Udine, Italy, 29th and 30th June 2017

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Draft version at the date of 30th May 2017 ore 18.00

Table 4

University and Economic Development

Analysing the policies to increase graduate population: Do tuition fees matter?

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G7 University: A position paper on "Higher Education and Socio-Economic Development"

Analysing the policies to increase graduate population: Do tuition fees matter?

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Abstract

Despite the fact that more equal access to higher education has been an objective public policy for several decades, little is known about the effectiveness of alternative means for achieving such goal. Indeed, nowadays high level of graduate population can be observed both in countries with high and low level of fees, or high and low level of public expenditure in higher education. This paper surveys the extant literature providing some background on the economic concepts of higher education market, and reviews key determinants of demand and supply. A theoretical model of aggregate demand and supply of higher education is derived, with the aim to facilitate the understanding of the challenges in today's higher education systems, as well as the opportunities for development. The model is validated on some exemplary case studies describing different relationship between the level of public investment and levels of graduate population, and helps deriving general implications.

Keywords: Higher Education, Tuition Fees, Graduates, Higher Education policies

1. Introduction

The aphorism that the source of a nation's wealth is the skill of its people has special meaning for contemporary society (Carneiro and Heckman, 2003). In fact, the importance of the socioeconomic value of human capital, particularly education, has long been recognized by both policy-makers and economists (Becker, 1967). Certainly, primary and secondary education may produce positive externalities for society at large, for instance in the form of less criminal activity or less drug abuse. Yet, tertiary education may provide positive spillover effects that are crucial to the development of high-technology sectors of the economy and, in turn, affecting economic growth (Di Pietro, 2002). There is also convincing empirical microeconomic and macroeconomic evidence on the productivity-enhancing effects of education (Khan and Jong-Soo, 1998).

Although the last decades have seen a substantial increase in the educational level of the population in almost all industrialized countries, differences are still significant. According to the Eurostat's Education Attainment Statistics, in 2015, 79.1 % of people aged 25–54 in the EU-28 had at least attained an upper secondary level of education, compared with 62.6 % of those aged 55–74. Those with tertiary educational attainment amounted to 32.6 % of those aged 25–54 and 20 % of those aged 55–74 (see Table 1). The Europe 2020 strategy sets a number of headline targets, including one for tertiary education, namely that by the year 2020 the proportion of 30–34 year-olds with tertiary educational attainment should be at least 40 %. In 2015, 38.7 % of the population aged 30–34 in the EU-28 had completed tertiary education.

In 17 EU Member States this proportion was already 40 % or more in 2015; this was also the case in Norway, Iceland and Switzerland. In contrast, the lowest shares of those having completed tertiary education were observed in Italy, Romania, Malta and Slovakia, as well as in the Former Yugoslav Republic of Macedonia and Turkey where the proportion of persons with tertiary educational attainment was below 29 %. National targets vary from 66 % in Luxembourg to 26 % in Italy. 12 countries have already achieved their national targets.

[INSERT SOMEWHERE HERE TABLE 1]

Recent changes in the English tuition fees policies, risen to £9,250 per year from 2017[1], have spurred a debate on the impacts on student choices for higher education. Expectations range from a sharp decrease in participation in higher education to relatively little change in student demand.

During the last two decades, the governments of many countries around the world have shifted the cost of higher education from the state to the student. By 2005, Australia, Canada, Italy, Japan, the Netherlands, New Zealand, Spain and the USA all had some form of student fee system contributing to the funding of higher education (Miller, 2010). In these countries, there has been a trend towards regarding higher education as a private good, which benefits individuals, and which individuals should therefore pay, rather than a public good, which benefits societies and economies.

This trend has occurred partly due to the ideological shift of conservative economists and politicians, and partly due to the growing pressures on public budgets globally (Altbach, 2006). Several countries in Western Europe, such as Germany and Sweden, resisted the introduction of tuition fees in higher education until very recently, in some cases even for international students. Around the world, public undergraduate higher education is still provided free to "home" students in only a handful of countries, such as Argentina, Finland, Norway, Qatar and the United Arab Emirates.

Demand for higher education has grown in most countries globally. In the UK, for example, the proportion of 18–23-year-olds in higher education increased from 14% in 1980 to 43% in 2006 (Shattock, 2010). Governments around the world have adopted diverse strategies to expand higher education capacity.

How do the tuition-subsidy systems differ across the advanced democracies? As a systematic comparative descriptive overview on the variety of tuition-subsidy regimes across the advanced democracies, Garritzmann (2016) provides a huge comparative dataset on tuition-subsidy systems in

[1] http://www.bbc.com/news/education-36856026

33 advanced democracies (OECD countries), covering more than 70 characteristics of the respective tuition-subsidy systems. The main takeaway is that the advanced democracies fall in to "four world of student finance". In some countries (mainly continental Europe), tuition fees are low, but financial student aid is also largely non-existent (low-tuition-low-subsidy regime). A second group (comprising Nordic Europe) is characterized by the absence of tuition fees but very generous public subsidies (low-tuition-high-subsidy regime). The Anglo-Saxon countries form a third group, where most students are charged considerable tuition amounts but also often receive public grants or publicly subsidized student loans (high-tuition-high-subsidy regime). Finally, there is a combination of high tuition fees accompanied by sparse public subsidies in Japan, Korea and other Asias countries, as well as some Latin American countries (high-tuition-low-subsidy regime).

