in France (almost 20 points). The pre-redistribution starting point is of course exceptionally high in the US, and this means that there remain, post-transfer, 22 percent child families in poverty.¹³ In comparison, post-transfer child poverty in the Nordic countries is, in all cases, below 5 percent.¹⁴

¹² From LIS Key Figures (www.lisproject.org/keyfigures)

¹³ The UK is the EU country that most resembles the US in this regard. Pre-transfer child poverty is about 25 percent, falling to 15 percent in terms of disposable family income.

¹⁴ Calculations from Luxemburg Income Study data (see also UNICEF, 2005). Here and throughout I measure poverty as less than 50% of adjusted median household income.

The merits of redistribution are evident if the aim is to minimize poverty, but will it also equalize opportunities? This depends on the degree to which income distribution genuinely influences educational attainment. And even so, a redistribution strategy may incur second-order effects such as reduced parental labour supply. As I shall discuss in the final section, the macro economic cost of lifting all child families above the poverty line is surprisingly modest, and the impact on labour supply is probably not major. But in terms of cost and poverty-reduction effectiveness there is a much stronger argument in favour of, alternatively, supporting mothers' employment, especially at the low end of the income distribution. The incidence of child poverty falls by a factor of 3-4 when mothers work – in particular in the case of lone mothers (Esping-Andersen, 2002; OECD, 2006).

As to the education effect of anti-poverty redistribution, there remains little doubt that it matters. Erikson and Jonsson's (1996) examination of the evidence concludes that the Scandinavian countries' success in diminishing social inheritance over the past decades must be, at least partially, be ascribed to their success in curtailing child poverty and ensuring broad economic security within families. Still, as I explore below, the efficacy of a redistribution strategy – at least if not accompanied by other measures – is doubtful. Indeed, family income may not be the *most* decisive mechanism that drives child outcomes. A formidable rival lies in the familial learning milieu and also in parents' time dedication.

Immigration

Most EU countries have become multi-ethnic very recently but at neck-breaking speed. Traditionally very homogenous countries, like Denmark, the Netherlands or Sweden, now host sizable immigrant populations. It is difficult to sort out the immigrant effect from rival ones but one thing is clear, namely that immigrant children do poorly on virtually all dimensions of skill acquisition. Table 2 presents comparisons of the 'raw' and 'adjusted' immigrant deficit based on analyses of the 2000 PISA survey of 15-year olds' mathematics scores (chosen because they are more culture neutral than literacy test scores). The 'raw' deficit derives from regressions with no controls; the 'adjusted' deficit is estimated by controlling for sex, mother's education, parents' socioeconomic status, and the family's 'cultural capital' (number of books in the home).¹⁵

¹⁵ I focus on mother's education since this is routinely shown to affect child learning far more than father's. Instead of the standard years-of-schooling measure I prefer to use a levels measure based on the ISCED system. I include a sex dummy since girls normally do worse on math tests (and better on reading). The books variable is by far the strongest measure of families' 'learning culture' in the PISA data sets. In fact, it systematically outperforms the SEI (socioeconomic index) variable in explaining test score variation.

Table 2. The Immigrant Deficit in Different Countries (difference from country mean)

	Raw Immigrant Effect	Adjusted Immigrant Effect
Austria	-60	-36
Belgium	-82	-56
Denmark	-33	-17
Finland	-18	-22
France	-33	-20
Germany	-68	-40
Ireland	15	13
Netherlands	-73	-43
Spain	-21	-23
Sweden	-37	-25
UK	-21	-21
US	-35	+14

Source: PISA 2000 data files. Adjusted effect includes controls for mother education, parental SEI, sex, and books in home.

The immigrant deficit is partly compositional since in most cases it narrows substantially when including socio economic controls. It is evident that the gap is modest in some countries and huge in others – in Ireland, immigrant children actually outperform the locals, and this is also true for the adjusted US data. This surely also reflects some interaction effect between immigrant composition and how it meets the host country. We note, for example, that the deficit is especially huge in Austria, Belgium, Germany and the Netherlands while comparatively smaller in the Nordic countries, Britain and Spain --- language or cultural barriers are undoubtedly at work. Along these lines, the Danish-German contrast is informative since the ethnic profile of immigrants is quite similar in the two countries.

In any case, immigrant children clearly risk falling behind in terms of abilities and school attainment. The *net* gap that remains is quite substantial in Belgium and the Netherlands. The raw gap in these two countries is almost equivalent to one standard deviation (89 points in the Netherlands) and with controls, equal to one half standard deviation. This suggests that conventional remedies like income redistribution would be insufficient to close the gap effectively in these countries. In other countries with fairly similar immigrant profiles, such as Denmark or Sweden, the gap (after controls) ends up fairly modest – only a fifth of the standard deviation.

Non-economic effects on child outcomes

The income advantage that two-earner parents produce may be cancelled out by a nurturing loss, i.e. less time dedicated to the children. If that were so, children at the bottom end of the social

pyramid should be relatively advantaged since labour supply among less educated mothers tends to be far lower and housewifery more common. This, however, depends on three other factors. One, on sibling size. With the exception of the Nordic countries, low educated women have more children (Sleebo, 2003). It depends, secondly, on differences in the quality of parent-child interaction and, thirdly, on the quality of external care. There is no doubt that the quality of parental stimulus is powerfully related to their level of education – and of course to their 'unobserved' talents. The trend towards increased educational homogamy at the top and bottom may, accordingly, widen the 'quality-gap' of nurturing.

