Government Intervention in Postsecondary Education in Bulgaria

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GOVERNMENT INTERVENTION IN POSTSECONDARY

EDUCATION IN BULGARIA

By

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Abstract:

In this paper, based on report published by the Bulgarian National Audit Office with reference to public university graduates entering the labor market, I try to outline possible ways to overcome labor market failure problem forced by inefficient public university funding. It is the Bulgarian Government and in particular Ministry of Education, Youth and Science that perform policy to contribute to achieve postsecondary labor market equilibrium. Based on the report findings, I argue that the subsidies allocated for public universities are quite high compared to the funds adopted for health services for example.

It is not the high acceptance rate that are being achieved, but the admission quotas that are being defined by universities. I consider this as a precondition for the labor market failure problem. Thus supply and demand on specialists with university degree on labor market is unbalanced. This creates risk for inadequate managerial decisions when developing strategies and policies in the fields of labor market and university education. As a result labor market is saturated with specialists with some occupations, and shortage with others.

Keywords: public university funding, labor market failure problem, positive externalitites, postsecondary education

1. Introduction

In September 2013, Bulgarian National Audit Office (BNAO) has published an audit report claiming that only 25% from all university graduates had started their professional career on positions that require university diploma. The audit period was within 1st Jan 2009 – 31st Dec 2012. The report findings raise concern with reference to what extent Bulgarian Government, and in particular Ministry of Education, Youth and Science (MEYS) perform effective policy to contribute to achieve postsecondary labor market equilibrium. According to the report, within the studied period, Bulgarian Government had spent 678 million euro in forms of subsidies or 3 317 euro per student, which is almost five times higher (see Appendix) compared with the adopted budget for health services within the same period – 711 euro per inhabitant. The aim of this paper is to show possible ways to overcome labor market failure problem forced by inefficient public university funding.

Over the past two decades, university subsidization in Bulgaria has become a major policy issue. Its importance derives not just because postsecondary education contributes to an economy's stock of knowledge and the productivity of its labor force, but also because universities play a vital role in national income formation and receive an important share of public sector expenditures.

Traditional economics tend to regard a market as a robust mechanism of social choice. Rational utility-maximizing behavior leads to equilibrium and it is Pareto efficient. From society's point of view, however, market failures may occur when outcome production differs from optimal. Market failures are cases when production of goods and services is too much or too little,

challenging the self-regulating capacity that economists usually associate with a market mechanism, i.e., the capacity to adjust to situations of excessive or insufficient supply or demand.

A market failure problem could exist and persist because the benefit to society in terms of higher productivity and a higher GDP is un-priced by the market. This leads to the private optimum level of output being less than the social optimum level of production. The individual does not take into account the external benefits of higher education – they may not be aware of the social benefits or may underestimate their own private benefits – this is an example of information failure.

After referring to the literature in Section 2, Section 3 illustrates the positive externalities impact on labor market as result of government intervention. Section 3, *inter alia,* outlines three possible reasons why the cost of government intervention into education markets may be greater than the benefits as well. Section 4 provides a deeper analysis of the Bulgarian government efficiency in postsecondary education and focuses on possible ways to overcome labor market failure problem forced by inefficient public university funding. Section 5 concludes.

2. Literature review

Much of the literature on educational returns recognizes that returns may vary across schooling levels and across persons with the same schooling level and therefore has focused on improving model specification by introducing heterogeneous return model.[1] In traditional economic theory and empirics, Mincer equations[2] are the most widely used in labor economics and economics of education. In leading economies (such as US, Japan, Germany, Canada, Finland, Australia) in

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1 See Heckman, Smith, Clements, (1997), Blundell, Dearden, Goodman and Reed (2000); Blundell, Dearden and Sianesi (2001).
2 Generally these equations explore and estimate the relationship between labor income, educational attainment and work experience in labor market.

terms of PISA index[3], policies aimed at increasing the educational attainment and income, are the one that use specific measures and results namely from estimated Mincerian equations. The main challenge in the evaluation today is how to achieve precise specification of econometric models and the application of appropriate assessment methods.

The models provided by Mincer (1974) have proved to be fundamental in literature. Mincer along with Becker, Schultz and Rosen develop the concept of human capital and the internal rate of return to education (Schultz, 1961; Becker, 1964; Rosen, 1976; Becker, 1994). Within the period 1958 − 1974 he develops empirical models to assess the relationship between employee skills and their income.