Why do countries' higher education finance systems differ so considerably? This question is particularly puzzling, because when one goes back to the immediate post-World War II period, all of these countries' tuition-subsidy systems look very much alike: systematic public subsidies were non-existent in all countries and tuition was comparably low (Eicher, 1998; Nakata and Mosk, 1987). Moreover, enrolment levels were also very low, as barely 5% of each age cohort enrolled in higher education (Trow, 1972; Windolf, 1997). In other words, the higher education systems of countries such as Germany, Sweden, the UK, the USA, Japan, or France, were all highly similar in the mid-twentieth century.

Indeed, higher education is a mixed blessing: it can promote equality of opportunity, foster educational and socioeconomic upward mobility, contribute to countries' knowledge production and economic growth, and even lead to higher levels of health and life satisfaction. However, higher education also can be a tool of the reproduction of existing elites, it can plunge students into lifelong debt, and it can cause "negative redistribution" from the poor to the rich because the better-off are more likely to benefit from publicly funded college. Thus, depending on the composition of an existing education system, higher education can either mitigate or reinforce prevailing social, economic, and educational inequalities.

These complex (re)distributive dynamics make policies for the promotion of higher education an extremely interesting and relevant field of study for economists, sociologists and political scientists. With this paper, we provide a survey of the literature on policies, tuition fees and costs of higher education (Section 2). As a contribution to former literature, we also propose a simplified model of higher education supply and demand, as functions of tuition fees, as a general framework for a comparative analysis of tuition fees policies (Section 3). Section 4 provides a discussion of benefits and limitations of this approach, and concludes.

2. Policies, Tuition fees and costs of higher education. A survey of the literature

Clustering of talented people and highly skilled human capital are the basis of economic growth and local development (Benhabib and Spiegel, 1994). Early research pointed out that both the quantity and the quality dimension of human capital have a real impact on local economic development (Hanushek and Kim, 1995; Gennaioli et al., 2013). At a macro level, the difference in the quality of human capital across countries is found to vary with the level of economic development (Murphy et al. 1991; Manuelli and Seshadri, 2014). A higher concentration of highly skilled human capital is indeed commonly associated with positive externalities, such as employment growth, income, and ability to innovate (e.g., Carlino et al., 2007). This is even more crucial assuming that the quality of human capital crucially influences areas' absorptive capacity, thus implying higher abilities to learn advanced technologies and new knowledge (e.g., Carr et al., 2001). In this regard, graduates are among the most crucial human capital sources in spurring economic growth, both considering the STEM and non-STEM facets (Winter, 2014). They are indeed found to generate human capital externalities able to increase workers' wages in the labour market given the ability of the former to increase for instance patent intensity in the local area and the fact that the latter are engaged in the most creative occupations (Florida, 2002).

As far as graduates are key determinants for the socio-economic development of our society, higher education policies should create the conditions to give people the right to education to become knowledgeable and skilled human capital. In this regard, a crucial matter is the well-known debate about the public or private nature of higher education. While the state would have a limited role when higher education is intended as a private good, it would entirely fund it when HE is understood as a public good. It is however difficult to assess which perspective should prevail as both of them might raise issues, from the fact that in the first case higher education could become extremely expensive limiting itself to be an elite service, to the risk of completely loosing its autonomy becoming a mere instrument of the state, not properly serving and developing the society (public good). Along with this tricky balance, states have implemented different funding schemes where state allocated funding generally represents an important asset to ensure a large participation of students at the higher levels of education leading single institutions to mitigate their level of tuition fees. Historically, higher education systems massively differentiate with respect to the state funding and the tuition fees dimensions. Investigating the evolution and the structure of tuition fees-state allocated funding balance and the subsidies in OECD countries in the period 1945-2015, Garriztmann (2016) identified up to four main clusters that differ in relation to the presence and the level of tuition fees, the extent to which students receive public support in the form of student loans.

Most recently, the crisis has highly exacerbated the ability of universities to survive and support their daily activities mainly due to the important cuts occurring at a governmental level. In the UK, these important reduction has shift the burden of paying from the state to the students (Wakeling and Jefferies, 2013; Wilkins et al., 2013). Students' ability to support higher education studies have been even worse when considering the American context, where student loan debt have grown by 170 per cent in the last decade to support the payment of increasing tuition fees (Schmeis et al. 2016), up to $1.4 trillion. Conditions have become also critical in Southern European countries where public funds hugely decreased after the financial crisis (e.g., In Italy the nominal decease in public funds was equal to 8.3% (EUA 2016)) (Cattaneo et al. 2016). Among European countries, the highest tuition fees are

charged only in the Netherlands and the UK, where however the structure of scholarships or public loans is able to mitigate the cost of higher education compared to Southern European higher education systems (Pigini and Staffolani 2016). A worthy exception in the European context is the German system where tuition fees were initially scrapped in Baden-Württemberg state in 2011, while all universities became free of charge in all German states by 2014.

To this extent, in the current knowledge society, understanding the optimal equilibrium between the public and private funding to address higher education studies represents a priority on the policymakers' agenda.