This seems, in fact, to be the case. The patterns of parental time investment are undergoing rather profound – and surprising – changes. Data from several countries show that, on average, total *parental* time devoted exclusively to children has actually risen since the 1960s. Averages are, however, misleading since they obscure effective polarization (Bianchi, 2000; Bianchi et.al., 2004; Deding and Lausten, 2004). Among the high educated – where mothers typically work – we find that fathers' time investment has risen spectacularly in the past decades. In the US and Denmark, it has doubled, and in the UK almost tripled (Hook, 2006). There has even been an, albeit modest, increase in high educated mothers' time dedication (bought mainly at the expense of leisure). Additionally, the time increase is especially centred on 'developmental' type activities with the children. This suggests that highly educated parents are discounting the value of income or leisure in order to maximize investments in their children. Yet, this does not appear to be the case among lower educated parents and, accordingly, we witness a growing social gap on one crucial dimension of children's cognitive and non-cognitive stimulation.¹⁶

The impact of mothers' employment on child outcomes is a controversial issue, in particular with regard to minimizing career interruptions around births. There is considerable evidence that external care during the child's first year can be harmful (Ruhm, 2004; Waldfogel et.al., 2002). The good news, however, is that motherly employment *after* the first year has no harmful effects *if*, that is, external care is of good quality and *if* her job conditions are stable and not stressful (Waldfogel, 2002; Mayers et.al., 2004). Although the PISA tests refer to 15-year olds, it is nonetheless telling that the effects of mothers' employment (including full-time jobs) are positive in most countries.¹⁷

The quality of parental investment in their children is related to the 'cultural capital' or learning milieu in the family, and this has been shown to have a powerful influence on children's school success (de Graaf, 1998; OECD, 2003). Parental cultural capital is not simply a bi-product of either education or income (school teachers earn little). Cultural capital operates through various channels. One is the transmission of a proper 'middle class' cultural baggage – such as self-presentation or language skills -- to their children. A second has to do with parents' knowledge and appreciation of education and how this helps them make the best school choices for their offspring. Low educated parents may have difficulties in navigating their children through the complexities of an education system, especially if they were early school leavers (Erikson and Jonsson, 1996). A third refers to the quality of parental stimulation. The international PISA data, once again, help shed light on such effects since they include three measures of 'culture', among which 'number of books in the home' is by far the strongest in terms of explanatory power – as also emphasized by de Graaf.

¹⁶ Bonke et.al. (2003) show, for Denmark, that high educated fathers dedicate 5 times more time to child rearing than do the low educated.

¹⁷ Based on the author's own estimations.

My analyses of the PISA data show, for all countries, that cultural capital overpowers socioeconomic status in accounting for cognitive differences among 15-year olds. Comparing the Betas from regression analysis (with standard controls for sex, mother's education, and immigrant status), the 'culture' Beta is always highly statistically significant, and generally twice as strong as the SEI Beta. I use the Dutch regressions to illustrate the point: children from a family with less than 10 books would enjoy a 9% improvement in their reading comprehension if parents were to arrive at the national average (about 40) in terms of books in the home.

The magnitude of the 'culture' problem is related to the size of the parental generation that lacks the resources to adequately stimulate their children's learning abilities. In some EU countries – like Spain and Italy – there remain a very large number of adults with only minimal education. Within the typical parenthood age bracket (35-44), 54 percent of Spanish mothers have no more than compulsory education – compared to only 12 percent in Sweden (OECD, 2003). The leap in female educational attainment will diminish this gap in the decades to come. In Spain, for example, the percent of women 10 years younger with only obligatory schooling is 13 points lower. But we also face counter-tendencies that emanate from the large waves of generally low educated immigrants that, in addition, face multiple cultural and educational disadvantages that can seriously jeopardize their children's chances.

2.Rethinking The Welfare State

How can policy meet the double challenge of supporting family formation and children's skill acquisition? If our aim is the dual one of maximizing n and q , i.e. of supporting fertility and improving skills, there is very good news since on one crucial dimension both objectives will be served by the one and same policy, namely affordable child care. It is an important ingredient in any policy to reduce the opportunity cost of motherhood and a very promising vehicle for ensuring that children receive a strong start in very early childhood.

The problem of reconciliation extends to school age (and beyond), but is especially intense for the ages up to 3. I know of no country where early childcare *provision* is predominantly publicly provided. The Nordic countries pursue a mix of municipally run centres (about 70 percent in Denmark) and co-operatives, often established by parent associations. The model evidently succeeds in delivering broad access since 85% of 2 year olds now attend – 97 percent on a full-day basis (OECD, 2002). At the other extreme, the US manages also to achieve ample coverage with an almost exclusively commercially run system. Yet, only a minority of all centres are of certified quality standard (and are therefore expensive). In most EU countries public child care for the under-3s is extremely scarce and private places are priced out of the range of families below median income.

A major problem with commercial welfare markets is that they easily provoke serious inequities due to information asymmetries and client creaming: choosing the best solution for one's children may require substantial resources (such as knowledge). Thus, less educated and, especially, immigrant families may find themselves handicapped – especially in an environment

where demand exceeds supply. An indirect outcome is social segregation – as Sweden’s ongoing ‘privatization’ of its school system clearly demonstrates.

As regards access, we can distinguish three sets of countries. The Nordic group has now achieved near-universal coverage, which is not surprising since access is legally guaranteed to all families and since municipalities are compelled to uphold the guarantee.¹⁸ In a second group that includes Belgium and France, coverage hovers around 30 percent. Most EU countries fall in the third group, with coverage below 10 percent (Gornick and Meyers, 2003).

The key to equity and adequacy lies, of course, in affordability. Despite public subsidies (via tax credits), British parents’ co-payment is almost half the total cost, and there exist no exemptions for low-income families. This may explain why the ambitious plan to expand supply is faltering. Of the 600.000+ new places created between 1998-2003, more than half have subsequently disappeared because parents could not afford to enrol their children (Evers, et.al., 2005: 202). Comparatively speaking, Sweden probably offers the most generous conditions with a parental co-payment equal to 10-15 percent of total cost. Neighbouring Denmark has a graduated pay scale. Families with less than 60 percent of median income go free and a full fee (equal to 30 percent of total cost) kicks in at median household income. Considering that participation is now *de facto* universal, one would conclude that this is an affordable system for all. The cost is bound to increase as the educational credentials of personnel are raised – unless matched by higher staff-child ratios. As it stands, a saturated supply of day care along the Danish model necessitates public outlays that are equivalent to roughly 2 percent of GDP. Are such expenditures warranted? If, as seems clear, quality child care helps raise fertility and improve child outcomes the remaining issue is simply financial.

