

FUNDING OF POSTGRADUATE STUDIES IN SLOVENIA

Vesna Skrbinjek

International School for Social and Business Studies, Slovenia vesna.skrbinjek@mfdps.si

Dušan Lesjak, PhD

International School for Social and Business Studies, Slovenia, and Faculty of Management Koper, University of Primorska, Slovenia dusan.lesjak@mfdps.si

Abstract

The human capital is straightening through education, which brings benefits to the social and economic development and indirectly provides higher economic growth. How does Slovenia provide care for the strengthening of human capital? We start by mechanisms of founding the most perspective candidates – postgraduate students. Creation of new knowledge starts with postgraduate students, who are at the beginning of their research path. By the academic year 2008/09 about 50% of all enrolled postgraduate students (former master's and doctoral degrees) in the current academic year, were co-funded in the amount of \in 1,200 per student (from 2004/05 till 2008/09). In academic year 2007/08 the 3rd cycle study programmers were also financed in the same manner as the former postgraduate programmes (on average 55% of all enrolled postgraduate students in 3rd cycle study programmers in the period from 2007/08 to 2009/10 were co-funded), while the Higher Education Act (Official Gazette RS, no 119/2006- OCT3) provided free full-time study for all those who do not have the level of education equal to the 2nd cycle. While the number of students enrolled in 3rd cycle study programmes were (is still) growing rapidly, the need for a new organization of co-funding of doctoral studies was essential. The new Regulation on co-funding of doctoral studies (in 2010/11) reduced the number of co-funded students significantly (27% of all enrolled), but on the other hand, provided co-funding by the end of their studies, with substantially higher amounts to one doctoral student.

Keywords: Financing postgraduate studies, doctoral studies, human capital, economic growth.

1. INTRODUCTION

The aim of higher education, especially higher education funding, is to achieve the efficiency, accessibility, equity, excellence and quality of higher education institutions as well as their autonomy in managing allocated funds. In Slovenia, authors (Lesjak & Marjetič, 2010; Trunk-Širca, 2007, 2010; Bevc, 2010; Čelebič, 2008, etc.) deal primarily with public funding of 1st and 2nd cycle study programmes and related problems. We have decided to pay attention also to the funding of 3rd cycle study programmes which has, until now, been to a large extent neglected.

Our paper deals with funding of postgraduate study programmes before and after the Bologna reform in Slovenia, with an emphasis on scientific study programmes. We derive from changes in the number of postgraduate students and graduates of postgraduate study programmes and their co-funding. With amendments to regulations in this field, co-funding of postgraduate studies has been re-allocated from old, pre-Bologna study programmes to new, Bologna study programmes. The number of students enrolled in postgraduate study programmes has also changed, with significantly more students enrolling in Bologna postgraduate study programmes compared to pre-Bologna ones, which raises the question about the sufficiency of their co-funding.

2. THE ROLE OF KNOWLEDGE IN SOCIETY

Contemporary society is knowledge society where economic and social development depends on the acquisition, accumulation and application of knowledge (COM, 2000, p. 5). The Lisbon Strategy (2000) attributed knowledge an important economic role, and its reform (Nov začetek za Lizbonsko strategijo, 2005, p. 21) identified knowledge as the "main driver of productivity growth in contemporary economies", and the only factor that could ensure Europe's global competitiveness. Usher (2002, p. 4) regards knowledge as a production factor which drives economic growth. It depends not only on the input but also on the output, since the growth of knowledge can be unlimited. Usher also implies the need for the efficient management of new knowledge, which should be based on innovation as economic growth depends on supporting factors that allow for the continuous development of knowledge. Knowledge is enhanced in the form of human capital that requires financial resources to be invested in educating individuals. This should in the future bring us both social and private benefits including higher productivity, better wages, lower risk of unemployment, etc. (Wößmann and Schütz, 2006, p. 1). A study by Long et al. (2009, p. 10-11) found that education expenditures return in the form of long-term economic returns resulting in higher economic growth¹. In relation to this, Adam and Rončević (2004, p. 222) point out that human capital is dead capital if one does not take advantage of it. Lenarčič (2007, p. 92) believes that the production of knowledge should be followed by the efficient transfer of knowledge from an individual to the user, which can only be ensured with efficient social capital.