3. A framework for the analysis of policies to increase graduate population

3.1 Preliminaries

A critical mass of highly educated people is vital for the creation and dissemination of knowledge, and attaining that critical mass is of utmost importance for both developed and developing countries, and is particularly relevant for emerging regions worldwide (Heitor, Horta and Mendonça, 2014). While the relationship is not quite as simple as "more students equals higher income", still, a common consensus among policy makers exist that increasing the base of graduate population is a necessary condition for the development of human capital capacity.

The key role for policy-makers and governments in regions where major investments in science and higher education are being made is therefore to select priority actions and make appropriate decisions as to where and how to start the process. Indeed, to a large extent, long-run changes in average educational attainment are driven by government policies.

Government policies in support of higher education come in different forms. The main goal of this paper is that of proposing a simplified framework to understand how any set of rules can interact with the equilibrium on the market for higher education, in order to increase the share of graduate in a certain population. In what follows, we will briefly review the determinants of supply and demand in

the market for higher education, and propose a simplified model where both functions depend on tuition fees. Later, we discuss how different types of equilibria may be identified, and how policy interventions can play a role.

3.2. Demand of higher education services

The past twenty years have seen a significant increase in the participation of young people in higher education in the majority of developed economies (OECD, 2016). While much of the education economics literature has focused on the estimation of the private rates of return to varying levels of education (see Harmon, Oosterbeek, & Walker, 2003), more recently the effort has been focused on understanding the participation decision in non-compulsory education (Flannery and O'Donoghue, 2013).

The concepts of student decision-making have been traditionally studied by relying on theories of consumer purchasing behaviour[2] (students buying an educational service in this case). For example, Moogan, Baron, and Harris (1999) studied the multiple steps of decision-making that students take when deciding to embark upon a higher education degree (see also Hemsley-Brown and Oplatka, 2006; Chen and Zimitat, 2006).[3]

Several studies have examined these influential factors in different countries at different times. Quality of teaching and research (Price et al., 2003), image and reputation of the institution (Isherwood, 1991; Ivy, 2001; Paulsen and St. John, 2002), image of the country (Srikatanyoo and Gnoth, 2002; Binsardi and Ekwulugo, 2003; Cubillo et al., 2006), cost of studies (Hu and Hossler, 2000; Mazzarol and Soutar, 2002; Foskett et al., 2006), geographic proximity (Mazzarol and Soutar

[2] As far as international students are concerned, the theoretical framework for exploring the patterns of international students' purchasing behaviour is the push-pull model (see, for example, Mazzarol and Soutar, 2002; Wilkins et al., 2011). Push factors operate within a source country to initiate the student's decision to study overseas (e.g. higher tuition fees in the UK) and a set of pull factors operate in the host country to attract students to that particular country over others (e.g. no tuition fees and courses taught in English in Finland). In this study, by contrast, we focus on the effects of policies on internal population.

[3] Despite revealing the fact that student choice is a complex concept influenced by a variety of factors, the multiple step approach to decision-making is beyond the scope of this study as we focus instead on key factors that influence students, with a focus on the role of tuition fees.

2002; Cattaneo et al. 2017a), friends and family effects (Hossler and Stage, 1992; Soutar and Turner, 2002; Ceja, 2006) and career prospects (Foskett et al., 2006) are considered as the major factors that influence the students' choice of a post-secondary institution. Meanwhile, other scholars have studied the impacts of students' backgrounds (e.g. social class, academic preparedness and ethnicity) on their choice of higher education institution (HEI) (Paulsen and St. John, 2002; Zimbroff, 2005).

In Europe, recent changes in the English tuition fee policies have spurred a debate on the impacts of fees on student choices for higher education. Expectations range from a sharp decrease in participation in higher education to relatively little change in student demand (Wilkins et al., 2012). In all cases, though, the impact of the tuition fee is negative on access to higher education, and this is the key assumption needed in our model.

Proposition 1. The demand for higher education services is negatively influenced by the level of tuition fees.

3.3. Supply of higher education services

A fundamental model of supply of higher education services has been presented by Rothschild and White (1995). In their framework, colleges and universities provide human capital as outputs, and students - individually and collectively - are clearly inputs into the production process. The presence of some types of students may influence the output received by other students. Universities do not charge explicitly for the human capital that is produced; instead they charge tuition, which is linked to students' enrolments in classes.

Indeed, the supply of higher education services is also affected by government support variation. State funding may rise to allow greater access to higher education with the subsequence that university are able to maintain the same level of service with lower tuition fees. On the other hand, higher education institutions may react to the government cuts either by reducing the spending or by charging students and their families (if allowed) with higher cost of instruction (McPherson & Schapiro, 1993).

In other words, ceteris paribus, stronger support will allow universities to supply higher education services with lower tuition fees, but the relationship between supply and tuition is still there.

Proposition 2. The supply of higher education services is positively influenced by the level of tuition fees.

3.4. A general equilibrium

Proposition 1 and 2 imply that a policy maker can look at the market for higher education through the lenses of a simplified model, as depicted by Figure 1.

[INSERT SOMEWHERE HERE FIGURE 1]

In this model an equilibrium on the market of higher education services is determined at the equilibrium fee, determining an equilibrium quantity of graduate people.

