

EU labour mobility and the challenge to national human capital policies

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Abstract

National governments have traditionally subsidised human capital investments in a number of ways, from baby bonuses and paid maternal leave to the provision of subsidised childcare and education. Such investments are expected to pay off in the form of increased future revenues from taxes and social security contributions. I argue that freebie marketing, also known as the razor-and-blade business model, can help us understand this phenomenon, and that an essential element of those policies is that governments retain a monopoly of taxation of the returns to human capital. The free mobility of workers, which is an essential element of the European Union, represents a challenge to this business model, endangering human capital formation in Europe, and by extension, its economy. In this paper I present three possible policy responses to address this challenge from the national, intergovernmental and supranational levels.

Keywords

Human capital; education; migration; nationalism.

Introduction

Governments promote investments in human capital in many different ways, from pronatalist incentives such as baby bonuses, paid maternal leave, and family allowances, to the subsidisation of education at various levels, from infant to higher education. All these policies provide incentives to increase the quantity and quality of populations, i.e. human capital formation.

Most of these incentives are designed and financed by national or subnational governments, which hold the competences for social and education policies. However, since the creation of the common market in 1957, there has been a timid inception of the European Union in this policy area. The parental-leave directive, the European Social Fund, and the Erasmus+ education programme are all related to the formation of human capital. Their share of the total is still very modest.

One of the justifications for government intervention to promote human capital investments has to do with problems of the credit market. Human capital has two features that make it unlike physical capital and make it more difficult for credit to flow from creditors to borrowers. First, human capital cannot be repossessed by a creditor in case of default. Second, investments in human capital are most effective at a young age, when the borrower has not had an opportunity to accumulate other forms of collateral, such as property or reputation (Lochner and Monge-Naranjo, 2011). Using labour as collateral is also complicated because, as Becker (1993: 93) points out, 'courts have frowned on contracts that even indirectly suggest involuntary servitude.' This may be somewhat easier for the government, which can use its taxation

infrastructure to control future returns to human capital and ensure the repayment of student loans. This is one of the reasons why governments can provide student loans that the market would not be able to offer.

Student loans in the United Kingdom are primarily provided by the state-owned Student Loans Company. Interest begins to accumulate on each loan payment as soon as the student receives it, but repayment is not required until the start of the next tax year after the student completes (or abandons) their education. Since 1998, repayments have been collected by Her Majesty's Revenue and Customs (HMRC) via the tax system, and are calculated based on the borrower's current level of income. If the borrower's income is below a certain threshold (£16,910 per tax year for 2014/2015), no repayments are required, though interest continues to accumulate. Similar schemes are applied by Australia, Korea, and the United States, and other countries such as Spain are considering the possibility of introducing them. But curiously enough, in many cases, governments simply subsidise the cost of education through grants and bursaries. There is not a formal credit contract between the government and the young person that records the amount of debt and its interest. Instead, there is a mere unrequited payment or transfer, as if government was giving education away for free.

A common explanation for such an apparent transfer is that it produces positive externalities for other people in society. But this contrasts with the fact that the greatest benefit of education is received by student themselves, as it influences their future earnings. Externalities can more easily justify the importance of civic education, for instance, than other forms of education that will have a direct impact on the student's payroll.

In this paper I provide an alternative explanation for the subsidisation of education that relies on the above-mentioned problems of the credit market for human capital. I argue that the subsidisation of education is an instance of a well-known business model called freebie marketing, and that understanding this model can help us better understand the nature of this apparent donation, which in reality has more to do with credit and investment. I then go on by explaining how the European Union, and in particular its free mobility of workers, poses a challenge to this model, endangering human capital formation in Europe, and by extension, the future of the European Union economy. Finally, I present three possible policy responses to address this challenge from the national, intergovernmental and supranational levels.

Subsidisation of education as freebie marketing

Freebie marketing, also known as the razor-and-blade business model, consists in giving away (or selling below the market price) a product (such as a razor) with the expectation that the buyer will have to purchase complementary products (such as blades) at a higher price. For this business model to work it is necessary that the seller has a monopoly of those complementary products. Prominent examples of freebie marketing are the market for printers, video game consoles or sim-locked mobile phones.

The provision of free or subsidised education by the government can also be considered an example of freebie marketing. The government provides this service at a loss because it expects to compensate this loss with the revenues from future taxes and social security contributions, which are linked to the use

of human capital. This is possible because government has a monopoly of the taxation of work, which is a complement of education.