¹ A direct impact is related to an additional year of schooling since GDP growth increases by 0.2% annually as a result of work productivity of people. Knowledge, abilities and skills acquired in the process of education indirectly contribute to technological progress which also has an impact on GDP growth. Each improvement in the quality of education has an indirect impact on GDP increase as well as on lower costs of public action and lower crime rates (Long et al., 2009).

Universities have a key role in this process because they strengthen the research potential through doctoral programmes and, in their environment, enable the development of potential not only for the academic but increasingly also the economic sector (EUA, 2007, p. 6, 9). Doctoral training and education is the only level of studies in the Bologna Process which connects the European Higher Education Area (EHEA) with the European Research Area (ERA) (Ibid., p. 8). "Doctoral studies are an investment in social and human capital" (Halse, 2007, p. 326). Therefore, knowledge carriers should be highly educated experts without whom we cannot expect scientific, technological and social progress, which is why their reproduction in society is necessary (Matelič, Mali & Ferligoj, 2007, p. 71).

3. EUROPEAN GUIDELINES AND SLOVENIAN LEGISLATION GOVERNING POSTGRADUATE STUDIES

At the beginning, the Bologna Process dealt mostly with the first two cycles of higher education (Huisman & Naidoo, 2006, p. 2), while the 3rd cycle was first given attention in the Bergen Communiqué (2005, p. 4). În it, ministers responsible for the Bologna Process emphasised the importance of doctoral studies which should be interdisciplinary, offer a broad spectrum of knowledge and meet the needs of the labour market. Among other things, they recommended the number of doctoral candidates who would find career opportunities within the EHEA to be increased. The Bologna seminar in Salzburg in 2005 (EUA, 2007) highlighted that the essence of doctoral training is to develop knowledge through research, which is why there must be adequate funding available for doctoral candidates as beginner researchers creating new knowledge. At their next meeting in London (London Communiqué, 2007, p. 5), ministers extended their recommendations to include improving the status of doctoral students, their career prospects and early stages funding. An even greater need for the co-existence of higher education and research was identified in 2009 in Leuven (Leuven Communiqué, 2009, p. 1), in the face of the global financial and economic crisis and the recommendation to establish providing public higher education funding as the highest priority. The achievements of Salzburg principles (EUA, 2010) demonstrated that the number of 3rd cycle students increased in the specified period, but the lack of funding remains a problem.

In accordance with EU recommendations, the Resolution on the National Programme of Higher Education of the Republic of Slovenia 2007-2010 (Official Gazette RS, no. 94/2007), in order to enhance knowledge sharing in the higher education-science-economy triangle, set the target to provide "at least 600 new Doctors of Science per year" by 2010.

From 1994 postgraduate studies in Slovenia included specialisation study programmes, and Master of Science and Doctor of Science study programmes. Below, we will focus mainly on scientific postgraduate study programmes aimed at best candidates and at creating new knowledge, which is the most important for our paper. Master of Science study programmes lasted two years, and Doctor of Science programmes up to four years (Higher Education Act, Official Gazette RS, no. 67/1993, hereinafter: the HEA), of which "first two years were carried out in the form of a Master programme, and the last two years in the form of students' independent research". This meant that students had the possibility for a direct transition from a Master of Science to a Doctor of Science study programme and vice versa² (Decision on

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² In accordance with the HEA (Official Gazette RS, no. 67/1993), "individuals enrolled in a Master of Science study programme could, in accordance with the requirements specified by the statute, complete their studies in the frames of a Doctor of Science study programme and vice versa".

Co-Financing Postgraduate Studies, Official Gazette RS, no. 42/1998, hereinafter: the Decision).

In 2004, (postgraduate) studies adapted to the Bologna Process guidelines, and the change in legislation (HEA, Official Gazette RS, no. 100/2004-OCT2) resulted in changes in the structure, organisation and role of higher education institutions and the system of funding³. In the academic year of 2005, students could for the first time enrol in Bologna postgraduate 2nd and 3rd cycle study programmes, which was followed by a four-year transition period. The last enrolment in the first year of old, pre-Bologna study programmes was possible in 2008/09⁴.