We should emphasize that there are a number of important issues that this framework does not deal with, either because they are being intensively studied by others (e.g., the benefits of higher education, the supply of finance from sources other than tuition) or because they cannot be tackled by a simplified model (e.g., the measurement of "quality" of inputs and outputs). However, in what follows, this instrument will be employed for an analysis of alternative equilibria described by combination of tuition fees and graduate population.

3.5. Demand-driven shifts in the equilibrium

According to the model described in Figure 1, high levels of tuition fees are likely to determine a decrease in the demand for higher education services, and ultimately an equilibrium with a low level of graduates in the population. When considering the European landscape, the context better describing a high level of fees in that of the United Kingdom, where tuition fees cover the most of

the service cost. Still, according to the Eurostat statistics reported in Table 1, the percentage of graduate population (ISCED 5-8) in the 25-54 age range is well above the European average, at 43.8%. This evidence is in line with the findings of Wilkins et al. (2012) that, by analysing the recent boost in UK tuition fees, identified a relatively little change in student demand. This evidence raise a question: Why do students in Anglo-Saxon countries still show a strong demand for higher education service, notwithstanding tremendously high tuition fees?

Our conceptual framework allows to provide an interpretation based on a shift of the demand function (Figure 2) with respect to the baseline case in Figure 1. The Anglo-Saxon countries are characterized by a stronger demand of higher education, such that the equilibrium proportion of graduate population is identified at a high level, notwithstanding the high level of tuition fees. We describe this situation as "demand-driven" shift in the equilibrium.

Proposition 3. In the Anglo-Saxon context, the equilibrium share of graduate population is at a high level, notwithstanding the high level of tuition fees, due to a shift of the demand function ("demand-driven" shift in the equilibrium).

There are several arguments provided by extant literature justifying this shift in the demand function. First, Anglo-Saxon countries are characterized by a position of leadership in the top quality of higher education supply, as continuously testified by the top position of the university world ranking, and by the strong attractiveness for international students (Damme, 2006). Second, Anglo-Saxon countries are characterized by institutional systems of student aid allowing students to bear high tuition fees (the high-tuition-high-subsidy regime, according to Garritzmann, 2016) More in general, the institutional framework and the cultural context allow the matching of supply and demand of higher education services at high level of tuition fees, in correspondence of a large proportion of graduate population.

[INSERT SOMEWHERE HERE FIGURE 2]

3.5. Supply-driven shifts in the equilibrium

In a market without public intervention, we are indeed likely to observe a lower level of graduates in the population, with respect to the social optimal share. This is due to the presence of positive externalities of higher education on the whole population (see Gemmell, 1997, for a review on the topic), which are not priced by the individual agents bearing the costs. In practice, the society benefits from the individual choice of higher education, in terms of tolerance, reduction of social conflicts, better quality of human capital, etc. Given that the individuals do not take all of the benefits of education, and they only price the "private" benefits, we are likely to observe insufficient levels of higher education in the society. The theory of positive externalities is the ground for public intervention to facilitate the provision of higher education (more public support, greater offer of equal fees, so the balance is formed at a higher level of graduates).

Public intervention is the reason why we are likely to observe an equilibrium like the one described in Figure 2, where a high level of graduate in the population can be observed also when the levels of tuition fees are very low, if the central government provides a sufficient funding (i.e. in the case of Germany). In practise, a sufficient support by the government may allow higher education institutions to supply higher education also at extremely low level of tuition fees. This situation can be described as "supply-driven shift in the equilibrium".

Proposition 4. In Germany, the equilibrium share of graduate population is at a high level, notwithstanding the low level of tuition fees, due to a shift of the supply function ("supply-driven" shift in the equilibrium).

[INSERT SOMEWHERE HERE FIGURE 3]

Indeed, the European context provides extreme cases that our model can interpret under further assumptions. In particular, there are German landers, and Nordic European countries, where higher education is totally free, regardless of the economic condition of the families. In these cases, still, we do not observe increases of the graduate population to extreme levels. This can be interpreted as a lack of elasticity of the demand function at very low levels of fees, such that many individuals do not take higher education not even at zero or negative prices.

4. Discussion and conclusions

While the conceptual model presented above does not consider all of the determinants of supply and demand of higher education, our goal is to allow a comparison of divergent policies under a common framework. In particular, the model allows to easily interpret policies shifting either the supply or the demand of higher education, and allows to take into consideration contextual conditions.

In this respects, the first intuition we can get from this model is that the same policy objective (i.e. increasing graduate population) can be obtained by either shifting the demand function (i.e. by strengthening student aid) or the supply function (i.e. by directly supporting higher education institutions). Under this theoretical perspective, the level of tuition fees is irrelevant, and empirically we can observe high levels of graduate population in both countries with high (i.e. the UK) or low (i.e. Germany) levels of tuition fees. Indeed, this statement should not be interpreted as "all policy work", but rather as "each policy works in the rights circumstances". In practice, this model provides a conceptual framework to help better understanding what are the external conditions that needs being considered, when planning a policy for increasing graduate population. Extrapolating a policy from results in different countries, under this perspective, is a poor solution when contingent factors are not addressed.

