

POPULATION, EDUCATION AND SOCIO-ECONOMIC DEVELOPMENT IN SLOVENIA

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Abstract

This article examines types and significance of individual demographic factors of the changing structure of the Slovenian population. These demographic changes are analyzed in the association with trends in formal and informal education as well as changes in labour market. They imply new policies relevant for the labour market and education system. At the beginning we overview the development of some basic demographic measures such as life expectancy at birth, crude fertility rates, crude mortality rates, total fertility rate and general rates of migration in the last decades. Demographic development is associated with education and labour market development. Here we present measures such as the number of children enrolled in different levels of education and number of employed teachers by schools in the last few years. Development of population is a significant factor of education strategies at primary, secondary and tertiary level as well as an opportunity of providing new ways and methods of education and of life long learning. The declining number of children influences the demand for teachers in traditional area of education. There is an increasing demand for additional education among employees. Formal and informal education requires tailored training and new education approaches as well as inventive methods of life long learning. One of the challenges for education institutions therefore is especially to adjust education programs and education methods to the new situation in the labour market caused by demographic changes.

Key Words: *Population, Education, Labour market, Economic development, Life-long learning.*

1 Introduction - Main Stylized Facts on A population ageing

The main demographic trend in Slovenia, most other European countries, as well as in some developing countries during the last few decades is the declining fertility and mortality. On the long run, together with migration, they significantly contribute to the process of population and labour force ageing.

An ageing process can be considered for each individual or for the population as a whole in a certain territory. An ageing of an individual is a natural law, the time-depend process from birth to death. At the aggregate level a population ageing means relative increase in the proportion of elderly and old people in the total population. In different literature there is often used the proportion of the population aged 60 or 65 years and more. An individual can only become older, while the total population can become younger, older or remain with unchanged age structure over time (Malačič 1989). Our focus is only on a total population ageing.

The most significant determinant of a population ageing is the long-run decline in fertility. If a fertility rate declines below the level of a simple reproduction and stays there for a longer time the proportion of older people in the whole population will start to increase. In developed countries a simple reproduction of a population is assured, if a total fertility rate doesn't fall below the value of 2.1 (Malačič 2000). Total fertility rate is a long-run indicator of a population reproduction and is defined as the number of children, which is delivered on average by a woman in her fertility period under assumption that she survives until her 49 birthday, which is the end of fertility period (Hinde 1998, 100). Such values of the rates are assured in no European country any more.

Declining mortality in an age group of 30-year old people or more contributes to ageing population. A decline in mortality in younger age groups leads directly to younger population structure. Due to different reasons mortality in all age groups declines, particularly in higher age groups, and thus leads to a population ageing and an increase in life expectancy at birth, which is calculated as an average life-span in a hypothetical or real generation. It tells us the average number of years which people have left to live when they are born. During the last decades the life expectancy at birth is increasing for both genders. In the most developed countries it is greater than 81 years. Only for women in Japan, for example, it is 84.51 years. In Slovenia life expectancy at birth for both sexes was 75.93 years in 2004. During the last 13 years it has increased for 2.64 years of life (Source: U.S. Census Bureau, International Data Base: <http://www.census.gov/cgi-bin/ipc/idbsprd>).

Migrations do not have any impact on population ageing in a closed population, but they do have significant impact in an open population. This is typical in the European Union (EU), where there is a free movement of people and migration of people is an important determinant of a population ageing due to its age selectivity. Younger people are often more willing to migrate than elderly ones. As a result, these immigrations contribute to the population rejuvenation in the immigration territory, while emigrations contribute to the population ageing in the emigration territory. Typical example of such migration flows are rural-urban migrations (Malačič 1989).

All simple indicators of age structure of the population show that the great majority of the European populations belong to the population with relatively old age structure. The average age of a population is a synthetic indicator of an age structure and is defined as a rate between the sum of all persons' years in that population and the number of persons in that population. The lower the average age of the population is, the greater the proportion of young in the total population, and vice versa. Between 1921 and 1991, the average age of the Slovenian population increased from 28.6 to 34.1 years for men and from 29.0 to 37.6 years for women.