In the original theoretical model (Mincer, 1958), he explains why workers with different educational levels get different labor payment with differential income − employees with higher education get higher incomes. In this model the economic reality is simple − all students have the same ability to learn, the same opportunities to realize, equal access to finance, there is no uncertainty in the business environment in terms of future incomes of employees, the benefits of education remains constant, and what makes the jobs different is the required educational level only.

Salmi and Hauptman (2006) researched a compounding issue related to the inefficiency associated with the subsidising of tertiary level education (TLE). Essentially, the demand for postsecondary education is increasing *"far faster than the ability or willingness of governments to provide public resources"* (Salmi and Hauptman 2006, 1) to meet this demand. The increased demand has been accredited to: the faster growth in future economic value attributed to a

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3 The Programme for International Student Assessment (PISA) is a worldwide study by the Organisation for Economic Co-operation and Development (OECD)

postsecondary degree as opposed to that of a secondary level graduate; the changing of cultural attitude towards the attainment of postsecondary education to improve one's social welfare and the attempt of government to steer university curricula toward areas with human resource gaps (Salmi and Hauptman, 2006).

According to Bloom and Sevilla (2004), if government chooses the way of subsidising postsecondary education, aiming at realization of true benefit, three main conditions must be met. Positive net return to the public on the investment made into the society comes as first. The second condition is that persons must have "*insufficient ability or incentive*" (Bloom and Sevilla 2004, 135) to satisfy the socially optimal level of investment in postsecondary education on private level. Thirdly, the investment must generate levels of net social benefits which outweigh that of alternative uses of public funds.

Prior to writing his paper, Dougherty (2004) insists on the fact that US has also experienced changes in their funding schemes for higher education focusing on the changes in the amount of public funding offered to universities. He highlights the significant decrease in the share of public funding to the universities while emphasising the movement toward funding institutions based on performance. In turn, universities have sought to increase tuitions, cut costs by outsourcing services and seek private funding.

Madgett and Blanger (2008) describe the case of Canada in the fact that there are two tiers of government: federal and provincial. Also different Canadian provinces have different rules with regards to funding and tuition fees for postsecondary education. However, the use of a system focused primarily on loans, as opposed to government grants, still exists. Reductions in transfer payments to provinces directed toward health and higher education began in the late 1980s under

the Mulroney government, eventually leading to a reduction in direct public funding to higher education from 80% to 60% *"within a few years"* (Madgett and Blanger, 2008). As a consequence, tertiary level institutions increased tuition fees. Between 2008/09 and 2012/13 average undergraduate tuition fees for fulltime students in Canada increased from CAN$4,747 to CAN$5,581 (Statistics Canada, 2012). Students are therefore charged for tuition but have access to Governmen loans which they must generally start repaying six months after the completion of their degree.

Focusing on the eastern hemisphere in the financial crisis, Wang (2009) emphasizes that China universitites funding was affected as the rate of growth of funding decreased in 2008 (UNESCO 2012). China has the largest higher education system in the world (Wang, 2009) with over 3,000 universities in 2006 enrolling 25.4 million students. Within the period of late 1980s and early 1990s, China pioneered its *"dual track"* enrolment policy aiming at students who does not meet the minimum grades in the national university entrance examinations would pay their tuition. However, this system was amended in 1997 so that all students were made to pay tuition fees. Over time the share of public funding to public universities has been decreasing while the share of tuition funding has been increasing. Though it is still the major source of funding for public institutions, public expenditure as a percentage of total expenditure has decreased from 91.81% in 1993 to 42.77% in 2005 while the proportion from tuition and fees increased from 6.81% in 1993 to 31.05% in 2005 (Wang, 2009).

Return to education is in line with one of the most relevant issues in the economic literature. The important point here is that people differ with respect to their marginal return to education,

their marginal cost for education and their taste and choices[4], hence the return to education is not a single parameter but can potentially differ according to differences in the individuals' family backgrounds . Some individuals may be able to access funds from family or other sources in order to acquire additional education, while others are unable to do so (Eren, 2009). With this reference, other substantial parameters that deserve mentioning are: social stratification, respect for law, independent judiciary, free elections, pluralism, freedom for the press, health etc., but since they are not in the scope of this paper I will not address them further.