The second implication of this conceptual framework is that policies addressing the supply or the demand function needs to address different contingencies. In other words, a government aiming at

increasing graduate population needs to implement complementary policies, designing them according to the side of the market that is interested. For example, a "supply-driven" intervention, through direct financial support of higher education institutions, needs to address the issue of institutions' moral hazard, by creating incentives to supply higher education services in efficient conditions. By contrast, a "demand-driven" policy, providing student aids, needs to tackle the students' moral hazard, by creating an incentive to responsible behaviour. In these respects, an important prosecution of this line of research may provide guidelines for the implementation of policies addressing either the demand or the supply side of higher education markets.

Further, there are several features of higher education markets that have not been addressed by this paper, and that could be covered by further research. First, our conceptual framework assumes the existence of an optimal level of graduate population, without discussing the identification of this optimal level. While Western economies nowadays consider as a goal to provide primary education to the full population, for example, it is less clear what should be the optimal level of graduate population, and therefore what should be the target for a policy maker. A growing body of literature reports how the demand for highly educated labour has not kept pace with supply, giving rise to the problem of overeducation (Davia et al., 2017), raising further issues for the policy makers. A second stream of related literature refers to the brain drain issue, determining a misalignment between countries investing in higher education and those taking advantage of such investments (Heitor et al., 2014; Cattaneo et al., 2017b). Third, while our conceptual model focuses on the quantity of graduate population, a reflection on the trade-off between quantity and quality perceived as more and more relevant for our knowledge-oriented economies. We leave the investigation of these issues to further research.

References

Altbach, P. G. (2006). Student politics: Activism and culture. International handbook of higher education, 329-345.

Becker, G. S. (1967). Human Capital and the Personal Distribution of Income. Ann Arbor, MI: University of Michigan Press.

Benhabib, J. and Spiegel, M. (1994). The role of human capital in economic development. Evidence from aggregate cross - country data. Journal of Monetary Economics, 34, 143-173.

Binsardi, A., and Ekwulugo, F. (2003). International marketing of British education: research on the students' perception and the UK market penetration. Marketing Intelligence & Planning, 21(5), 318-327.

Carlino, G. A., Chatterjee, S., & R. M. Hunt, 2007. Urban density and the rate of invention. Journal of Urban Economics, 61, 389-419

Carneiro, P., and Heckman, J.J. (2003). Human capital policy. In Inequality in America: What role for human capital policies? ed. Heckman, J.J., Krueger, A.B., and Friedman, B.M. Cambridge, MA: MIT Press.

Carr, D.L., Markusen, J.R., Maskus, K.E., 2001. Estimating the Knowledge-Capital Model of the Multinational Enterprise. The American Economic Review 91, 693-708.

Castles, F. G. (1989). Explaining public education expenditure in OECD nations. European Journal of Political Research, 17(4), 431-448.

Cattaneo M., Malighetti M., Meoli M., Paleari S., (2017a). University Spatial Competition for Students: The Italian Case, Regional studies, 51, 750-764.

Cattaneo M., Malighetti M., Horta, H., Meoli M., Paleari S., (2016). Effects of the financial crisis on university choice by gender, Higher education, 1-24.

Cattaneo, M., Malighetti, P., Paleari, S., (2017b). The Italian brain drain: cream and milk. University of Bergamo, mimeo.

Ceja, M. (2006). Understanding the role of parents and siblings as information sources in the college choice process of Chicana students. Journal of College Student Development, 47(1), 87-104.

Chen, C. H., and Zimitat, C. (2006). Understanding Taiwanese students' decision-making factors regarding Australian international higher education. International Journal of Educational Management, 20(2), 91-100.

Cubillo, M., Sánchez, J., and Cervino, J. (2006). International students' decision-making process. International Journal of Educational Management, 20(2), 101-115.

Damme, D.V. (2001). Quality issues in the internationalisation of higher education. Higher education, 41(4), 415-441.

Davia, M. A., McGuinness, S., & O'Connell, P. J. (2017). Determinants of regional differences in rates of overeducation in Europe. Social Science Research, 63, 67-80.

Di Pietro, G. (2002). Technological change, labor markets, and 'low-skill, low-technology traps'. Technological forecasting and social change, 69(9), 885-895.

Eicher, J. C. (1998). The costs and financing of higher education in Europe. European Journal of Education, 33(1), 31-39.

Flannery, D., and O'Donoghue, C. (2013). The demand for higher education: A static structural approach accounting for individual heterogeneity and nesting patterns. Economics of Education Review, 34, 243-257.

Florida, R. (2002). The Rise of the Creative Class: And How Its Trans- forming Work, Leisure Community and Everyday Life, (Basic Books, New York).

Foskett, N., Roberts, D., and Maringe, F. (2006). Changing fee regimes and their impact on student attitudes to higher education. Southampton, England: University of Southampton.

Garritzmann, J. L. (2016). The Politics of Higher Education. Tuition Fees and Subsidies. In: The Political Economy of Higher Education Finance (pp. 1-56). Basingstoke, UK: Palgrave Macmillan.

Gennaioli, N., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2013. Human capital and regional development. The Quarterly Journal of Economics 128, 105-164.

Hanushek, E.A., Kim, D., 1995. Schooling, labor force quality, and economic growth. National Bureau of Economic Research.

Harmon, C., Oosterbeek, H., and Walker, I. (2003). The returns to education: Microeconomics. Journal of economic surveys, 17(2), 115-156.