We must first of all do the right kind of financial accounting. Rosen (1996), in a very controversial analysis, argues that the public expenditures destined to help reconcile motherhood and work in Sweden are inefficient, yielding a high *negative return* – which he estimates to be about half of the total. His calculations compare the total public expenditures against the total earnings of the mothers of small children. This is, however, a fallacious analysis because it completely ignores how lifetime earnings (and thus also lifetime tax payments) are affected by mother-friendly programmes. A dynamic life-cycle method produces – unsurprisingly – different results.

In Table 3, I present accounts for Denmark derived from a standard Mincer approach to estimating lifetime income effects. To be on the conservative side, my model mother is a full-time low wage earner (2/3rds average wage) who, at age 30, will have 2 children. I assume she will interrupt for 5 years if she does not have access to childcare, whereas if she does she will return to employment immediately after her standard maternity leave entitlement terminates. I also assume that she will remain employed until age 60.¹⁹

¹⁸ In some areas shortages remain. Still, there are only 4000 families on a waiting list in Denmark. In Sweden and, to a much lesser extent in Denmark, municipalities subsidize (licenced) childminders to help meet demand.

¹⁹ It is to be stressed that this is an estimation intended purely as illustration. If one were to weigh future benefits by a discount factor, the net return is likely to be smaller. Also, for high income families the net return might be negative since we can assume that such families would purchase private care in the absence of subsidized public provision. My calculations ignore such dead-weight losses. It also assumes identical labour supply elasticities of child-care for all women. In practice, all this probably does not matter much. If there are any positive gains (both private and public) from child care provision even a zero or (limited) negative return would be warranted.

The example shows that the cost to government of providing pre-school care for two (over a five year period) amounts to little more than half million DKr.(roughly 67.000 euros). Since this allows the mother to return to employment she receives full earnings during the period plus she avoids substantial experience and human capital loss. Hence over her lifetime she will earn about 2.2 million DKr. (about 290.000 euros) more than if she has interrupted. This, in turn, implies that she will pay more taxes on a lifetime basis: an additional 770.000 DKr. (about 103.000 euros). Comparing the additional revenue dividend to the exchequer with the original government outlay on day care yields a net return to government of 260.000 DKr. (35.000 euros) – what amounts to a respectable 50 percent return on the initial investment! The net return would have been far greater had we examined the case of a median wage earner.²⁰

TABLE 3. DYNAMIC ACCOUNTING OF CHILD CARE PROVISION

Assumptions:

- Mother, at age 30-35, has two kids
- she does not interrupt employment (except one year maternity).
- Her wage is 67% of APW, and
- she will continue working until age 60.
- We apply 1.5%p.a. ‘Mincer estimate’ of cumulative loss for 5 year interruption

	D.Kr.
<i>Cost to government:</i>	
2 years in creche (x2)	=168.000
and	
3 years in pre-school (x2)	=342.000
Total	510.000
 <i>Gains to mother:</i>	
(a) 5 years with full earnings	=800.000
and	
(b) life-time wage gain from no interruption	=1.400.600
Total	=2.200.600
 <i>Gains to Exchequer:</i>	
additional revenue from (a)	=280.000
and	
additional revenue from (b)	=490.000
Total	770.000
 Net return to Exchequer	
On original outlay (770.000 – 510.000)	260.000

A very similar study conducted by Price-Waterhouse on behalf of the Blair government arrives at estimates that are very similar to those I present here.

²⁰ Only in the case of high income families might the net return be negative since we can assume that such families would purchase private care in the absence of subsidized public provision.

Note: the price and income data, derived directly from the Danish government, refer to 1995.

The full impact of child care costs on mothers' earnings depends on how they interact with the tax-benefit system. The OECD estimates the regressivity-incidence (or negative work incentive effect) by calculating at what earnings level a mother will have a minimum 25% net income gain from working. Sweden, predictably, has subsidized away the child penalty since the 25% minimum net earnings gain arrives already for wages that are only 40% of average. In contrast, the same 25% gain necessitates a wage level of 75% in the Netherlands and 90% in the UK (Immervold and Barber, 2005).

In brief, subsidizing child care may, in the long haul, pretty much pay its own way via enhanced motherly labour supply. But, as my earlier discussion concluded, child care is a necessary but probably not sufficient precondition for higher fertility. If, as much evidence indicates, fertility also depends on mother-friendly working conditions and greater intra-family gender symmetry policy would need to address these issues as well. In the Nordic countries, employment regulation – in particular with regard to leave entitlements and hours flexibility – as well public employment have been key to the enhancement of mother friendly employment. We cannot assume that this formula, in particular with regard to welfare state employment, will find its way into other countries and a major challenge is therefore to devise (regulatory) policies that grant a modicum of job security and flexibility to mothers. As to gender symmetry in household production, this is unlikely to ensue from legislation. The pervasive failure of Danish men to use their 'father-leave' entitlement is illustrative. The most realistic instrument lies, indeed, not in public policy but in women's intra-household bargaining power that, as is well-established, derives primarily from her earnings and economic autonomy (Lundberg and Pollack, 1996). In other words, any policy that supports mothers' employment should indirectly also induce more symmetry in home production.

Turning to q , there are two major insights from contemporary research that must guide our skill policies. One comes from extensive evaluation research on early intervention and later remedial learning programmes.²¹ The gist of this research is that a strong start in *early* childhood is *sine qua non* not only for successful schooling but also beyond. This is, for at least three reasons, a crucial insight. First, it helps explain why even the best-intentioned education reforms generally fail to rectify performance inequalities. The influence of school milieu and 'neighborhood' factors pales in comparison to the family effect (Brooks-Gunn et.al., 1997). Second, it alerts us to the fact that the key mechanisms lie buried in the very early stage of life, that is when children depend primarily on parental stimulus. Moreover, the cost of later remedial measures is likely to rise in proportion to the initial learning deficit. Vice versa, the effectiveness of later learning is a function of how strong a start the child received – Heckman's learning-begets-learning dictum. And, thirdly, it provides a very important corrective to the narrow monetary approach to human capital investment. As noted, the correlation between income and 'cultural capital' in the parental home is everywhere modest.