The second indicator of a population age structure is the percentage of old persons (aged 65 years or more) in the total number of population. If it is greater than 7% then the population is considered as an old population. If the value accounts for less than 5% the population is considered as a young population. In Slovenia this indicator accounted 5% in 1869 and was increasing over time and accounted already 13.4% in 1998.

The third basic indicator of a population age is the ageing index, which represents ratio between old (aged 65 years or more) and young (less than 15 years old) population in a certain territory expressed in percent (the ratio multiplied by 100). If the ageing index is greater than 25 the population is old. If it is less than 15 it indicates a young population. In 1998 index of ageing for Slovenia was 80 indicating that Slovenia is an old population (Bregar et al. 2002).

If we ignore migrations, then the effects of changes in fertility and mortality on a population ageing can be explained by population models which investigate the impact of changes in fertility and mortality on a population ageing when there is no migration effect. Six typical models are often mentioned in the population literature. The first two models, the primitive stationary model and pre-modern model are associated with traditional type of population reproduction with a high level of fertility and a high level of mortality. The third model is a transitional model, which is typical for a stage of demographic transition when mortality rapidly declines, while fertility remains at high level. This model is typical for most of developing countries. The last three models (modern, modern stationary and modern depopulation model) are significant for advanced type of population reproduction with low fertility and mortality. Modern and modern stationary explain demographic situations in developed countries, but most of European countries are already in a stage with prevailing modern depopulation model where fertility is much lower than mortality which means that a simple reproduction of population is not provided any more. In many countries the actual level of fertility is less than 60% of those, which would be necessary to assure a simple reproduction of those countries.

A population ageing and thus changing age structure of a population with the increasing proportion of elderly people in comparison with young has substantial social, cultural, and economic implications (Malačič 2000, 24). De Santis (de Santis 1997) argues that a population ageing has significant impacts for public finance and budgetary expenditures, for pension system, health care, education system and labour market, productivity of elderly people, savings and investments, consumption as well as for system of social care. In this paper we focus particularly on implications of demographic changes for some parts of labour market and education system in Slovenia. We analyze the three main determinants of age structure of population: fertility, mortality and migrations in Slovenia. Next we present methodology and main research questions and then investigate briefly main demographic factors of a population age structure during the last decades in Slovenia. Later on we present some indicators of development in the area of education and in the labour market.

2 Methodology and Research Questions

Data used are collected from different national and international statistical sources. With a simple data analysis we present main patterns in development of basic variables that are important for age structure of Slovenian population. More specifically we want to answer to the following research questions: What are characteristics of demographic development in Slovenia? What are characteristics of development in the areas of education and in the education sector of the labour market? What kind of causalities are

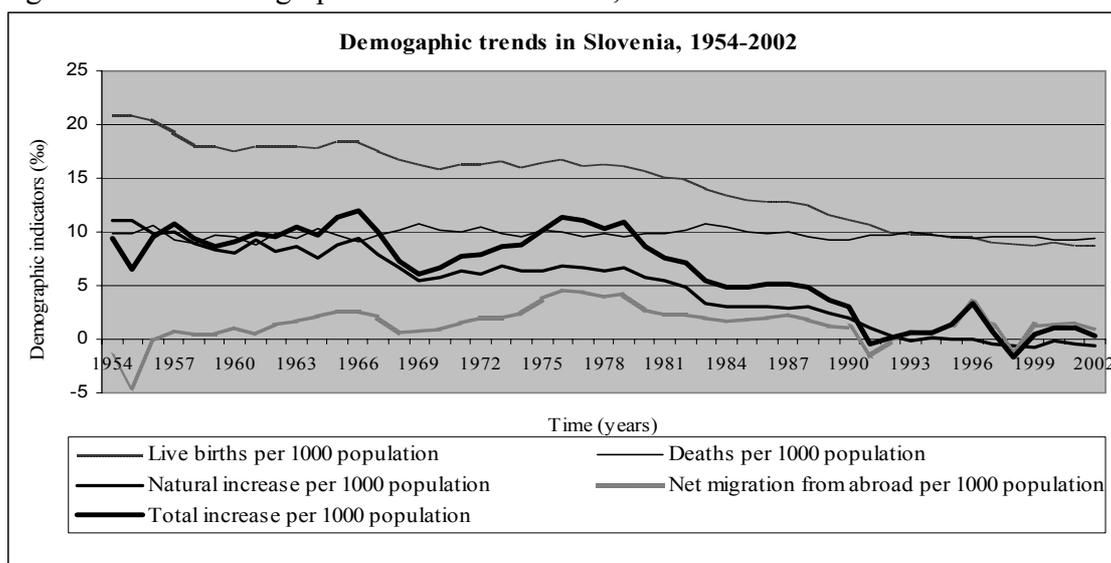
between demographic development and development in the areas of education and labour market?