Heitor, M., Horta, H., and Mendonça, J. (2014). Developing human capital and research capacity: science policies promoting brain gain. Technological Forecasting and Social Change, 82, 6-22.

Hemsley-Brown, J., and Oplatka, I. (2006). Universities in a competitive global marketplace: A systematic review of the literature on higher education marketing. International Journal of public sector management, 19(4), 316-338.

Hossler, D., and Stage, F. K. (1992). Family and high school experience influences on the postsecondary educational plans of ninth-grade students. American Educational Research Journal, 29(2), 425-451.

Hu, S. and Hossler, D. 2000. Willingness to pay and preference for private institutions.. Research in Higher Education, 41: 685–701.

Isherwood, G. B. (1991). College choice: A survey of English-speaking high school students in Quebec. Canadian Journal of Education/Revue canadienne de l'education, 72-81.

Kahn, J., Jong-Soo, L. (1998). Skilled labour-augmenting technical progress in US manufacturing. Quarterly Journal of Economics, 113(4), 1245-1280.

Manuelli, R.E., Seshadri, A., 2014. Human Capital and the Wealth of Nations. The American Economic Review 104, 2736-2762.

Mazzarol, T., and Soutar, G. N. (2002). “Push-pull” factors influencing international student destination choice. International Journal of Educational Management, 16(2), 82-90.

McPherson, M. S., & Schapiro, M. O. (1993). Measuring the effects of federal student aid: An assessment of some methodological and empirical problems. Chapter, 8, 187-228.

Miller, B. (2010). Skills for sale: what is being commodified in higher education? Journal of Further and Higher Education, 34(2), 199-206.

Moogan, Y. J., Baron, S., and Harris, K. (1999). Decision-making behaviour of potential higher education students. Higher Education Quarterly, 53(3), 211-228.

Murphy, K.M., Shleifer, A., Vishny, R.W., 1991. The Allocation of Talent: Implications for Growth. The Quarterly Journal of Economics 106, 503-530.

Nakata, Y. F., and Mosk, C. (1987). The demand for college education in postwar Japan. Journal of Human Resources, 377-404.

OECD (2016), Skills Matter: Further Results from the Survey of Adult Skills. OECD Publishing, Paris.

Paulsen, M. B., and John, E. P. S. (2002). Social class and college costs: Examining the financial nexus between college choice and persistence. The Journal of Higher Education, 73(2), 189-236.

Pigini C., Staffolani, S., (2016). Beyond participation: do the cost and quality of higher education shape the enrollment composition? The case of Italy, Higher Education, 71(1), 119-142.

Politics of Tuition Fees and Subsidies in OECD Countries, 1945-2015. Basingstoke: Palgrave Macmillan.

Price, I. F., Matzdorf, F., Smith, L., and Agahi, H. (2003). The impact of facilities on student choice of university. Facilities, 21(10), 212-222.

Rothschild, M., and White, L. J. (1995). The analytics of the pricing of higher education and other services in which the customers are inputs. Journal of Political Economy, 103(3), 573-586.

Schmeister, M., Stoddard, C., Carly, U. (2016), Student Loan Information Provision and Academic Choices, 106(5), 324-328.

Shattock, M. (2010). Managing mass higher education in a period of austerity. Arts and Humanities in Higher Education, 9(1), 22-30.

Soutar, G. N., and Turner, J. P. (2002). Students' preferences for university: a conjoint analysis. International Journal of Educational Management, 16(1), 40-45.

Srikatanyoo, N., and Gnoth, J. (2002). Country image and international tertiary education. Journal of Brand Management, 10(2), 139-146.

Trow, M. (1972). The Expansion and Transformation of Higher Education. International Review

Wakeling, P., & Jefferies, K. (2013). The effect of tuition fees on student mobility: the UK and Ireland as a natural experiment. British Educational Research Journal, 39(3), 491-513.

Wilkins, S., Balakrishnan, M. S., and Huisman, J. (2012). Student choice in higher education: Motivations for choosing to study at an international branch campus. Journal of Studies in International Education, 16(5), 413-433.

Windolf, P. (1972). Expansion and Structural Change, Higher Education in Germany, the United States, and Japan, 1870-1990. Boulder: Westview Press.

Winters, J. V. 2014. STEM graduates, human capital externalities, and wages in the U.S. Regional Science and Urban Economics 48, 190-198.

Zimbroff, J. A. (2005). Policy implications of culturally based perceptions in college choice. Review of Policy Research, 22(6), 811–840.

Tables and Figures

Table 1. Share of the population by level of educational attainment, by selected age groups and country (%, year 2015). Source: Eurostat.