Here we come to the second major insight. A policy based exclusively on income redistribution will probably fail if parental time dedication and cognitive stimulus also are key mechanisms

²¹ For comprehensive overviews, see Karoly. (1998;2005), Heckman and Lochner (2000), Currie (2001), Waldfogel (2002) and Mayers et.al. (2004).

behind social inheritance and unequal outcomes. Income support may usefully be regarded as a necessary but insufficient strategy.

Reducing the income effect

The link between low income and children's life chances suggests the relevance of an income redistribution policy. Since both the social and individual costs associated with child poverty are substantial, a redistribution strategy appears attractive for a number of reasons.

If the objective were to eradicate child poverty (defined as less than 50 percent of equivalent median income), the price tag is actually surprisingly small – for the US, with record child poverty, we have estimated it at 0.36% of GDP (Esping-Andersen, 2002). This would appear cheap when considering that the social cost approaches 4% of GDP. But such redistribution would have to be repeated year after year and the *net* benefit should be considered against possible second order effects. Would parents respond with less labour supply? Would it effectively narrow the US school attainment gap of poor kids, which is about 2 years? As to the latter, there is cause for skepticism since the 2-year schooling gap is surely not solely the effect of income but also of unobservables, some of which need not be correlated with being poor, and some of which (say, poor health or teenage pregnancy) may provide the explanation of poverty to begin with.

In any case, the burden on income redistribution would be lessened significantly if, through alternative means, maternal employment were to increase within low income households. As mentioned, the probability of child poverty drops by a factor of 3 or even 4 when mothers are employed. The effect is potentially strongest in lone parent families. It makes a big difference whether, as in Denmark, the lone mother activity rate is about 80% or, as in the UK, only 35%. Kangas and Ritakallo (1998) provide particularly suggestive evidence in this regard. They simulate what France's poverty rate would be with Scandinavia's transfer system and demographic structure. Considering that France approximates the Nordic countries in terms of poverty-reduction efficiency – but not in terms of post-transfer child poverty – it is not surprising that any serious convergence with Scandinavia's low child poverty would have to come from increments in French mothers' employment rate. Let us therefore turn to the correlates of maternal employment.

Mothers' employment

Eradicating financial hardship by raising female employment is clearly a superior strategy because it produces major simultaneous gains. Maximum female participation is, to begin with, a precondition for long-term financial sustainability in our aging societies.

But the gains may be offset by the potentially adverse consequences for 'nurturing'. If we take seriously the finding that external care during the child's first year can be harmful, policy would need to ensure a combination of paid leaves that approaches the one year duration. Sweden and

Denmark occupy one extreme while the US represent the other with no paid leave whatsoever. Most EU countries grant about 4 months.²² Table 4 below provides an overview.

Very brief leaves can be doubly problematic. They may push mothers back to work very early. To illustrate, 60% of new Dutch mothers return to work within 6 months of birth, while the vast majority of Danish mothers return within 10-14 months (Simonsen, 2005). Overly brief leaves may also provoke exit from employment. About 25% of Dutch mothers simply disappear from the labour market while the Danish percent is negligible (Gustafsson and Kenjoh, 2004). Research on the lifetime income penalty of interruptions for the 'median woman' shows that the one-year interruption norm in Denmark is not associated with any major lifetime income loss – assuming continued employment until age 60. In contrast, the median German woman typically interrupts 5-6 years and suffers, as a consequence, a lifetime income penalty of almost 50% (Sigle-Rushton and Waldfogel, 2004; Esping-Andersen, 2007).

The cost of a one-year paid child leave is relatively steep and rises of course with levels of female employment. Using the OECD's SOC-X data, the cost is about 0.6% of GDP in Denmark. To evaluate this we need, firstly, to recognize that it is also an investment in mothers' labor force attachment and hence in their career earnings capacity. According to Ruhm's (1998) estimations, paid leaves increase female employment rates by 3-4 percent. Waldfogel et.al (1999) show that mothers with paid leave have higher post-leave wages. In part, therefore, the cost of longer leaves is recuperated further on via enhanced career earnings and tax payments. Employment exit due to overly brief leave entitlements is also skewed towards less educated and low income mothers – precisely those whose added income is important to minimize child poverty.

Finally, we must evaluate the cost in terms of the positive child effects of parental presence during infancy. As discussed, motherly employment during the first year can be harmful for child health and cognitive development (Rhum, 2004). Waldfogel et.al. (2002) find persistent negative effects up to school age, in particular within white, low income families. These and other studies add one crucial modifier, namely that the quality of mothers' jobs matters. Long and irregular hours, as well as work-related stress, are especially harmful.

If we look beyond the first year, the major obstacle to mothers' employment lies in access to child-care. The public expenditures required to furnish affordable quality care appear steep, as the Danish figures in Table 4 suggest. But, as argued earlier, the cost is pretty much neutralized when we use a dynamic accounting method.

²² Here paid leave implies a replacement rate that is superior to 50% of earnings. This criterion is important since the opportunity cost of extended leaves would become very high for most mothers in case of replacement levels inferior to this level. If we were to include unpaid leave entitlements and policies that provide substantially lower income replacement, most countries (including the US) would appear more generous, some extremely so. France, for example, permits up to 33 months parental leave (but at low replacement rates). For an overview, see OECD (2006: Table 1.1).

Table 4. Public Support for Families and Employed Mothers. Ca. 2004

	Duration of Paid Leave (weeks) *	Public Spending on ECEC (ages 0-6) (%GDP) **)	Cash benefits to child families (%GDP)
Denmark	11	2.0	1.5
France	4	1.0	1.5
Germany	4	0.5	1.1
Netherlands	4	0.5	0.7
Italy	5	0.4	0.6
Sweden	16	1.7	1.8
UK	4	0.5	1.9
US	0	0.5	0.1

***) only leaves that provide replacement rates above 50% of earnings**

****) ECEC is early childhood education and care**

Source: OECD (2006: Tables 1.1 and Annex C)

We need of course also to consider how child-care influences overall labour supply. Gustafsson and Stafford (1992) and Simonsen (2005) find positive employment effects for Sweden and Denmark, respectively. Simonsen's study suggests a 0.08% decrease in employment for every one-Euro increase in price. Both studies emphasize the importance of homogenous product quality and suggest that the more ambiguous estimates based on US data may be due to the highly uneven quality within the US child-care market.