Why freebie marketing for human capital?

The next question is why freebie marketing? Is it efficient? At first sight, there are several signs of concern. The most important one is that freebie marketing is based on a monopoly for a complementary good. This monopoly means that this good will probably be sold at a higher price and in lower quantities than would be socially optimal. Besides, if some customer decides to opt for an alternative product, the original freebie will probably be wasted. How many printers or SIM-locked mobile phones have been wasted for this reason?

The equivalent argument could be applied to policies that give away education or sell it under the market price and are coupled with restrictions to labour mobility. This is the case of the Cuban doctor who would like to migrate to the United States but is not allowed by Cuban authorities. The doctor would probably be more productive in the US, but is kept "locked" in order to guarantee the repayment of his/her debt with the state.

But if the institution of freebie marketing for human capital is so extended that it is possible that it fulfils some social goal. A similar argument is often used in development economics to explain institutions such as sharecropping, which, when analysed in isolation, can be seen as inefficient compared to other alternatives such as fixed-rent contracts, but compensate the lack of some other market, like insurance. In this case, I argue that freebie marketing in the market for human capital can solve deficiencies of the market for credit and insurance. I will analyse both issues in turn.

I argued that the main justification for government intervention in the field of education is related to the lack of credit for investments in human capital. Freebie marketing in human capital provides this kind of credit. It subsidises education at an early age in exchange for the expected stream of income that will come from taxes and social security contributions in the future. Restrictions to labour migration solve the problem of lack of collateral. The borrower's work is used as a guarantee by the government that retains a monopoly of taxation of human capital. But, if the problem is related to the lack of credit, one question still remains: why not formalise an official credit contract in which the principal and the interest are made explicit and fixed at the time of the deal?

The reason is that borrowers would be reluctant to accept the risk of such a contract because they are uncertain about future economic policy. Moreover, the same government that offers the student loan today will have a monopoly over the tax rates in the future. What if a student takes a loan now, but payroll taxes are so high at the time of graduation that the investment in human capital does not pay off?

Figure 1. Game with no human capital subsidy (extensive form)

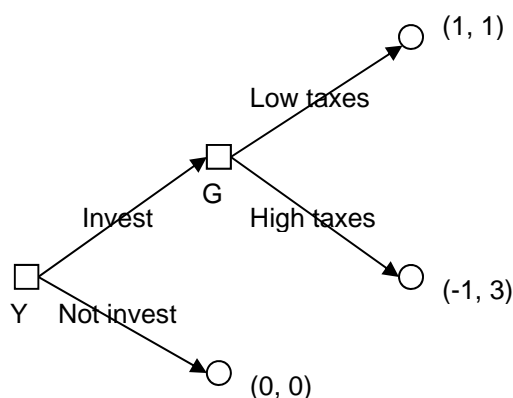


Figure 1 depicts the sequential game that the youngster (Y) and the government (G) play in extensive form. When the government offers a loan to the youngster, the latter has two options: to accept it and invest in human capital or to decline it and not invest. If there is no deal, the game ends and the payoffs for the youngster and the government are zero. If the youngster takes up the loan to invest in human capital, he/she will become more productive, but the human capital investment becomes a sunk cost. The government then has two options: to have a low tax policy that will make the capital investment pay off for both the youngster and the government (1, 1) or to have high taxes on human capital, benefiting from the fact that the capital investment is a sunk cost, which will render the youngster's investment unprofitable but will produce extra benefits for the government (payoffs of -1 and 3, respectively).

Table 1. Game with no human capital subsidy (strategic form)

		Government	
		Low taxes	High taxes
Youngster	Invest in human capital	(1, 1)	(-1, 3)
	Not invest in human capital	(0, 0)	(0, 0)

Table 1 represents the same game in strategic form. It is clear that, for the government, levying high taxes on human capital once it is already a sunk cost for the investor is a dominant strategy. As a consequence, the youngster will be better off by not investing in human capital, so the payoff for both will be zero.

This is clearly inefficient compared to a policy of low taxes that support human capital investments, which would make both the youngster and the government better off, but it is the only equilibrium of the game. The government cannot credibly commit to have a favourable tax policy on human capital investments once they have been made.

This is where freebie marketing comes in. The government generally offers education for free or at a subsidised price as a guarantee that human capital investments will pay off, and expects to recover this cost from future taxes and social security contributions.