3. Labor Market Failure as a Result of Government Involvement

Positive externalities occur when an external benefit is generated by the producer of a good but because there is no market for the externality the producer cannot get compensated for producing this extra benefit. In cases where the production of a good causes positive externalities, the market price of the good will not reflect its true value and an underproduction will occur. The positive externality argument is perhaps the most commonly cited justification for government involvement in education (Poterba, 1996). Although positive externalities may take many forms, they can essentially be classified into two groups. First, it is that education increases civic engagement and thereby contributes to a stable and democratic society (Friedman, 1962: 86). The second argument is that and educated workforce is vital for the creation and adoption of new technologies – economic growth (Hanushek, 2002: 2065; Goldin and Katz, 2010; Kukulska-Hulme, 2012).

Where substantial positive externalities exist, the good or service may be under-consumed by people or under-provided since the free market may fail to take into account their effects. This is

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4 In practice, economic returns to education can vary across people due to a number of unobserved factors, such as ability, motivation, and ambition, as well as differences in the interest rate faced by different individuals (Card, 2001).

because the social marginal benefits (SMB) of consuming the good are greater than private marginal benefits (PMB). An example of positive externalities arising from the consumption of education is shown in *Figure 1*. In the example, a consumer benefits from education that increases productivity causing SMB to rise.
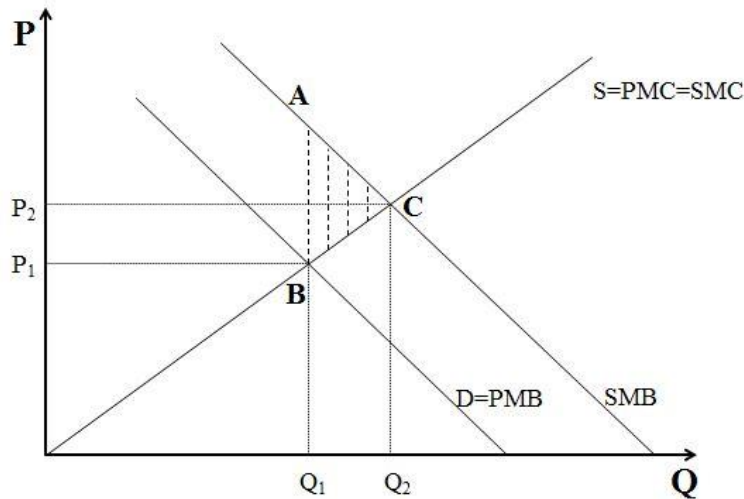

Figure 1: Positive Externalities Diagram

Figure 1 describes the demand curve D as a measure of the overall benefits of education, and the supply curve S which equals private marginal cost (PMC) and social marginal cost (SMC) as a measure of the overall costs of that same activity. The demand represents private marginal benefits (PMB) and the costs and benefits illustrated by the curves are only those experienced by producer (universities) and consumer (students) directly involved in the activity. A positive externality increases the social benefits from education, so an adjusted demand curve which includes the positive externalities would lie farther in the diagram, reflecting a lower social price at each quantity (SMB).

One may compare a regular demand curve with SMB and discover that education is being under-produced in relation to the price consumers are paying. In both cases, the curves show that, while the market may be working efficiently as far as producer and consumer are concerned, it is working inefficiently for society as a whole.

The private optimum occurs where the PMB equals PMC, giving an output of Q_1. At this level of output, the distance AB represents the size of the external benefit. For society as a whole though the social optimum is where SMB equals SMC at output Q_2.

The socially optimal level of output is where SMB equals SMC. If we sum up the excess of SMB over PMB between Q_1 and Q_2 we arrive at a figure that indicates the deadweight loss to society. This is the triangle ABC. Society as a whole could be made better off by increasing the current level of output from Q_1 to Q_2 because deadweight loss to society depends on the elasticity of S. The more inelastic the S curve, the smaller the deadweight loss to society.

Even if one could conclude that there were positive externalities from education and that those externalities were Pareto-relevant, the magnitude of the market failure must be weighed against the ability of government to provide remedy (High, 1985). In theory, government would solve a market failure by determining the solution that maximizes social welfare and then implementing that solution. In practice, however, government frequently lacks the ability to even determine the solution that maximizes social welfare, let alone implement it.