A strategy that prioritizes maternal employment via mother-friendly policy needs also to consider labour market regulation. Employment protection tends to favour those who already have stable jobs, but easily at the expense of those who have the loosest connection to employment and those with little experience – namely first-job seekers and, especially, women workers (Nickell, 1997; OECD, 1999; Esping-Andersen and Regini, eds. 2000). Job security is an important precondition not only for fertility but also for positive parenting. Mothers tend to be young and this means that they are particularly likely to be 'outsiders' or precariously employed in rigidly protected labour markets. Scandinavian research shows that even high educated mothers are willing to trade off higher lifetime earnings for more job security (Jensen, 2002). But this assumes of course that such jobs are available.

This is precisely the Danish scenario, namely an unusually unregulated labour market accompanied by a large and far more mother-friendly public sector job hierarchy.²³ While

²³ To this it is important to add that the Danish 'flexicurity' model works because flexibility is matched by strong income guarantees and generous activation measures.

welfare state jobs range across the entire skill distribution, their growth is very favourable for less skilled women since it is very much driven by demand for family care services. Hence, to a degree the policies that will boost female employment to begin with will also create a labour market.

Strengthening mothers' bargaining power

A strategy of income redistribution combined with support for maternal employment will not come cheap. But it can produce one additional, non-trivial indirect effect that should be incorporated in any serious cost-benefit contemplation.

Two kinds of parental child investments are likely to be influenced by the relative bargaining power of the spouses. For both less developed and advanced countries it has been shown that family spending on children increases as a function of mothers' control over financial resources (Lundberg and Pollack, 1996). Exploiting a semi-experimental situation in which the British government changed its family support policy so that all transfers were paid into the mother's bank account, Lundberg and Pollack found a substantial intra-familial re-allocation effect in favour of child-related consumption. The large gaps in time dedication to children that exist between high and low educated fathers are arguably also related to wives' bargaining power. Using the ECHP panel data for Denmark, I estimate the impact of wives' relative earnings rate on husbands' time dedication to caring for the children. The effect is substantial: for every 100 Euro addition to the mother's relative wage, the father will contribute an additional 24 minutes of child care – allowing for virtually symmetric substitution. We should also note that high educated mothers –despite substitution – invest strongly in caring for their children. See Table 5.

Table 5. Bargaining and Gender Symmetry in Homeproduction. OLS estimates (Denmark)

	Father Care Time	Mother Care time	Total Parent time
Constant	73.76*	116.18***	202.23**
Mother's Relative wage (x100)	.24**	- .26**	.01
Mother high Educated	1.84	8.49***	11.22**
Mother low Educated	- 3.98	7.95*	4.84
Father high Education	.24	- 1.73	- 1.89
Father low Education	- 2.41	- 1.60	- 4.31
Married	2.18	1.69	3.99
logY HH	- 5.04	- 5.37	- 10.85
Daycare	13.06***	- 10.72***	- 2.56
Child < 1 year	4.97*	2.82	3.09
N=	704	618	617
R² =	0.08	0.09	0.03

Includes only couples with a child < 6 years.

Source: ECHP

The finding that mothers hold a stronger preference than fathers in favour of monetary investments in children seems, therefore, to extend also to *fathers'* time investments. But there is no clear evidence that wives' enhanced bargaining power will automatically translate into greater total dedication. Mothers use bargaining to substitute with more leisure or market work. Greater total dedication comes primarily from highly educated mothers.

All these findings, it should be stressed, are preliminary. In fact, research on this topic is in its infancy. Perhaps the single most important effect will come less from augmented parental time dedication and more from the participation in (quality) day care among children from less educated households. On this count the policy implications are evident.

The most relevant source of bargaining power lies in the partner's degree of economic autonomy, in the extent to which he or she can exit without incurring a substantial welfare loss. We should accordingly expect that policy that supports mothers' employment and which, in particular, helps maximize their lifetime earnings capacity would be effective. The difference in women's contribution to household income is quite substantial across the income distribution. In countries like Denmark, their contribution in the top quintile is about 3 times as large as in the bottom. Where, as in Ireland and the Netherlands, low educated women are far less employed, top-quintile women contribute almost 7 times as much (Maitre et.al., 2003). Focusing solely on relative earnings shares, the bottom-quintile Dutch women contribute only 19% (calculated from the 1996 ECHP wave).²⁴ In contrast, women in the top quintile tend to account for a much larger share of total wage income (roughly 30% in countries like the Netherlands, the UK, or Germany). There is also an evident lesson to be learned in terms of the design of family income support policy, namely that family allowances and the like should as a rule be directed to the bank account of mothers.

Even if augmented bargaining power would have little effect on child investments, it should have other positive effects. Firstly, the promotion of employment among less educated women, can, for one, counteract rising inequalities in household incomes and thereby be positive for inter-generational mobility. Two, it should stimulate more gender equality in time use.²⁵

Homogenizing the learning milieu

Standard theory of child investment also stresses the quality of parental dedication (Becker and Lewis, 1973). The theory holds that public financing of education should diminish the monetary effect. We now realize that this was an overly optimistic assumption, and that truly effective policy needs to be directed at the pre-school stage both with regard to the income and 'culture' effects. As to the latter, one might readily conclude that it lies entirely outside the competence of policy. How, we might ask, can policy induce parents to read with their children or censure television viewing?

One important clue comes, once again, from the large (especially US) early intervention literature. Evaluation research suggests that very early, high-quality intervention on behalf of at-risk children has substantial and lasting effects in terms of improved social integration, less delinquency, and more schooling (Karoly, 1998; Currie, 2001; Kamerman et.al., 2003; Karoly

²⁴ The equivalent shares are 23% in France, 39% in the UK, 26% in Germany, and a low of 13% in Spain. The wage rate is a superior measure of bargaining power since it captures what a person *could* earn under varying labour supply assumptions.