2nd cycle study programmes include Master and uniform Master study programmes. Master study programmes "allow for deepening of knowledge in wider fields of expertise, and offer training for searching for new sources of expert and scientific knowledge". Uniform Master Study programmes are also aimed at "the acquisition and deepening of expert knowledge" (HEA, Official Gazette RS, no. 119/2006-OCT3). 3rd cycle study programmes have kept their scientific nature through an in-depth process of acquiring "theoretical and methodological concepts for independent development and production of new knowledge", and its use to solve the most complex contemporary problems and working systems (Ibid). 3rd cycle study programmes have, despite being shorter (3 years), kept the same depth and remained the most advanced level of education which requires scientific and research work and independent development of new knowledge.

4. FUNDING OF POSTGRADUATE STUDIES

Slovenian higher education is characterised by the possibility to study under the same conditions, by state funding of public higher education and private higher education with concession, and by large social transfers to students (Lesjak & Marjetič, 2010). Woessmann and Schultz (2006, p. 2) point out that the state has limited resources that should be used rationally and efficiently. The key question is "How much we can get from what we invest in the system?" (Ibid).

Until 2010, funding of postgraduate studies in Slovenia was governed by the Decree on Budgetary Financing of Higher Education and Other Institutions from 2004 to 2010⁵ (hereinafter: the Decree). Its funding was (partly or fully) governed by the Decision on Co-Financing Postgraduate Studies (hereinafter: the Decision), which applied to Master of Science and Doctor of Science study programmes from 1998/99 to 2009/10, and 3rd cycle study programmes from 2007/08 to 2009/10. The 2010 Decree on Financing of Doctoral Studies (Official Gazette RS, no. 88/2010) introduced a new way of co-funding doctoral study programmes through an Innovative scheme of co-funding doctoral studies, which promoted cooperation with the economy and solving of contemporary social challenges. In accordance with the HEA (Official Gazette RS, no. 100/2004-OCT3), funding for 2nd cycle study programmes was provided from the budget based on a formula. In February 2011, the new Decree on Budgetary Financing of Higher Education Institutions and Other Institutions introduced a new way of funding 1st and 2nd cycle study programmes based on growth (supplement).

³ In 2006, Bologna three-cycle system of higher education was finally enacted (Trunk Širca et al., 2010, p. 34).

⁴ In 2009/10, students could enrol in the second year of Master of Science study programmes for the last time, and in 2010/11 they could for the last time enrol in the third year of Doctor of Science study programmes.

⁵ Originally, the Decree defined a transition period of funding for the duration of the Bologna reform, from 2004 to 2008, which was later extended until 2009 and additionally until 2010.

4.1. Co-funding from 1998/99 to 2009/10

Master of Science and Doctor of Science study programmes

In 1998/99, in Slovenia on the basis of the government's Decision (Official Gazette RS, no. 42/1998), co-funding of postgraduate studies was provided for the first time in order to increase the number of graduates of Master and doctoral study programmes. Before the Decision was adopted, state funds were not given to postgraduate studies systematically and with a purpose (Zgaga, 2004, p. 68). The Decision provided for basic co-funding of the organisation and implementation of studies, and additional co-funding which ensured part of resources needed for the implementation of studies in selected fields (the Decision, Official Gazette RS, no. 42/1998). Co-funding was carried out through higher education institutions which, in accordance with the requirements for candidacy, responded to public tenders⁶, with one of the requirements being that tuition fees per study year did not exceed normalised tuition fees. The latter remained the same from 2004/05⁷ to 2009/2010, i.e. 1,961.28 EUR. Co-funding of tuition fees for the first and second study years amounted to up to 60% of the normalised tuition fees, and for the third and fourth study years to up to 80% of the normalised tuition fees. Additional co-funding could amount to up to 20% of the normalised tuition fees per study year. This method of co-funding limited higher education institutions that wanted to co-fund their students' studies by setting the maximum amount that could be charged for tuition fees. For this reason, students from certain faculties (e.g. Faculties of Law in Liubliana and Maribor, and Faculty of Economics in Liubliana) were deprived of the possibility to receive co-funding for their postgraduate studies. It should be noted that students could benefit from co-funding of postgraduate studies only once. If they successfully completed a co-funded Master of Science programme, they could not receive co-funding for doctoral studies.