3 Main Demographic Trends during the Last Decades in Slovenia and in Europe

3.1 Development in Slovenia

The main pattern of demographic development in Slovenia is such that leads to the ageing of the Slovenian population structure (Figure 1). The current relatively old population structure has particularly been a result of the persistently declining rates of fertility during the last decades. The number of births started to decline rapidly during the 1970s and it is now almost half of that from the early 1970s. Since 1981 the total fertility rate is not high enough to provide a simple reproduction of the Slovenian population (Figure 2). Since 1970s the natural increase and the total population increase or population growth have declined and even reached negative values. The rate of natural increase is the difference between the crude birth rate (the average number of life births per 1000 population in a chosen period and location) and the crude death rate (the average number of deaths per 1000 population in a chosen period and location). The total population increase or growth is defined as a sum of the natural increase and the net migration rate. The rate of net migrations is defined as a difference between the number of immigrants and the number of emigrants, which have on average immigrated or emigrated from/to a chosen location in a chosen year per 1000 population of the observed county. Several theories try to explain why fertility has declined. Bulatao and Casterline (Bulatao and Radolfo 2001) underlined eight factors of fertility: decline in mortality, lower economic contribution of children, opportunity costs of pregnancy and rising of children, transformation of families, disappearing of traditional incentives for births and rising children, easier access to efficient means of regulation of fertility and diffusion of values, ideas and practices, which lead to lower fertility.