²⁵ Alvarez and Miles (2003) question the positive impact of wives' earnings on husbands' contribution to home production for Spain concluding, instead, that traditionalist gender norms predominate over rational joint welfare maximization. One should assume that wives' bargaining power begins to be effective only beyond a minimum threshold. Considering the relatively low earnings of Spanish women and the virtual absence of mother-targeted family benefits, Spanish wives may fail to arrive much above such a threshold.

et.al., 2005). The Perry pre-school programme, which emphasizes early intervention with high quality services targeted to underprivileged children, appears particularly effective in terms of both child outcomes and cost effectiveness. Carneiro and Heckman (2003: 165) suggest that through age 27, it yields a \$5.70 return for every dollar spent – much of this due to less criminal behaviour.

Such findings can perhaps not be uncritically generalized to Europe where inequalities in child conditions are less extreme. But the crucial point is that early intervention programmes that include strong behavioural and cognitive stimulus can be effective in equalizing outcomes, especially to the advantage of the most-at-risk.

Here again, the experience from the Nordic countries can be of relevance – for good and bad. Denmark and Sweden began in the late 1960s a massive – and very rapid – expansion of pre-school institutions aimed at securing universal access – a goal by and large achieved by the 1980s. The policy was actually not cast in terms of investing in child outcomes but rather as an instrument to reconcile motherhood and careers. But in order to cater to the tastes of middle class families, it ensured that standards were high. Denmark, for example, stipulates a 3:1 child-personnel ratio for the under-3s.

Nordic child-care policy learned many lessons along the way. Until the 1990s, for example, children were not eligible if the mother was on maternity leave or in receipt of unemployment compensation. This had the undesirable consequence that many of those children who might benefit the most were excluded, considering the selection effects behind unemployment, inactive status of mothers, and high fertility. In recent years, policy makers have tried to make it especially attractive for immigrant and unemployed parents to place their children in public centres.²⁶ A second lesson was that parental leaves and childcare needed to be better synchronized. Until the 1990s, the combined maternity-parental leave in Denmark covered little more than 6 months, which meant that a very large percentage of infants were placed in crèches very early.

For these countries we lack systematic impact studies of pre-school participation.²⁷ Indirectly, however, there is evidence to suggest that the arrival of universal pre-school attendance is associated with a significant equalization of school attainment and, one can argue, also with the comparably quite homogeneous performance on PISA (and similar) tests. In an earlier study I used the IALS data to compare social origin effects on school attainment across birth cohorts (Esping-Andersen, 2004). The study included three Nordic countries, Germany, the UK, and the US. For the latter three countries, I found persistent social inheritance effects across cohorts born in the post-war years through the 1970s. In other words, parent-child attainment correlations did not decline over the past half Century. In contrast, there is a very significant decline in the association in all three Scandinavian countries, and the drop occurs primarily in the youngest cohort – the first to enjoy near-universal participation in child-care. Most telling, perhaps, is the attainment profile of children of very low educated parents. Table 5 focuses on upper-secondary school attainment but the results are quite similar for tertiary level education. Similar to Gregg et.al.'s (1999) study, I estimate effects *net* of abilities

²⁶ Denmark is currently experimenting with 'affirmative action' policies, such as bussing immigrant children out of high-immigrant concentrated neighbourhoods.

²⁷ Andersson (1992) provides a rare exception showing that, in Sweden, day care has positive consequences for child development, especially in case of less privileged families.

(measured by cognitive test scores). This means that we are closer to capturing the ‘real’ impact of social inheritance. I also control for sex and immigrant status. The table presents logistic odds ratios of a child from a low educated background attaining upper-secondary schooling. To interpret the coefficients, the reference is having a father with ISCED 3 or above.

Table 5. Low Educated Father Effects: Upper-secondary level attainment, controlling for cognitive test scores, sex and immigrant status (Log odds ratios)

	USA	UK	Denmark	Norway	Sweden	Germany
Cohort 1	.115***	.185***	.449**	.661*	.320**	.094***
Cohort 2	.097***	.153***	.248***	.447**	.164***	.067***
Cohort 3	.133***	.162***	.213***	.205***	.091***	.098***

Data source: IALS (International Adult Literacy Survey). Cohort 1 is born 1970-75; cohort 2, 1955-64; cohort 3, 1945-54. The cognitive test scores refer to reading comprehension. Reference group for estimations is fathers with ISCED 3 or more.

Significance levels: * = 0.5; ** = 0.1; *** = 0.05 or better.

Comparing across the cohorts we see that the equalization of chances has been especially strong in Norway and Denmark. To illustrate, for the youngest cohort (1) the chance of a Danish kid (of low educated fathers) to attain upper level schooling is twice as high as for one from the oldest cohort, and 4 times greater than for a similar US or German child. These results do not, of course, tell us whether equalization was due to child care, income redistribution or, most likely, a combination of both. Unfortunately, the IALS data provide no income information. But the coincidence of timing is at least suggestive.

The PISA data provide some additional – suggestive – evidence. If early child-care were to compensate for unequal cultural capital, we would expect that the latter’s explanatory weight would be systematically lower in the Nordic countries than elsewhere. The reasoning is that participation in child-centres that are of similar quality across-the-board should, so to speak, help cancel out the stimulus gap that children from low educated and culturally weak homes suffer. In Table 6, I again use the 2000 PISA math tests and rank countries according to the Beta coefficients for the parental cultural capital (books) effect obtained from OLS regressions. Including also SEI Betas allows us to make some assessment of the relative – and combined – impact of cultural capital and economic status.

Table 6. The relative impact of parental ‘money’ and ‘culture’ on children’s math performance. Beta coefficients from OLS regressions.

	Cultural capital	SEI
Finland	.11	.10***
Denmark	.17***	.11***
Sweden	.19***	.21***
Belgium	.19***	.16***
France	.21***	.13***
Germany	.23***	.15***
UK	.23***	.19***
Netherlands	.24***	.13***
Ireland	.25***	.13***
Spain	.27***	.09***
US	.27***	.19***

Source: PISA 2003. Regressions include controls for sex, immigrant status, mother’s education, and lone motherhood. Statistical significance notation as in Table 4.