Data on the number of students enrolled in Doctor of Science study programmes is available only for the period from 2004 onwards, as initially the start of doctoral studies was not marked with students' enrolment, but with the confirmation of the topic of their doctoral dissertations (Zgaga, 2004, p. 71). Thus, we will first conduct a review of students enrolled in Master of Science programmes, and after 2004 also include students enrolled in Doctor of Science study programmes. Figure 1 (and Annex 1) shows that in the first year when cofunding was introduced (1998/99) the number of students enrolled in Master of Science study programmes increased by 21% (from 2,329 students in 1997/98 to 2,825 students in 1998/99). By 2004, their number increased by 2.6 times. After 2004, however, their number started to decline due to the possibility to enrol in Bologna Master study programmes, in which 1.108 students enrolled in the first year (2005/06). As with the Bologna reform Master of Science study programmes ceased to exist and the last enrolment in the first study year was possible in 2008/09, this year their number slightly increased. For the same reason, the enrolment in Doctor of Science study programmes slightly increased (by 1.4 times) in the transition period. Interestingly, during the transition period the enrolment in postgraduate study programmes remained significant. The reason for this is also funding whereby higher education institutions received more funds for students enrolling in old, pre-Bologna study programmes than in new, Bologna study programmes.

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⁶ Public tenders for basic co-funding of postgraduate studies were published by the Ministry of Higher Education, and for additional co-funding by the Ministry of Science (Decision, Official Gazette RS, 42/1998). In 2004, the two ministries merged into the Ministry of Higher Education, Science and Technology.

⁷ The information on normalised tuition fees has been available on the website of the Ministry of Higher Education, Science and Technology since 2004/05.

Despite the possibility of co-funding, the number of graduates of Master of Science and Doctor of Science study programmes grew very slowly (Figure 2). The number of graduates of Master of Science programmes increased by 1.8 times (by 80%) between 2000/01, when one could already see the first effects of co-funding, and 2006/07, when their number was the highest. Between 2006 and 2009, around 1,000 graduates of Master of Science programmes were recorded per year. The number of graduates of Doctor of Science programmes increased more consistently (by 43% from 2002/03 to 2009/10). However, we cannot expect to achieve the target of 600 Doctors of Science by 2010, as set in the National Programme of Higher Education of the Republic of Slovenia 2007-2010, since in 2009 only 455 individuals graduated from Doctor of Science programmes.

As shown in Table 1, between the academic years 2004/05 and 2007/08, over 50% of students enrolled were co-funded, compared to 42% in 2008/09. Co-funding amounted to approximately 1,000-1,300 EUR per student and covered only part of their tuition fees.

3rd cycle study programmes

Co-funding of 3rd cycle study programmes began (still under the Decree) with the public tender for co-funding 3rd cycle programmes in 2007/08 when normalised tuition fees per study year amounted to 2,505.00 EUR. Between 2007/08 and 2009/2010, funds aimed at co-funding postgraduate studies were re-allocated to include doctoral programmes (Table 1). In 2007/08, the number of students enrolled in 3rd cycle studies substantially increased by 3.3 times (Figure 1) compared to 2005/06, but even more so in 2009/10 when the transition period ended. That year 2,111 students enrolled in doctoral study programmes, of which 58% were granted co-funding for their tuition fees. The encouragement of enrolment in 3rd cycle study programmes is reflected also in funds allocated per student in the first year 2007/08 (2,948 EUR) which were substantially reduced to 1,224 EUR after the transition period due to a high number of students enrolled in 3rd cycle study programmes.

2nd cycle study programmes

In 2005/06, they began together with doctoral study programmes carrying out 2nd cycle study programmes, funds for which were in accordance with the HEA (Official Gazette RS, no. 100/2004-OPB3) provided from the budget (using lump-sum funding) for full-time students who did not have the level of education equivalent to the 2nd cycle⁸ (MVZT, 2010). Between

100/2004-OPB3) provided from the budget (using lump-sum funding) for full-time students who did not have the level of education equivalent to the 2nd cycle⁸ (MVZT, 2010). Between 2005 and 2010, the number of students enrolled in 2nd cycle study programmes substantially increased (by 10.6 times) due to the method of funding. In 2007, 5% of 2nd cycle students received co-funding, compared to 54% in 2009. In 2009, there were 10.2 million EUR allocated to 3,635 students, amounting to 2,816 EUR per student. However, according to proposal on ReNPHE 2011-20 (MVZT, 2011), students who do not complete their studies on time must pay back the used funds. Refund will be held after the expiration of five years from

the last registered ECTS, but the repayment is expected to take place when the candidate will

receive a regular income

⁸ With the Classification system of education and training, Bologna postgraduate 2nd cycle programmes became equivalent to pre-Bologna university undergraduate programmes (KLASIUS, Official Gazette RS, no. 46/06).