	25–54 years			55–74 years		
	Low (ISCED 0–2)	Medium (ISCED 3–4)	High (ISCED 5–8)	Low (ISCED 0–2)	Medium (ISCED 3–4)	High (ISCED 5–8)
EU-28	20.8	46.5	32.6	37.4	42.6	20.0
EA-19	23.8	44.6	31.6	41.8	38.5	19.7
Belgium	20.9	39.1	40.0	44.4	31.0	24.7
Bulgaria	16.9	54.2	28.9	27.8	51.4	20.8
Czech Republic	5.2	70.3	24.5	13.7	72.9	13.4
Denmark	17.1	43.1	39.8	30.6	43.1	26.3
Germany	12.9	58.7	28.3	16.2	59.3	24.5
Estonia	9.2	51.9	38.9	12.1	52.5	35.3
Ireland	15.6	37.6	46.8	45.9	30.7	23.3
Greece	24.2	44.2	31.7	56.8	26.4	16.8
Spain	38.1	23.5	38.4	66.7	14.0	19.3
France	18.3	43.7	38.0	39.8	39.5	20.6
Croatia	12.5	62.5	25.0	33.1	49.7	17.2
Italy	36.3	44.6	19.1	61.1	28.5	10.4
Cyprus	17.4	37.8	44.8	47.5	31.8	20.6
Latvia	10.3	55.9	33.8	13.9	63.3	22.8
Lithuania	6.8	51.5	41.7	13.8	60.3	25.9
Luxembourg	21.9	33.4	44.7	34.3	39.8	25.9
Hungary	14.9	58.6	26.5	28.1	55.2	16.7
Malta	50.4	26.6	23.0	77.8	13.8	8.5
Netherlands	19.9	42.1	38.1	40.0	35.5	24.5
Austria	13.1	53.9	33.1	26.2	53.7	20.1
Poland	7.2	60.0	32.7	20.3	65.8	13.9
Portugal	48.4	25.6	26.0	80.7	8.8	10.5
Romania	21.9	58.5	19.6	45.3	46.6	8.1
Slovenia	9.9	56.2	33.9	25.1	56.5	18.4
Slovakia	6.9	69.6	23.5	17.3	69.3	13.4
Finland	9.6	45.4	45.0	27.8	39.0	33.2
Sweden	13.1	44.2	42.7	29.0	42.6	28.4
United Kingdom	18.5	37.7	43.8	29.4	38.7	31.9
Iceland	22.9	35.1	42.0	37.1	38.0	24.9
Norway	16.8	37.2	46.1	20.6	49.5	29.9
Switzerland	10.8	44.8	44.4	17.2	53.5	29.3
FYR of Macedonia	31.0	48.8	20.2	47.4	38.1	14.5
Turkey	62.7	19.1	18.2	84.3	8.2	7.5

Figure 1. Equilibrium in the HE market

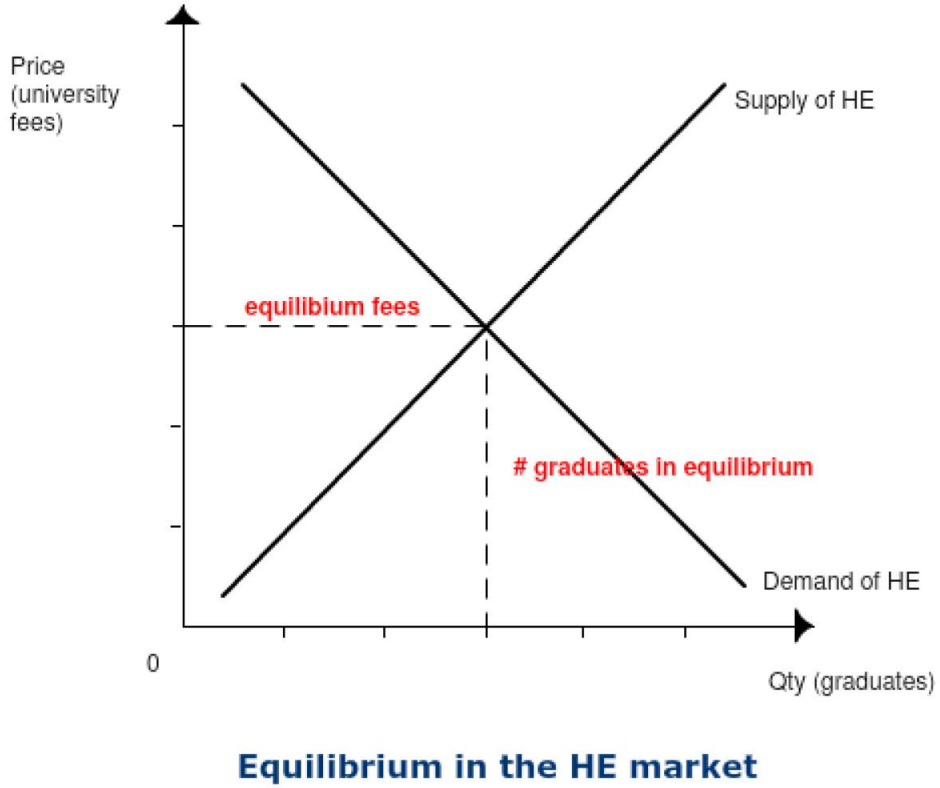


Figura 2: Equilibrium in the HE market in a country with high fees and high number of graduates