The results, albeit somewhat ambiguous, do point in the anticipated direction. The Nordic ‘cultural capital’ Betas are uniformly low – but that is also the case in Belgium. In fact, the Finnish culture Beta is not even statistically significant – the only country in the PISA study where this is the case. Belgium (with France) we should note, boasts the EU child-care enrolment level that is closest to Scandinavia. With the surprising exception of Sweden, we also note that socioeconomic status plays an unusually small role. In other words, these data, too, are suggestive but not much more than that.

The PISA data permit yet another indirect measure of child-care effects since it includes information on whether children participated in pre-school education. For most countries such attendance is associated with a major improvement in math test scores (in Denmark, a 40 point – or 10 percent – gain).²⁸ Additionally it diminishes the explanatory importance of SEI and ‘books’ and also the adverse consequences of being immigrant child or having a low educated mother.

From a cost-benefit perspective, almost any non-trivial gain for child outcomes would merit the policy if, as I argue for Denmark, pre-school care practically pays its own way due to superior female lifetime earnings. Any positive learning or behavioural effect that it yields comes, so to

²⁸ Pre-school enrolment does, however, have no statistically significant effect in the UK or the US, perhaps because child care in these countries is of more uneven quality or because of selection effects whereby attendance in quality programmes is biased in favour of already resourceful children.

speak, gratis. In such a context, the evaluation exercise need only examine the marginal learning effects of any improvement in the quality (say teacher-child ratios or pedagogical content) of the system, or of any outreach to needy children (such as those from immigrant origin).

For policy, a central question is whether to opt for targeting or universal provision. If our primary aim is to level the playing field, a targeted approach would appear the more cost-effective alternative. It is well-established that the gains to early childhood investment are especially large for the most underprivileged. The choice for or against targeting depends, firstly, on the value we place on equity in the broadest sense. Targeting services to the most under-privileged children can, as US experience shows, narrow the performance gap for those at the very bottom, but unless targeting is very amply defined it will not necessarily result in overall greater homogeneity of life chances. The US Head Start programme reaches only about 7% of 3-year olds, or roughly half of those who are entitled, and thus falls far short of reaching the entire at-risk population (we recall that child poverty hovers above 20%, and that the share falling below the PISA minimum score is 18%). The remaining 93% of any child cohort will receive care options that to a large extent mirror parents' purchasing power. The huge unevenness of US early care is well documented (Blau, 2001).

More generally, the basic dilemma of targeted policy is how to ensure that it does reach the needy. Here a comparison of the US approach to Britain's Sure Start is of interest. While the former targets problem families, the latter targets high-risk communities. Neither approach can ensure that need is adequately addressed: identifying problem families is only easy in case of visible problems; and in the case of Sure Start it is far from certain that all the needy live in high-risk communities. The real obstacle to effective targeting lies in the multiple mechanisms that produce adverse child outcomes. While income poverty is easily identifiable, this is certainly not the case for parental nurturing practices.

The choice depends, secondly, also on our commitment to mothers' employment. If we aim to eliminate the regressive tax effect on mothers' labour supply, child care policy should more logically aim towards rather universal levels of coverage but with graduated subsidies.

Opting in favour of universal coverage has the great advantage of ensuring that all children, irrespective of origin, come to enjoy similar (high) standards. And if the system helps mix children from different backgrounds, so much the better. Yet, the obvious shortcoming of an across-the-board universal model of the Nordic variety is that the most under-privileged children might require additional resources and attention. One example of this problem is the low participation rate of children from immigrant families. Some form of affirmative action, including perhaps special incentives to target groups, might therefore be called for to accompany a universal approach.

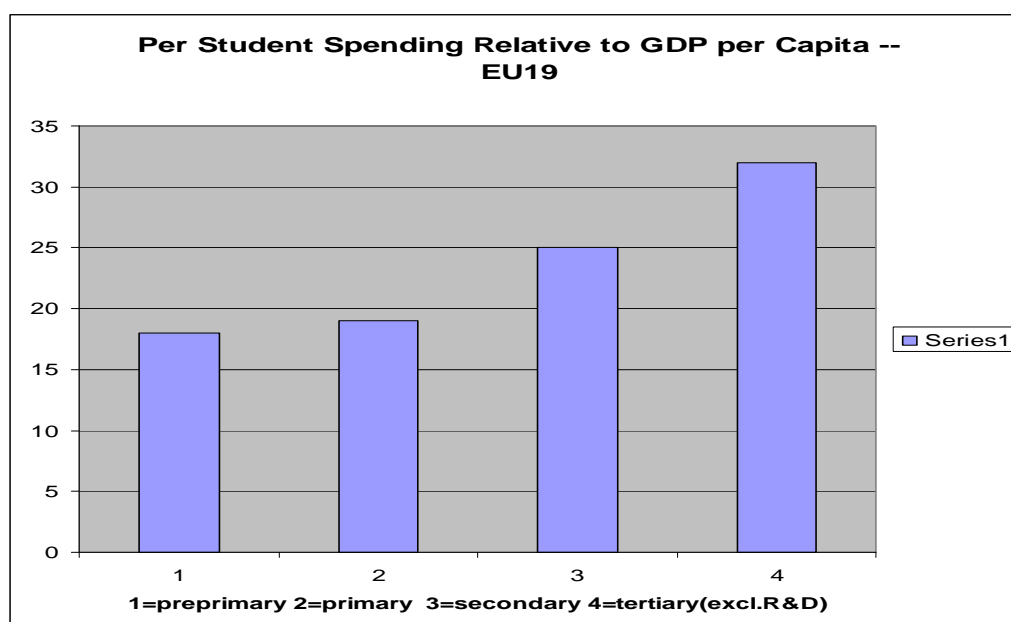
Conclusion

Human capital investments have, over the past half Century, been almost exclusively directed at formal education. It is only quite recently that we have come to realize that the foundations of learning -- as well as the chief mainsprings of inequalities -- lie buried in the pre-school phase of childhood and that schools are generally ill-equipped to remedy a bad start. For policy-making, the learning-begets-learning model takes this insight one important step forward since it helps

identify the relative rates of return to skill investments across the early life course of children. It is now evident that investments yield the highest returns in the pre-school stage, 0-6, and decline exponentially thereafter. The model is concomitantly relevant for an equal opportunities policy since the returns are especially high for underprivileged children.