Figure 1: Basic demographic trends in Slovenia, 1954-2002

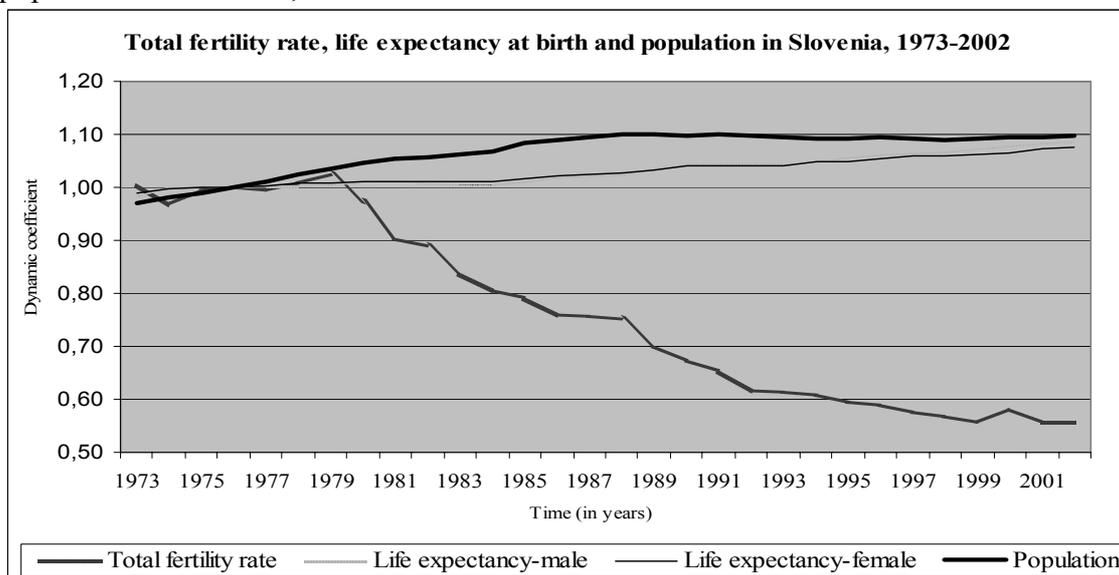


The increasing quality of life has reduced the intensity of dying, which means it decreased the age specific death rates defined as the average number of deaths per 1000 population in a chosen period and location in each age group. However the crude death

rate is increasing in some periods, because the proportion of population which is dying more intensively (those aged 65 years or more) relative to those who is dying less intensively (younger people) is increasing. According to some projections, the crude death rate is expected to increase from 10.15 to 17 during the next 40 years.

Inter-country net migrations, which have the smallest impact on population structure, are the only demographic processes with a positive effect on the population structure in Slovenia. Migrations are rather selective with prevailing young immigrants, able to work. In Slovenia net migrations were, with the exception of the years 1991, 1992 in 1998, always positive (Figure 1). However, relying on net migrations to improve population structure can be a risky job. This would not be a »natural« process of making a population younger (a process of making population younger only by increasing fertility rate) and besides we shouldn't forget that in such a way we would be making younger the structure of inhabitants of Slovenia and not the structure of the Slovenians. We should not forget that inhabitants of Slovenia can be of Slovenian or non-Slovenian nationality. Slovenian nationality inhabitants are independent from migrations. On the other hand excessive net migrations can cause several cultural, political and other socio-economic problems in the society. Finally, even if we ignore all the risks of excessive net migrations, there is a question where could we get the sufficient number of immigrants from, since we know that in Europe there is no county which could export its young people. Everywhere in Europe natural increase is close to zero, with total fertility rate per women lower or equal 2.1 and thus not assuring a simple reproduction of the population.

Figure 2: Development of the total fertility rate, the life expectancy at birth and population in Slovenia, 1973-2002



In order to maintain the current age structure of the population in Slovenia the necessary size of net migrations in absolute amount should be between 15,000 and 20,000 net migrants annually, which would be approximately ten times the current size of net migrations.

3.2 Comparison with some other Countries

Slovenia experiences similar demographic development as most other European countries. Heilig (Heilig 2000) in his article shows that fertility is declining and that age specific rates of mortality are approaching their so far the lowest levels and that the life expectancy at birth is increasing. If we look at the data for some European countries in the year 2000 (Table 1), we can see that except from Albania in all countries general rates of fertility and mortality are similar with natural increase of population close to zero or negative. Total fertility rate per woman is less than 2,1 in all the countries including Albania, which is not enough to provide a long run simple reproduction of the population. It is also less likely that greater migrations occur between European countries simply because almost each of these countries has a lack of young people in their population structure.