Pennings (2000) shows how a combination of a subsidy to investment with the taxation of future profits affects irreversible investments. It is shown that such a combination decreases the trigger value of investment. The tax rate for which the stimulus works at zero expected cost decreases as heterogeneity in the group of investors increases. The importance of the result is exemplified by the graduate tax.

Jacobs (2005) augments the theory of optimal linear income taxation by taking into account human capital accumulation as a dimension of labour supply. The distribution of earning potentials is endogenous because agents differ in the ability to learn. Taxation affects utilization rates of human capital through labour supply responses. The costs of education that are not deductible from the income tax distort the learning decision as well. We show theoretically that the trade-off between efficiency and equity is worsened. Quantitative analysis shows that the distortionary costs of taxation increase substantially when human capital formation is endogenous.

Bovenberg and Jacobs (2005) show that redistribution and education subsidies are Siamese twins. They develop models of optimal linear and non-linear income taxation with endogenous human capital formation to explore optimal education subsidies. Optimal subsidies on education ensure efficiency in human capital accumulation and thus play an important role in alleviating the tax distortions on learning induced by redistributive policies. If the government cannot verify all investments in human capital, education policy offsets some but not all tax-induced distortions on learning. Non-pecuniary educational costs (benefits) may increase (decrease) subsidies on education, especially if they are complementary to work effort.

Jacobs (2007) analyzes optimal linear and non-linear taxes on capital and labour incomes in a life-cycle model of human capital investment, financial savings, and labour supply with heterogeneous individuals. A dual income tax with a positive marginal tax rate on not only labour income but also capital income is optimal. The positive tax on capital income serves to alleviate the distortions of the labour tax on human capital accumulation. The optimal marginal tax rate on capital income is lower than that on labour income if savings are elastic compared to investment in human capital, substitution between verifiable and non-verifiable inputs in human capital formation is difficult, and most investments in human capital are verifiable so that education subsidies can directly reduce the tax wedge on learning. Numerical calculations suggest that the optimal marginal tax rate on capital income is substantial.

Alvarez and Koskela (2008) analyze the impact of progressive taxation on irreversible investment under uncertainty. They show that if the tax exemption is lower than the sunk cost, a higher tax rate will decelerate optimal investment by

increasing the optimal investment threshold, while if the tax exemption exceeds the sunk cost, three different regimes arise. For “small” volatilities the optimal investment threshold is a positive function of volatility, but independent from the tax rate. For “medium” volatilities it is independent from both the tax rate and volatility. Finally, for “high” volatilities the optimal investment threshold depends positively on volatility, but negatively on the tax rate so that we have a “tax paradox”.

Jacobs and Bovenberg (2010) analyze optimal linear and non-linear taxes on capital and labor incomes in a life-cycle model of human capital investment, financial savings, and labour supply with heterogeneous individuals. A dual income tax with a positive marginal tax rate on not only labour income but also capital income is optimal. The positive tax on capital income serves to alleviate the distortions of the labour tax on human capital accumulation. The optimal marginal tax rate on capital income is lower than that on labour income if savings are elastic compared to investment in human capital, substitution between verifiable and non-verifiable inputs in human capital formation is difficult, and most investments in human capital are verifiable so that education subsidies can directly reduce the tax wedge on learning. Numerical calculations suggest that the optimal marginal tax rate on capital income is substantial.

Jacobs and Bovenberg (2011) explore how the specification of the earnings function impacts optimal nonlinear taxes on human capital under optimal nonlinear income taxation. If education is complementary to labour effort, education should be subsidized to offset tax distortions on labour supply. However, if education is complementary to ability, education should be taxed in order to redistribute income. If education is weakly separable from labour and

ability in the earnings function, these two effects cancel and education should be neither taxed nor subsidized.

Jacobs, Schindler and Yang (Jacobs et al., 2012) derive the optimal linear labour tax rate and optimal linear education subsidies in a two-period life-cycle model with ex ante homogeneous households, earnings risk, and a general earnings function. The optimal income tax trades off social insurance against incentives to work. Education subsidies are not used for social insurance, but they are only targeted at offsetting the distortions of the labour tax and internalizing a fiscal externality. Both optimal education subsidies and tax rates increase if labour and education are more complementary, because education subsidies indirectly lower labour tax distortions by stimulating labour supply. Optimal education subsidies (taxes) also correct non-tax distortions arising from missing insurance markets. Education subsidies internalize a positive (negative) fiscal externality if there is underinvestment (overinvestment) in education because of risk. Education policy unambiguously allows for more social insurance if education is a risky activity. However, if education hedges against labour-market risk, optimal tax rates could be lower than in the case without education subsidies.