All this suggests that we need to re-evaluate human capital policy. As a starter, educational spending in *all* advanced countries goes in exactly the opposite direction from what the learning-begets-learning perspective prescribes. As Figure 2 shows, per student spending rises monotonically from pre-school up to tertiary education.²⁹ We spend on average twice as much on tertiary level as on pre-primary education. Moreover, pre-primary spending is, in most countries, concentrated in the ages 3-6. Except for the Nordic countries and, at some distance, Belgium and France, investment in the under-3s is truly marginal.

Figure 2. The Profile of Education Expenditures in the European Community



Source: OECD Education Data Bases. The figures refer to 2004.

Concerns about equality of opportunities and future productivity coincide in policies that aim to raise the homogeneity of our human capital reservoir. The share of youth that ends up with insufficient skills is very large in many countries, be it in terms of either formal qualifications or cognitive and non-cognitive abilities. Here is cause for alarm considering that skill requirements continuously grow. Since nation differences cannot be ascribed to genetics it is evident that policy and institutions matter greatly.

Departing from the dictum that the key mechanisms lie in very early childhood and are prevalently centred in the family, this paper's aim was to identify how policy can aid families in

²⁹ The data show the EU-19 mean, but there is surprisingly little nation variance in expenditure allocation. The data on tertiary level spending excludes investment in research and development. To be sure, there are needs (chemistry labs, libraries and the like) that inevitably require heavier spending at the higher levels of education.

the quest for strong skills. A core issue lies in the persistence of strong social (as distinct from biological) inheritance mechanisms. Conventional theory has emphasized monetary effects in general and poverty in particular. This is without any doubt a major contributor to differential school success and, more generally, to unequal life chances. But social scientists as well as policy makers have paid far less attention to non-economic factors in the inter-generational transmission of disadvantage. Although research is on less than firm ground in this regard, there is a credible case to be made that non-economic mechanisms may be of equal if not greater importance than income. To a degree, the two coincide: teen-age mothers and low educated parents are also more likely to be income poor. But we are almost certainly tapping two rather distinct dimensions, and this implies that a strategy based narrowly on income redistribution is unlikely to fully succeed.

The evidence suggests, instead, a two-pronged policy that would appear attractive both from the point of view of cost effectiveness and because it can produce a more equal start for all children. In a nutshell the strategy condenses into an early childhood care policy. The case for income redistribution towards families with children is certainly evident and requires little additional comment save to stress the point that the burden on redistribution would be eased considerably if mothers were employed. There are multiple reasons why especially less educated women's activity rates are low and access to affordable child care is only one. Nevertheless, if accompanied by adequate maternity leave provisions and with a neutral taxation of spousal earnings, such policy should produce a non-trivial employment gain. And any such gain can produce a double advantage because it helps reduce poverty and, if external child care is of high quality, it may have positive effects on child stimulus. And even if high quality child care were to have little effect on child outcomes, it is potentially cost efficient in the sense that more female employment together with higher lifetime earnings will enhance the revenue base.

Even if we were to agree that familial 'cultural capital' is crucial, it would appear difficult to conceive of a policy that corrects for differences in parenting quality and dedication. I have tried to pull together what is known about nurturing effects during early childhood. Two factors stand out. Firstly, outside care of infants during the first year can be harmful for later development. Secondly, if external care is of high quality its effect on children's school outcomes are clearly positive, especially for the less privileged children. What is more, the positive effects persist beyond schooling into adulthood.

Ongoing trends in parental child investment point towards growing social asymmetries. Highly educated parents dedicate more time and effort to their children and the gap is rising. The nurturing gap is primarily due to differences in fathers' dedication which, in turn, has to do with the relative bargaining position of wives. Policy that augments mothers' bargaining power, via income transfers and/or by supporting their employment, should therefore help diminish social differences in child investment.

All told, policy that combines paid leave through the child's first year with affordable high quality external care should yield important dividends in terms of homogenizing children's school preparedness. A major policy dilemma presents itself with regard to design. Since we know that the returns are exceptionally high for less privileged children a simple cost-benefit calculus would suggest a targeted approach. What, then, would recommend a broad universal model?

In the first place, one should keep in mind the implicitly dual function of child care: supporting mothers' employment and child socialization. In lieu of the prevailing cost structure, the Danish policy of imposing a considerable but not prohibitive co-payment that diminishes linearly with income is clearly effective (full coverage) and equitable. It may incur dead-weight costs at the top of the income distribution, but to Danish policy makers this is regarded as acceptable since, in return, it guarantees broad social inclusion in (and electoral support for) the same comprehensive system. There is also another equity issue at stake. If the positive externality of parenting is substantial, there is a clear case for redistribution in favour of *all* parents alike, rather than redistribution from some parents to others.

This brings us to a second standard argument in favour of universalism, namely that broad citizen support for the policy is considered essential for adequate financing. A third important consideration lies in the high transaction costs and the difficulties of identifying need. Targeting low income families may be fairly simple to administer but here we must remember that learning deficits are also powerfully related to family 'culture' which is a dimension that is virtually impossible to identify by any public bureaucracy.

At the end of the day, the choice for or against a targeted approach will depend very much on our aspirations regarding skill homogenization. If our aim is limited to 'bringing up the rear' (which is how one might describe US policy in this regard) there is a better case for targeting than if we pursue a more general goal of minimizing, across-the-board, the impact of (non-biological) inequalities on children's opportunities. The clear shortcoming of a universal approach is that it may not succeed in 'bringing up the rear' fully. Truly disadvantaged children are likely to require an additional effort and this suggests that universal designs may need to be coupled with some form of 'affirmative action' interventions.

A final basic policy prescription is that the very same instruments that enhance children's life chances also figure centrally in the promotion of fertility. What so clearly links the twain objectives is the ways in which quality child care and related policies help resolve the dilemmas that emerge with the revolution of women's roles.

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