Table 1: Vital rates in selected European countries in the year 2000

Country	Births per 1,000 population	Deaths per 1,000 population	Net number of migrants per 1,000 population	Rate of natural increase (%)	Growth rate (%)	Total fertility rate per woman
Albania	15.08	5.02	-4.93	1.006	0.514	2.0485
Austria	8.90	9.56	2.00	-0.066	0.135	1.3489
Belgium	10.59	10.20	1.23	0.039	0.162	1.6406
BIH	8.74	7.40	20.21	0.134	2.155	1.1940
Bulgaria	9.65	14.25	-4.58	-0.460	-0.918	1.3704
Croatia	9.51	11.30	1.58	-0.179	-0.020	1.3856
Czech Republic	9.10	10.54	0.97	-0.144	-0.048	1.1846
France	12.34	9.06	0.66	0.328	0.393	1.8501
Germany	8.45	10.44	2.18	-0.199	0.019	1.3783
Hungary	9.77	13.16	0.86	-0.339	-0.253	1.3064
Italy	9.05	10.21	2.07	-0.116	0.091	1.2659
Luxembourg	12.21	8.42	8.97	0.379	1.276	1.7874
Netherlands	11.41	8.67	2.91	0.274	0.565	1.6575
Poland	9.55	9.66	-0.46	-0.011	-0.058	1.2260
Romania	10.69	11.69	-0.13	-0.100	-0.112	1.3540
Serbia & Mont.	12.13	10.53	-1.33	0.160	0.027	1.6717
Slovakia	10.57	9.48	0.30	0.109	0.139	1.3091
Slovenia	8.90	10.15	1.12	-0.125	-0.013	1.2252
Spain	10.11	9.55	0.99	0.056	0.155	1.2656

Source: U.S. Census Bureau, International Data Base.

4 Some Indicators of Development in Education

As a result of the decline in fertility there is also the decline in the number of children in kindergartens as well as in primary schools. This process is further transmitted to the secondary and later on to the higher education. In spite of positive net migrations and a greater proportion of students compared to previous years (which causes increase in the absolute number of students), the impact of decline in fertility was stronger than the first effect, what results in a decreasing absolute number of students especially at lower levels of education. As can be seen from Table 2, the number of children in kindergartens has declined since 1988/89. In the same year the number of children in the primary schools started to decline too. The proportion of children enrolled in the secondary education was increasing during the past years, but in 1997/98 the decreasing

fertility and thus the smaller inflow of new pupils more than compensated the relative increase in the participation in secondary schools and thus the absolute number of pupils enrolled in the secondary education started to decline. This is also consistent with the time lag in enrolment between primary and secondary education (i.e. in the 1988/89 enrolled in the primary education appeared in the first year of the secondary education in 1996/97). The decline in fertility and consequently the decline in the number of persons in regular education is transmitted with time lags from lower to higher levels of education and is now reaching the university level. At the university level the problem is still less visible in the number of students, but more as the decline in the rates of growth of enrolment. However, in 2002/03 the decline in the absolute number of enrolled students at the high and university level is observed for the first time. The decline in pupils at lower levels of education is faster because the smaller cohorts of children reached this level sooner and because at lower education level there was much less room for further increase in the proportion of the enrolled children. This is particularly the case for the primary education, which is the compulsory according to the law, less for secondary and the least for higher education.

Table 2: Number of children, pupils and students by types of educational programs

School year	Pre-school education (kindergartens)	Elementary schools	Secondary schools	University colleges	Professional higher education institutions, faculties, art academies	Total higher education
1979/80	62708	217993	88726	7008	22737	29745
1980/81	66872	219396	90874	7097	20610	27707
1981/82	71784	220109	90629	5809	20398	26207
1982/83	75175	219709	87785	5628	20569	26197
1983/84	77301	221370	84309	5423	21980	27403
1984/85	78935	223130	81970	5225	22466	27691
1985/86	75669	225789	80451	4258	25343	29601
1986/87	76593	228053	80443	4518	26467	30985
1987/88	78819	229378	82618	3182	27799	30981
1988/89	76878	229887	85677	3445	27610	31055
1989/90	75838	227677	89335	3594	30634	34228
1990/91	73631	225640	92060	3230	30335	33565
1991/92	69370	220879	94423	2825	33679	36504
1992/93	66029	217431	95621	2181	35181	37362
1993/94	67178	213137	97092	1821	38418	40239
1994/95	66703	209334	99657	2626	40623	43249
1995/96	66553	207032	102079	-	45951	45951
1996/97	65332	200437	104674	-	50667	50667
1997/98	62662	194883	104786	-	64678	64678
1998/99	62848	189564	103469	-	74642	74642
1999/00	64151	185034	102969	-	77609	77609
2000/01	63328	180874	100858	-	82812	82812
2001/02	61803	177755	100609	-	88100	88100
2002/03	58968	175743	98768	-	87056	87056

Source: Statistical Yearbook of Slovenia 2004.