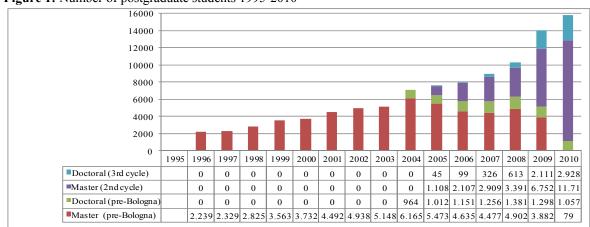


Figure 1: Number of postgraduate students 1995-2010

Source: Statistical Office of the Republic of Slovenia, 2011; Zgaga, 2004.

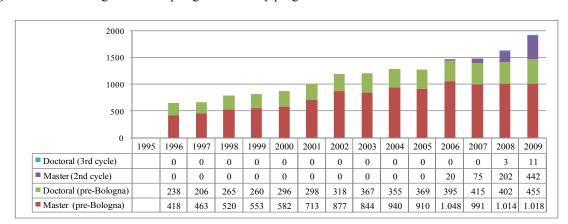


Figure 2: Number of graduates of postgraduate study programmes 1995-2009

Source: Statistical Office of the Republic of Slovenia, 2011; Zgaga, 2004.

Table 1: Co-funding of postgraduate studies from 2004/05 to 2009/10

Acad. year	Co-funding in accordance with the decision on co-financing postgraduate studies				Co-funding of 3 rd cycle study programmes				Co-funding of 2 nd cycle study programmes			
	No.	%	Funds in EUR	EUR/ stud.	No.	%	Funds in EUR	EUR/ stud.	No.	%	Funds in EUR	EUR/ stud.
2004/05	3,844	54	5,007,511	1,303	-	-	-	-	-	-	-	-
2005/06	3,430	53	4,435,820	1,293	-	-	-	-	-	-	-	-
2006/07	3,048	53	3,755,633	1,232	-	-	-	-	112	5	254,382	2,271
2007/08	2,972	52	3,100,000	1,043	173	53	510,000	2,948	675	23	1,690,038	2,504
2008/09	2,631	42	3,091,366	1,175	340	55	700,000	2,059	1,685	50	4,771,000	2,831
2009/10	1,445	28	2,000,000	1,384	1,225	58	1,500,000	1,224	3,635	54	10,238,000	2,816

Note: *No.* – number of co-funded students per academic year; % – percentage of co-funded students according to the total number of students enrolled in that academic year; *Funds in EUR* – funds for the co-funding of certain study programmes in the academic year in EUR; *EUR/stud.* – funding per student in EUR. Source: MVZT (2010), Public tenders for co-funding postgraduate studies from 2004/2005 to 2009/2010, Public tender for co-funding third-cycle study programmes from 2007/2008 to 2009/2010.

4.2. Innovative scheme of co-funding doctoral studies 2010-2013

A new method of funding was introduced in 2010/11 with the new Decree on Financing of Doctoral Studies (Official Gazette RS, no. 88/2010).

According to the new scheme, public tenders for co-funding doctoral studies are published by universities responsible for the selection of doctoral candidates (previously by the Ministry of Higher Education, Science and Technology). Candidates for co-funding are required to conduct research aimed at solving contemporary economic problems or social challenges as part of their doctoral dissertation. They can choose between two types of co-funding (MVZT, 2010):

- Full co-funding of tuition fees of up to a maximum of 4,000 EUR per study year, and a financial incentive¹⁰ of 5,950 EUR per study year. In the last two years, they may also get a compensation for material costs of up to 2,500 EUR for attending a scientific conference abroad.
- Partial co-funding of tuition fees of up to a maximum of 2,000 EUR per study year.