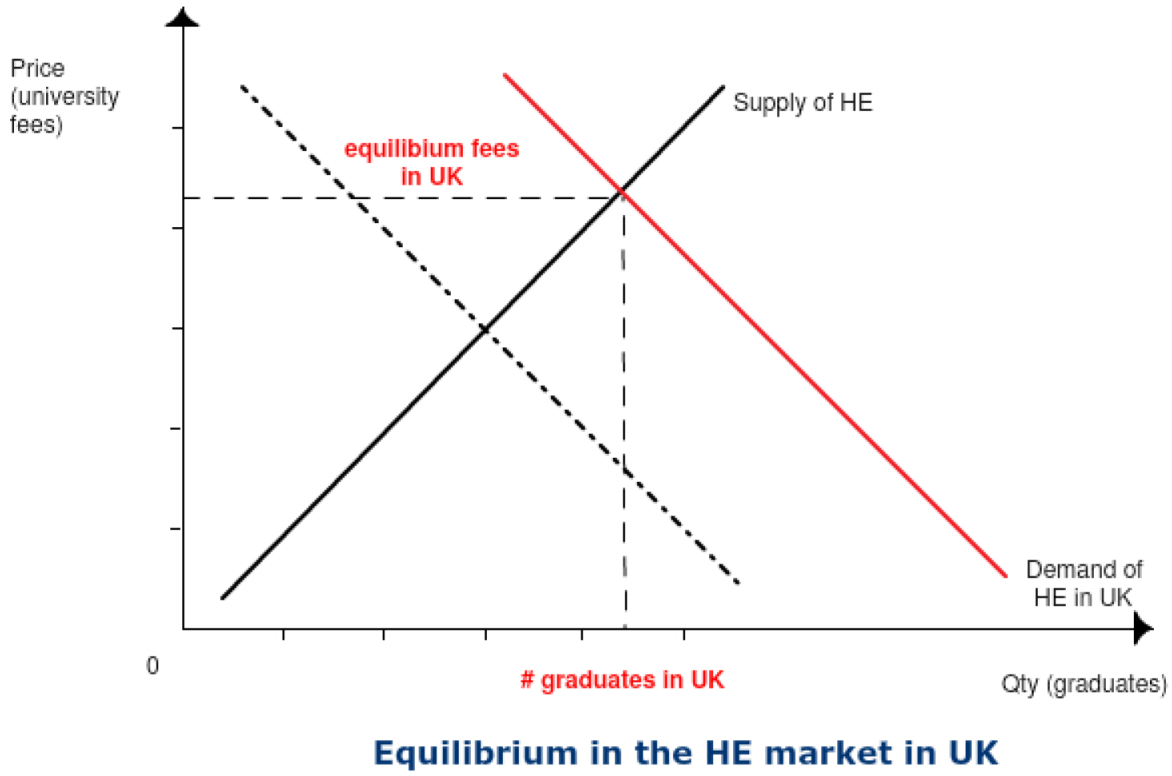
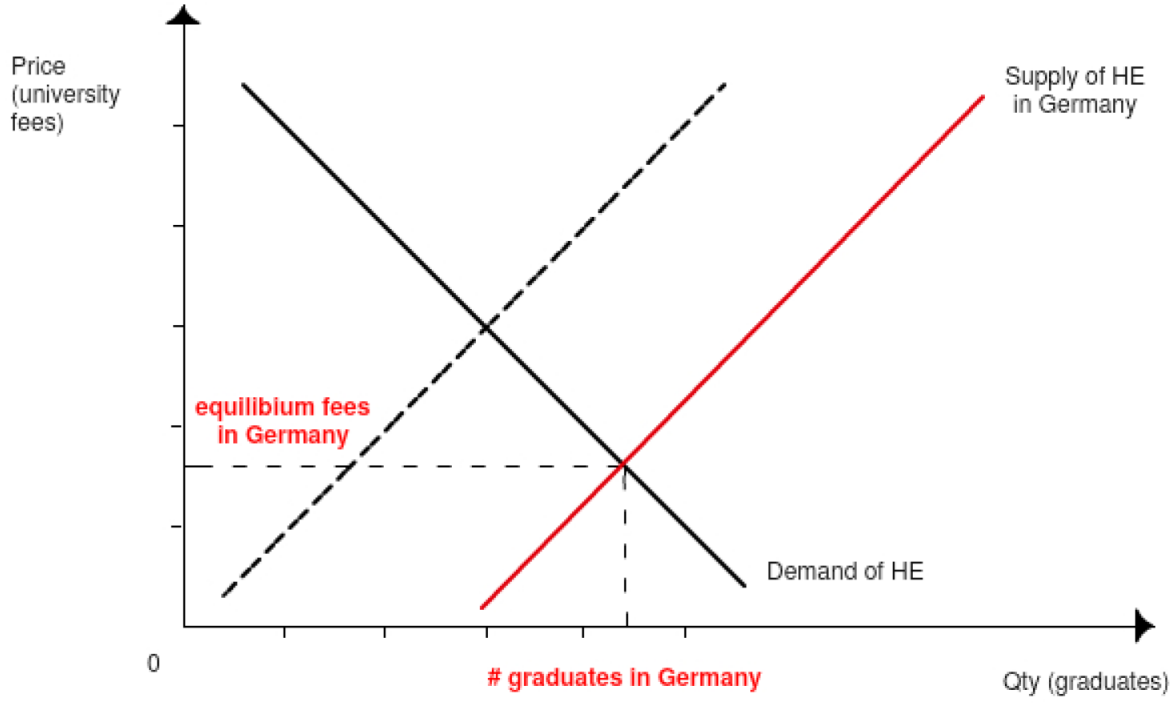


Figure 3: Equilibrium in the HE market in a country with low fees and high number of graduates



Equilibrium in the HE market in Germany