Figure 2. Game with human capital subsidy (extensive form)

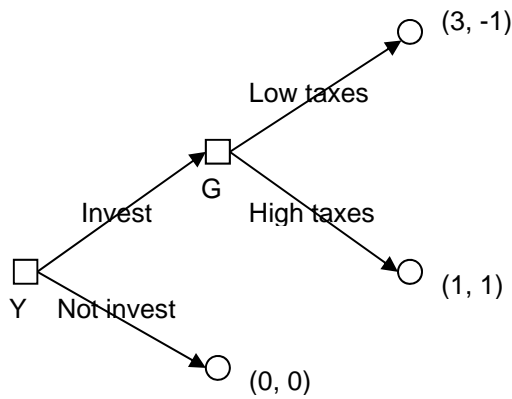


Figure 2 depicts the same game in sequential form when the government subsidises human capital investments with two units. This transfer means that the final payoffs in the case of investment increase by two units for the youngster and decrease by two units for the government.

Table 2. Game with human capital subsidy (strategic form)

		Government	
		Low taxes	High taxes
Youngster	Invest in human capital	(3, -1)	(1, 1)
	Not invest in human capital	(0, 0)	(0, 0)

Table 2 represents the same game in strategic form. It is clear that in this case high taxes are still a dominant strategy for the government. The difference is that for the youngster, investing in human capital will pay off. As a result both

the youngster and the government will share the benefits of human capital investment.

In summary, because of lack of adequate collateral, the market is not able to provide credit for human capital investments that would be potentially efficient. National governments can remedy this deficiency by using the future worker's labour as collateral because they have a monopoly on the taxation of work within their jurisdictions, which is coupled with restrictions to labour mobility across countries. These restrictions are inefficient when analysed in isolation, but allow the government to provide credit for profitable investments in human capital that otherwise would not be possible.

The problem arises when it is youngsters that, having this public credit at their disposal, are not willing to take it, because of the risk that once they have incurred in the sunk cost of human capital investment, the government will reap any benefits from the greater productivity associated with it by means of its taxes on labour, leaving the indebted youngster at a loss. As the government cannot credibly commit to implement a fair tax policy when the youngster reaches the labour market, the government is forced to subsidise human capital investments upfront, by means of the provision of free or subsidised education. This business model is known as freebie marketing.

The EU as a challenge to national education subsidies

Freedom of movement of workers, which is one of the basic elements of the European Union, represents a challenge for national government investments in education, because national governments lose their monopolies over the taxation of the human capital that is accumulated within their jurisdictions. The

inability to use labour as collateral reduces the incentive for national governments to subsidise the education of their citizens.

Massive migration flows in the European Union, especially since Eastern enlargement, bring important benefits to the families of the migrants and to the recipient economies, but also raise issues of “brain drain” in the countries of origin. The reason is that these countries invested in the education of these outgoing workers in order for them to become more productive, but it is exclusively those workers and the recipient countries who are benefitting from this increase in productivity, though higher wages and higher revenues from taxes and social security contributions. The countries of origin are left outside this deal, and it is normal that they put in doubt the financial soundness of their investments in the human capital of their young people.

In many EU countries we have witnessed reductions in public spending in education in the last years. Countries such as the UK have progressively introduced university fees since the late 1990s, and countries such as Spain have started to increase them with the objective that they cover at least 25-40 percent of the total cost, depending whether they are undergraduate or graduate degrees, and in the latter case, professionally habilitating or not. It is understandable that national governments start to question the profitability of their investments in human capital, but their withdrawal puts in danger a model whereby young people had access to credit for their human capital investments (to be repaid in the form of income taxes and social security contributions).

Reductions in human capital investments as a result of lack of credit can have negative consequences in terms of earnings for the young people affected by them, an effect which will also be felt in macroeconomic terms.

One national and two European policy responses

There are different possible policy responses to this challenge. Of the three I will present here, one comes from national governments whereas the other two come from the European Union itself. It should be noted that these responses are substitutes, so the policy vacuum in one of the levels will tend to be occupied by the other two.

National response

If the European Union and its mobility of workers puts at risk the national model of funding for human capital, and the Union is not able to provide a satisfactory alternative, national governments have the possibility to resist this process.