The relevant question that comes next is not whether government fails, but rather whether the costs of government intervention in the market place exceed the benefits (Hosein and Franklin, 2010). There are three reasons why the costs of government intervention into education markets are likely to be greater than the benefits. The first reason is that the government does not possess

the necessary information to determine the best, or even a close approximation, to the solution to the social welfare maximization problem (Cavallo, 2008). In the context of education, even if it were true that the amount of education obtained absent government intervention, it would be below the socially optimal level; government does not possess the requisite knowledge necessary to reach that socially optimal level. The government does not know which individual to subsidize and how much of a subsidy to provide in order to maximize social welfare. The data necessary to determine who to subsidize do not even exist and would be extremely costly, if not possible, for government to obtain due to incentives for preference falsification among potential subsidy recipients.

The second reason why government intervention into the education marketplace is likely to be more costly than the private solution, even assuming market failure, is that the solution implemented by the government is determined not by social welfare but by political considerations (Young and Block, 1999; Milligan et. al., 2004). In practice, education policy is not determined by a benevolent educational planner but rather by the self-interest of the political class and their supporters (Dee, 2004). If the level of education provision determined through the political process is higher than the socially optimal level, then on net the value of the additional education may be negative.

The third reason to distrust the ability of government to be able to provide a more efficient solution is because allocating additional resources to education means that resources have to be redirected from other use. Assuming that government would be able to determine the solution that maximizes social welfare and would be able to implement that solution, it is not clear that the costs of implementing that solution would not exceed the benefits obtained from that solution.

Perhaps more importantly, if an individual values alternative uses of their income more than the positive externalities generated by university education, then the positive externalities are not Pareto-relevant (Buchanan and Stubblebine, 1962). It is generally not efficient for an individual to consume education until the marginal benefit is zero. A rational individual will acquire education until the marginal benefit of the extra unit of education is equal to the marginal cost of that education. Just because the social benefit to an additional unit of education is positive does not mean that it is efficient to require that individual to acquire more education. If that individual would value doing something else more than spending that time in class, it is not efficient to subsidize additional education.

Combined, these three reasons suggest that the cost of a government solution to an alleged market failure with respect to education is likely to exceed the benefit associated with the implementation of the government response. Policy makers fail to consider the ability of government to determine and implement a solution that maximizes social welfare and thus overestimate the ability of government intervention into education markets to improve social welfare. A more realistic understanding of the nature and limitations of government show that government intervention into postsecondary education markets is unlikely to provide benefits sufficient to overcome the costs of any market failure.

4. Bulgarian Government Efficiency in High Education

In the transition years, we have seen a massive restructuring of the economy and the labor market. Low incomes in Bulgaria, measured by GDP per capita[5], often brings feeling that return to education is insignificant. The application of Mincer econometric model, however, clearly

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5 As of 2012 according to the World Bank statistics, GDP per capita in Bulgaria is $ 6 986 in current prices, while the leading countries have respectively: US - $ 49 965; Japan - $ 46 720; Germany - $ 41 514; Finland - $ 46 179; Canada - $ 52 219; Australia - $ 67 036.

confirms the established relation to other economies, namely that postsecondary education is associated with higher levels of income. On average, returns to education estimates at 3-4% increase in income for one additional year of education (Simeonova-Ganeva & Panayotova, 2009).

As of September 2013 there are 51 accredited universities in Bulgaria.[6] *Table 2* in the Appendix shows that the average acceptance rate of public universities for the studied period is 96%, while private universities accept on average 87%. It is not the high acceptance rate that are being achieved, but the admission quotas that are being defined by universities. One may consider this as a precondition for the market failure problem. Supply and demand on specialists with university degree on labor market is unbalanced. This creates risk for inadequate managerial decisions when developing strategies and policies in the fields of labor market and university education. Thus, labor market is saturated with specialists with some occupations, and shortage with others (Mandelman and Zanetti, 2010).