Full co-funding is reserved for 200 candidates who would, in accordance with the above estimates, receive just below 10,000 EUR per year for their doctoral studies. Partial co-funding amounting to up to 2,000 EUR per candidate is reserved for 600 candidates. Consequently, in the academic year 2010/11 no more than 27% of all doctoral students enrolled in 3rd cycle study programmes are expected to be co-funded. Total funds for the period of 2010-2014, partly provided by the European Social Fund, amount to 26.5 million EUR (MVZT, 2010) which is significantly larger amount of funds allocated from funds earmarked for pre-Bologna study programmes. If students after one year from the estimated date of completion of study, fail to successfully defend the thesis or submit a scientific paper for publication or submit a patent that is in "the procedure adopted at the national level" (Ibid), must pay back funds.

5. CONCLUSION

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Postgraduate students can be defined as potential generators of new knowledge, innovation and also as an important key in the transfer of knowledge in society and its use. Ensuring access and rights for the brightest students to acquire skills that contribute and add value to the social and economic progress is essential. Mass enrolment in postgraduate studies became the most obvious with the enrolment in Bologna postgraduate programmes in 2009/10 and 2010/11, the period marked by the global financial crisis and increased unemployment. The reasons for the increased enrolment can be of a social and economic nature. As pointed out by Ule, Tivadar and Živoder (2011, p. 48), the situation changed significantly with the turn in economic growth. They note that the key reason for the increased enrolment of young people in education does not lie in "strategic decisions and generosity of state policies or the awareness of the importance of education capital", but in "the lack of opportunities for meaningful employment and reducing the pressure on the labour market". This was confirmed by the survey Slovenski utrip (2011) which found that knowledge acquired by individuals does not affect job security (47.3% of respondents in 2011 and 54.3% in 2010) nor the possibility of a better job (51.9% respondents in 2011 and 56% in 2010). Students search for

⁹ The Decree provides for the co-funding of tuition fees in the sum of 1,564 EUR for students whose doctoral studies were co-funded in 2009/10 and will not be co-funded in accordance with the new scheme. Furthermore, the funding of young researchers and young researchers from economy is excluded from this scheme.

¹⁰ Financial incentives are granted only to students who are not employed, self-employed or registered at the Employment Service of the Republic of Slovenia.

social security also in the form of student status (Čepar & Bojnec, 2007, p. 47) which allows them to do student work and benefit from social transfers (scholarships, and subsidised meals, transportation and accommodation).

Due to a set of social and economic factors, in the last three years we have recorded high enrolment in postgraduate programmes while forms of co-funding of postgraduate studies are becoming more restrictive than ever. Anyhow, according to Ule, Tivadar and Živoder (2011, p. 21), in times of economic recession the assumption that "unlimited education brings unlimited economic growth" is no longer convincing.

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Annex 1: Number of students enrolled in postgraduate study programmes

		Number of	students enroll	ed	Number of graduates					
Year	Master (pre- Bologna)	Doctoral (pre- Bologna)	Master (2 nd cycle)	Doctoral (3 rd cycle)	Total:	Master (pre- Bologna)	Doctoral (pre- Bologna)	Master (2 nd cycle)	Doctoral (3 rd cycle)	Total:
1995	1,824	-	-	-	1,957	355	199	-	-	747
1996	2,239	-	-	-	2,474	418	238	-	-	833
1997	2,329	-	-	-	2,584	463	206	-	-	909
1998	2,825	-	-	-	3,006	520	265	-	-	998
1999	3,563	-	-	-	3,760	553	260	-	-	1,021
2000	3,732	-	-	-	3,922	582	296	-	-	1,050
2001	4,492	-	-	-	4,944	713	298	-	-	1,203
2002	4,938	-	-	-	5,606	877	318	-	-	1,376
2003	5,148	-	-	-	6,092	844	367	-	-	1,449
2004	6,165	964	-	-	8,378	940	355	-	-	1,451
2005	5,473	1,012	1,108	45	8,344	910	369	-	-	1,515
2006	4,635	1,151	2,107	99	8,687	1,048	395	20	-	1,919
<i>2007</i>	4,477	1,256	2,909	326	9,463	991	415	75	-	1,911
2008	4,902	1,381	3,391	613	10,772	1,014	402	202	3	2,009
2009	3,882	1,298	6,752	2,111	14,212	1,018	455	442	11	2,344
2010	79	1,057	11,710	2,928	15,774	-	-	-	-	-

Source: Statistical Office of the Republic of Slovenia, 2011; Zgaga, 2004.