I am referring to a nationalistic solution that tries to counteract the greater mobility of workers allowed by the European Union by fostering a national identity and strengthening linguistic and cultural differences. Public funding for education can be made conditional on this education being provided in a national language that is not useful beyond the national borders. Public education curricula can also stress national literature and history, and develop a sense of patriotism that will impose a psychological cost on those migrating to another member state in search of better working conditions.

The erection of national barriers to the free mobility of workers goes against the principles on which the EU is based and can have negative economic implications. These barriers will reduce the possibilities for structural adjustment between member states (for instance, by allowing workers to move from countries where this factor of production is abundant relative to their capital endowments). They will also make it more difficult for national economies to

react to asymmetric economic shocks once the single currency is introduced and exchange rates are no longer available as a policy instrument.

Supranational response

A supranational option would be to replicate at European level the national model of publicly financed education that is currently under threat. This would imply the finance of education subsidies from the EU budget in exchange for future taxes or social security contributions that would also accrue to the EU budget. Under such a system, migrations would not represent a financial loss for the country of origin. The scheme would even allow countries to specialise in the production of human capital much as the rural areas have traditionally raised children for the urban areas inside national states.

The EU has increased its budget in education by 40% for 2014-20 with respect to the previous period, under the Erasmus+ programme. Nevertheless, EU spending on education still represents a tiny fraction of public spending in this area in the EU.

Intergovernmental response

A third avenue, that I call intergovernmental, would keep human capital subsidisation and taxation in the hands of national governments but organise a system of intergovernmental cooperation that would deal with the problems related to migrations. Such system could be operationalised in the form of automatic transfers from recipient countries to the countries of origin of migrant workers, obtained from income taxes and social security contributions. This way, it would be safe for national governments to invest in the human capital of their citizens, so long as a cartel of EU governments would retain an effective

monopoly of taxation of the human capital accumulated within EU borders. The rate of this tax on human capital would be set by the country of origin and recipient countries would just enforce it.

But the free mobility of workers and the competition for workers among EU member states not only represents a threat but also an opportunity for human capital investment. As I argued in the introduction, one of the reasons why individuals are reluctant to invest their own money in their education is that they do not trust the government's future tax policy, because the government has an incentive to extract all the benefits from human capital investments once these can be considered a sunk cost. The free mobility of workers and tax competition among member states can solve this credibility problem and thereby allow individuals to assume the risk of their own human capital investments.

The credit problem would remain, but the combination of freedom of movement of workers with tax competition among member states would allow public authorities to shift their public education policies from direct investments to student loans. Intergovernmental cooperation could limit itself to mutual assistance in the collection of these debts.

Conclusion

The credit market for human capital is underdeveloped due to the difficulty to use human capital as collateral and the fact that human capital investments are most effective at a young age, when people have not been able to accumulate other forms of collateral (Lochner and Monge-Naranjo, 2011). Governments step in by providing credit and, in many cases, by subsidising human capital investments. Governments can afford to provide credit for education because

they have a monopoly of taxation of human capital and therefore can use their citizens' labour as collateral. But at the same time, they are compelled to subsidise education because human capital is an irreversible investment, and citizens fear that the government will use its monopoly over the taxation of labour to extract any benefits from such human capital investments. The monopoly of taxation of human capital is thus what permits governments to finance human capital investments but at the same time compels them to do this in the form of subsidies instead of student loans. I have shown the similarity of this phenomenon with a common business model known as freebie marketing or the razor-and-blade business model.

Freedom of movement of workers in the European Union breaks down this policy model and undermines national policies to promote human capital. In this paper I have analysed possible policy responses to this challenge from three different levels: national, supranational and intergovernmental. The national policy consists in erecting artificial barriers to outward migration, goes against the principles of the European Union and can undermine some of its potential benefits. The supranational approach consists in replicating at EU level the current national scheme based on a combination of subsidies to education with the ulterior taxation of human capital by means of income taxes and social security contributions. This would imply education to be financed from the EU budget, and human capital taxation also accruing to the EU budget.

Finally, a much more realistic approach would be based on intergovernmental cooperation in the collection of the returns of publicly financed human capital. Such scheme could be operationalised by means a system of transfers from recipient countries to the countries of origin of migrant workers of part of the

revenues from their income taxes and social security contributions. Alternatively, in credit-based systems, a much easier approach would consist in mutual assistance in the collection of student loan repayments.

It is difficult to know which approach will finally carry its way but what is clear is that the vacuum left by one of the levels will tend to be occupied by the other two.

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