The structure of the approved and realized admission of students in public universities is divided in nine areas of high education, presented in *Table 3* in the Appendix. Social, Economic and Legal Studies has the largest share from the approved admission quotas on national level, taking 34-35%, and 35-36% from the realized admission in all areas of the high education. This trend remained constant throughout the surveyed period. The total number of all enrolled students for the surveyed period in both – public and private universities is presented in *Table 4* in the Appendix. 69% of the students are full-time enrolled, while 31% are part time. There has been decreasing tendency in students' enrollment rates throughout the years.

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6 According to Ministry of Education, Youth and Science: http://www.mon.bg/en/

As High Education Regulation in Bulgaria had been amended several times, still there are not any defined functions of government with relation to optimization (merging) of universities. This is closely connected with the admission of students and the labor market demand. Government need to participate more effectively in terms of public university management and to modify its control mechanism. The financial model that had been deployed about decreasing government subsidy if universities tend to accept more students than the submitted capacity is inadequate and causes government budget losses.

Another problem that deserves further discussion is the level of knowledge that university graduates acquire. When students leave university they are theoretically prepared for the labor market but practical experience is missing. And this is in contrast to what business expects. To overcome this issue, one might consider development of better strategy for effective realization on the labor market.

Yet, there is no unified strategy for the Higher Education in Bulgaria. Currently, Ministry of Education, Youth and Science performs its policy based on a number of governmental decisions, programs and specific sectoral strategic documents. The lack of active involvement of the Ministry to promote cooperation between public universities and business does not provide adequate conditions to prepare students for real work environment. Possible solution for policy makers is a transparent effective management of higher education and overall revision of the strategy about the admissible quotas that universities are supposed to define.

In terms of youth employment (aged 15-24) Bulgaria is above European Union average (see *Table 5* in the Appendix). This fact should not give government positive signals about the situation on the labor market because on one side, referring to the beginning of this paper there is

clear problem with postsecondary education strategy, and on the other – labor market does not faces equilibrium in terms of high qualified specialists.

5. Conclusion

Much like the housing bubble in United States, postsecondary education in Bulgaria is fueled by government subsidies, publicly-backed loans and incentives that say everyone should be doing something. Doubtlessly, this has an impact on labor market, recently proved by a report published by Bulgarian National Audit Office. Labor market failure problem, as a result of inefficient public university funding, tend to be disregarded by policy makers leading to saturation of specialists with some occupations, and shortage with others.

Since there is no clear postsecondary education regulation, unification of all regulations in Bulgaria is missing, universities are facing the challenge to accept more students. A deep revision of both – admission control mechanism and optimization (merging) university strategy is a considerable option within governmental program.

It is an open question whether the redistribution of 678 million euro in forms of subsidies from taxpayers to universities within four academic years is a desirable outcome. Prior to start seeking answers to that question, Bulgarian government should think of another potential problem – migration of high educated workforce. Education, in turn, is a main determinant of wages, both in the country of origin and the potential country the individual is prone to migrate in (Dustmann and Glitz, 2011). Higher earners contribute more to tax and benefit systems, and may increase per capita GDP. Although the decisions about how much education to obtain and whether to migrate are often sequential, individuals may in many cases make these choices simultaneously, choosing education at home with a view to migrating later (Dustmann and Glitz, 2011).

Future research may also investigate the economic profile of non-marginal students in Bulgarian's public universities. If such redistribution is considered to be highly ineffective (or is deemed to be contrary to egalitarian goals), then more analysis is needed on whether it is possible to distinguish between marginal and non-marginal students, with the objective of finding ways to reduce subsidies to the marginal. This may be a difficult distinction to make in practice, and the political framework of trying to alter subsidies in this way could be quite large. I leave this to future research, not only by economists, but by political scientists and other social scientists.

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7. Appendix:

Table 1: Total numbers of admissions and accepted students in both Public and Private Universities in Bulgaria

Year	Population in Bulgaria*	Budget for Health Services in Bulgaria** /in EUR/
2009	7 563 710	1 264 395 679
2010	7 504 868	1 315 150 601
2011	7 327 224	1 346 604 766
2012	7 284 552	1 346 604 766

* Source: NSI
** Source: National Health Insurance Fund

Table 2: Total numbers of admissions and accepted students in both Public and Private Universities in Bulgaria