The size of older population which needs additional training and education after finishing its formal education is increasing due to increasing life expectancy at birth as well as due to some other non-demographic factors (for example faster development of

technology). Therefore the informal forms of education as well as education of adults are increasing from year to year. This further on implies the increase in the number of “learners” and in the number of “teachers” and other staff in the area of life-long learning. The new knowledge which is obtained is an advantage for the elderly themselves as well as for their working environment (Findeisen 1998). An important element of national strategy of education should be also identifying and accepting talented and motivated young people from abroad into secondary and higher education. The immigration country should train them for later employment in the immigrant country. It seems that there are less and less already educated immigrants that are available for export and there is less and less willingness in less developed countries to educate such people on the expenses of a home country if they are not going to work in their home country (Malačič 2004).

Table 3: Adult education

School Year	Employed persons		Number of units		Number of scholars	
	Primary school	Secondary school	Primary school	Secondary school	Primary school	Secondary school
1991/92	245	1966	81	306	1460	7457
1992/93	285	1949	110	320	1785	7370
1993/94	288	2005	107	322	1695	7517
1994/95	272	1952	110	344	1655	8460
1995/96	245	2263	90	390	1204	9617
1996/97	330	2229	141	426	2202	10891
1997/98	366	2372	153	628	2291	14968
1998/99	349	3099	145	760	2137	16562
1999/00	-	3692	-	792	-	19449
2000/01	397	4096	154	848	2153	20879
2001/02	437	4461	168	926	2190	21438
2002/03	428	4103	167	903	2272	22928

Source: Statistical Yearbook 2004, Republic of Slovenia

5 Labour Market – General Features and Market of Teachers and Others in Education Process

General trends in the labour markets are common to the most of the EU countries (Leat 1998). These are: an increasing participation of women in the labour force: the continuing shifts from agriculture sector through the manufacturing sector to the service sector; increased flexibility in terms of the use and prevalence of so-called atypical contracts: part - time, temporary and fixed term; increased flexibility in the hours worked, the use of shift work and weekend working; increased level of unemployment, particularly among women, the young and the over 55s due to structural and some other economic difficulties; a greater proportion of long-term unemployment; a tendency towards a shift of emphasis in the direction of public expenditure upon supply-side and active labour market policies and initiatives; a decline in the demand for unskilled labour outside the service industries; and an increasing propensity for men and women to remain longer in education and training and an increase over time in the general levels of education attainment.

The direct impact of demographic trends, especially of a population ageing is noticeable in the declining demand for teaching and other staff in kindergartens, primary schools, secondary schools as well as at faculties. Table 4 presents development in the number of employees and the number of units (groups or classes). Since 1999/00 the number of employed in kindergartens has been declining and since 2000/01 the number of units (groups) in kindergartens in Slovenia has been declining too. The number of staff in primary schools is still increasing but the number of units has been declining since 1992/93. Since the 1999/00 the number of staff in the secondary education as well as the number of units (classes) has also started to decline.

Table 4: Developments in the number of staff and education units in kindergarten, primary and secondary schools

School year	Employed persons			Number of units		
	Kindergartens	Primary school	Secondary school	Kindergartens	Primary school	Secondary school
1991/92	6544	14691	6722	3457	9005	3326
1992/93	6396	14971	6977	3356	9481	3458
1993/94	6343	15053	7360	3404	9435	3615
1994/95	6526	15199	7796	3446	9451	3797
1995/96	6672	15372	8143	3500	9456	3895
1996/97	6709	15443	8580	3509	9367	4003
1997/98	6911	15311	8816	3468	9308	4065
1998/99	7012	15140	8646	3455	9192	3989
1999/00	7329	15287	9351	3523	9117	4031
2000/01	7163	15382	8763	3531	9033	4012
2001/02	7099	15625	8703	3477	8931	3997
2002/03	6949	16039	8482	3342	8923	3906
2003/04	6729	-	-	3243	-	-

Source: Statistical Yearbook 2004, Republic of Slovenia.