Year	Admission (in numbers)	Accepted students		Public Universities			Private Universities		
		in numbers	%	Admission	Accepted	%	Admission	Accepted	%
2009/2010	65 167	65 610	101	52 848	50 297	95	12 319	15 313	124
2010/2011	66 371	62 014	93	52 005	50 113	96	14 366	11 901	83
2011/2012	71 780	64 369	90	54 590	51 996	95	17 190	12 373	72
2012/2013	70 259	64 851	92	54 237	51 992	96	16 022	12 859	80
Total	**273 577**	**256 844**	**94**	**213 680**	**204 398**	**96**	**59 897**	**52 446**	**87**

Source: NSI

Table 3: Structure of the approved and realized admission of students in public universities by areas:

Areas of High Education	2009/2010		2010/2011		2011/2012		2012/2013	
	Admission quota	Accepted	Admission quota	Accepted	Admission quota	Accepted	Admission quota	Accepted
Educational Sciences	5 118	5 041	4 937	4 887	4 917	4 753	5 028	4 814
Humanities	4 028	3 578	3 957	3 731	4 075	3 719	4 138	3 806
Social, Economic and Law, incl:	17 841	17 627	17 966	17 906	19 333	18 808	18 594	18 100
-Business Administration	2 646	2 649	3 002	2 893	2 825	2 644	2 616	2 498
- Economics	9 518	9 467	9 222	9 311	10 390	10 163	9 960	9 684
Mathematics and Informatics	4 168	3 706	4 060	3 776	4 231	3 947	4 402	3 927
Technical Science	14 920	11 789	14 095	12 846	14 700	13 527	14 649	13 992
Agricultural sciences and Veterinary Medicines	1 596	1 554	1 604	1 581	1 670	1 658	1 701	1 653
Health and Sport	3 424	3 470	3 550	3 620	3 821	3 811	3 913	3 944
Arts	1 121	1 002	1 120	1 077	1 152	1 080	1 181	1 131
Security and Defense	632	602	716	689	691	693	631	625
Unallocated admitted Students		1 928						
	52 848	**50 297**	**52 005**	**50 113**	**54 590**	**51 996**	**54 237**	**51 992**

Source: NSI

Table 4: Total number of students in all Bulgarian universities for the period 2009-2013

Academic Year	Full-time	Part-time	Total
2009/2010	177 322	86 699	264 021
2010/2011	181 277	82849	264 126
2011/2012	182 774	79 532	262 306
2012/2013	180 765	77 471	258 236
	722 138	**326 551**	**1 048 689**

Source: NSI

Table 5: Youth employment (aged 15-24) of all students that has graduated university within 2009 – 2012

		2009	**2010**	**2011**	**2012**
European Union (28 countries)	%	58	56.9	55.5	54.5
Belgium	%	53	53.8	53.1	47.6
Bulgaria	**%**	**75.4**	**63.5**	**58.5**	**62**
Czech Republic	%	37.6	36.3	39	37.3
Denmark	%	77.3	67.7	72	70.2
Germany	%	77.8	75.2	78.5	76.2
Estonia	%	68.1	55	62	61.4
Ireland	%	66.7	61.7	63.8	63
Greece	%	56.1	47.8	44.5	41.5
Spain	%	48.5	45.6	41.2	38.1
France	%	49.1	49.8	48.9	48.7
Croatia	%	58.2	56.2	40.5	37.4
Italy	%	24.9	25.3	22.7	23.1
Cyprus	%	67.7	65	58.1	56.4
Latvia	%	65.7	71.4	67.8	70
Lithuania	%	70.6	62.2	68.3	67
Luxembourg	%	56.3	46.7	45.9	45.3
Hungary	%	61.4	57	57.5	54.4
Malta	%	72.7	65.9	75.2	74.4
Netherlands	%	80.2	76.3	76.9	77.9
Austria	%	63.1	63.3	66.1	71.6
Poland	%	59	52.6	48.1	45.6
Portugal	%	50.4	47	49.9	37.4
Romania	%	56.4	44.8	42.5	39.7
Slovenia	%	71.8	60	53.9	53.7
Slovakia	%	42.7	30.8	23.7	23.2
Finland	%	78.8	79	80.6	74.2
Sweden	%	53.6	56.8	58.5	55.3
United Kingdom	%	71.8	72.6	70	71.6

Source: Eurostat