6 Findings and Recommendations

The population in Slovenia and most European countries is ageing. The main reason for that is the decline in fertility. The smaller and smaller cohorts of babies born each year move up to the higher age groups and reduce the demand for employees in educational institutions as a consequence of smaller and smaller cohorts of schooling children. As a result the structure of demand for employees in education institutions is changing. There is an increasing demand for education of elderly persons, potential immigrants, increasing demand for informal education as well as for life-long learning.

Leat (Leat 1998) argues that the population structure with the increasing proportion of old people impact on the level and costs of social protection, health and welfare services, the quantitative adequacy of the labour force and the demand for immigration, future levels of employment/unemployment, attitudes towards the employment of the elderly, retirement ages, and education and training strategies.

It seems reasonable to conclude that, if these issues remain unaddressed, fewer and fewer people will be working and these people through their efforts will be required to support an increasing population that is not working. The labour force will get smaller as a result of a lower inflow of new young workers or in other words due to the

decreasing proportion of young people in the population structure and consequently also among those of working age. In such a situation there is potential for conflict and social unrest between the two groups of the population, with those of working age resenting the cost of supporting the older members of the population.

There are some possible solutions for this problem. One is an increase in net migrations, which would require ten times higher net migrations in Slovenia and seven times higher net migrations in EU than they are now. The second is an increase in activity rates of those of working age which is aimed particularly to the increase of female activity rates which are on average lower than those of men. The next solution is increased activity rate in the age groups above 60 and below 20 which depends on the proportion of the population remaining in full time education and on amending retirement and pension ages as well as on changing attitudes towards both the provision of training and the employment of the elderly. The last solution is an increase in the productivity per unit of labour of those who are working.

All this clearly indicates the strong interlinks between demographic and economic development. Therefore there is not only an impact of economic development on demographics, but also vice versa.

References

- Bregar, L, Bavdaž Kveder, M., and I. Ograjenšek. 2002. *Ekonomska statistika 2000 z dodatkom*. Ljubljana: Univerza v Ljubljani, Ekonomska fakulteta.
- Bulatao Radolfo, A., and J. B. Casterline. 2001. *Global fertility transition*. New York: Population Council.
- de Santis, G. 1997. *Ageing Societies-Where Does the Economic Problem Lie?* Stropnik Nada, ed., *Social and Economic Aspects of Ageing Societies: An important Social Development Issue-5th biannual European IUCISD Conference*. Ljubljana: Institute for Economic Research, 149-175.
- Findeisen, D. 1998. *Biti star – kako in kdaj? Staranje prebivalstva*. *Razgledi*, 22(1124), 14-15.
- Heilig, G. K. 2002. *Stirbt der ländliche Raum? Zur Demographie ländlicher Gebiete in Europa: Zahlen, Fakten, Schlussfolgerungen*. International Institute for Applied Systems Analysis (IIASA).
- Hinde, A. 1998. *Demographic Methods*. London: Arnold.
- Leat, M. 1998. *Human resource Issues of the European Union*. London: Financial Times Management, Pitman Publishing.
- Malačič, J. 1989. *Raziskovalna naloga. Staranje prebivalstva ter njegove socialne in ekonomske posledice*. Ljubljana: Univerza Edvarda Kardelja v Ljubljani, Ekonomska fakulteta Borisa Kidriča.
- Malačič, J. 2000. *Demografija. Teorija, analiza, metode in modeli*. Četrta izdaja. Ljubljana: Univerza v Ljubljani, Ekonomska fakulteta.
- Malačič, J. 2004. *Dobro šolstvo, ključ do izobraženih priseljencev*. *Slovenski poslovni dnevnik: Finance*, 203(18), 8-9.
- United States Census Bureau. International Data Base Data Access <http://www.census.gov/cgi-bin/ipc/idbsprd>.