

CERTAIN ECONOMIC ASPECTS OF THE AGEING POPULATION

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Abstract

This study on the basis of data from the environment of the Czech Republic examines the future impacts of a generally ageing population connected with low natality (which does not even secure the mere reproduction of the population) on the economy. The issue of the pension system is basically left aside as this is a partial problem which has in the majority of developed countries been solved over the past several decades on the basis of political agreements. On the contrary, the study focuses primarily on solving the impact of changes in the structure of the population in key areas of the economy, on its ability to innovate, on impact in the area of creative industries and the influence on the future composition of economic activities. Furthermore, attention is drawn to several other facts connected with the process of the ageing population, i.e. on the issue of intergenerational transfer of experience. Also examined are issues surrounding the development of general added value in the economy as this datum is influenced by household consumption at a time when significant shifts in the structure of the population are expected.

Key words: ageing, creative industries, fertility, labour forces, migration

JEL Code: J11, J21, J26

Introduction

The ageing of the population in developed countries, connected with long-term natality well below the level of mere reproduction of the population, is the most underestimated economic problem of the present. Although this has been heavily occupying sociologists, psychologists and to a significant extent politicians as well as doctors and philosophers, the economic impact of these processes is dealt with only in the relatively narrow context of pension systems. The direct economic impacts of the ageing population are not analysed whatsoever.

At the same time, it is immediately evident that these impacts will be significant and very demanding on the economy. This does not even refer to difficulties with financing

pension systems and or even quite neglected problems such as the future financing of healthcare systems. These will in fact grow to enormous dimensions over the next few years, which will force developed countries to reform the manner of financing healthcare similarly to the way these countries are being forced to gradually change pension systems in spite of the constant aversion to such measures on the part of the population. This issue is discussed by Arltová, Smrčka (2012) in details.

1 The “old-age trap” from the angle of the Czech expenditure

As a departure point, let us use the premise that the demographic development of developed countries is basically similar, which is in very approximate terms a true notion confirmed also by data (United Nations, 2010; World Bank, 1994). In reality, however, this development varies quite considerably in individual countries. From our point of view, the most important issue is direction, and in this regard we can assert that it is truly very similar, regardless of the above-mentioned differences in numerous details. If we do not include the United States, the demographic development of which is somewhat better than that of European countries, the differences between developed countries lies more in the extent to which they have become caught in the problem. For instance, at any time in the past, the population group aged 0 to 14 years was always more numerous than the 65+ population group.

In the Czech Republic, this will evidently come to pass in 2014 or 2015. The prediction for the years 2020, 2030, 2040 and 2050 is shown by the table 1. In 2020 society will comprise of approximately 16.2 percent children, whereas the ratio of people over 65 years old will be almost 17.2 percent. Development of life expectancy in the Czech Republic in years 1920-2010 with an outlook to 2050 is more closely done by Arltová, Langhamrová and Langhamrová (2013).

We can with a pinch of salt say that if our planet is indeed threatened with overpopulation, this will be an overpopulation of “pensioners” in a best case scenario, in which these people have and will have created sufficient reserves for their old age. A more likely scenario, however, shows a population of people past productive age, whose prolonged lives will be financially secured only in the most inadequate way (Peterson, 1999). Besides this, the next 40 years will entail a necessary shift in understanding old age as an economic period of specific type (Walker, 1981).

A second aspect is the prolonging of time over which the older generation will draw higher expenses for healthcare due to serious or relatively serious illness. If we again use the

Czech Republic as a scale, expenditure per one patient (in the given context, per policyholder) of retirement age was three or four times as high in 2010 in comparison to expenditure per policyholder in the age bracket termed productive age as it is displayed in the table 2. The consequences in connection with irreversible demographic development are completely evident without even having to further elaborate this thought into more precise figures.

Tab. 1: Population structure of the Czech Republic according to sex and age (in %)

		1990	2000	2010	2020	2030	2040	2050
Men	0-14	22.27	17.11	14.85	16.19	14.35	13.32	14.29
	15-64	67.93	71.99	72.71	66.64	65.54	62.59	56.82
	65+	9.80	10.90	12.43	17.16	20.11	24.09	28.89
of which	80+	1.51	1.45	2.28	2.95	5.30	7.15	8.40
women	0-14	20.02	15.42	13.58	14.99	13.33	12.42	13.40
	15-64	64.67	68.05	68.50	62.10	60.68	58.10	53.23
	65+	15.31	16.53	17.91	22.91	25.99	29.48	33.37
of which	80+	3.43	3.26	4.76	5.50	8.86	11.47	12.23
Total	0-14	21.11	16.24	14.21	15.59	13.83	12.87	13.84
	15-64	66.25	69.97	70.57	64.35	63.09	60.34	55.02
	65+	12.64	13.78	15.22	20.06	23.07	26.80	31.13
of which	80+	2.50	2.37	3.54	4.24	7.10	9.32	10.32

Source: CZSO data (2009), calculation own¹

Generally, we can summarise these observations into a contention that demographic development will exert considerable and systematic pressure on state budgets, whereas this pressure cannot be estimated at the given time and we have no method at our disposal that can quantify it. This pressure will arise from two highly sensitive political areas – from the need to finance the pension system and the need to finance healthcare for the population. As we know, reforms of the pension system are in progress and are primarily moving in the direction of responsibility for individual living standards being transferred to individuals because countries are gradually declaring that only basic and rather low pensions will be paid from public resources. It naturally took over twenty years before the European public grew accustomed to this idea, yet this still does not mean that it has fully accepted it. Problems with healthcare are not being discussed for the time being – aside from occasional observations

¹ The sum of 100 is given by the first three rows (0-14, 15-64 and 65+), row 80+ is the ratio of this group to the whole population of the country, it is thus contained also in the 65+ age group.

from the economic field that the present concept of highest possible standards paid by state-organised insurance is unsustainable.

Tab. 2: Average expenditures on healthcare per policyholder (in CZK)

Age	2000		2005		2008		2009		2010	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
00-04	10 796	9 542	13 700	11 962	16 123	14 434	17 242	15 328	15 987	12 598
05-09	5 519	5 189	8 231	7 316	9 290	7 446	10 016	8 457	9 102	7 342
10-14	5 742	5 561	7 902	7 698	8 425	8 605	9 687	9 567	8 883	9 571
15-19	5 440	6 531	6 847	8 572	7 803	9 278	8 948	10 996	8 037	9 939
20-24	4 908	7 264	6 021	8 648	6 740	9 432	7 677	10 954	6 871	9 858
25-29	5 300	8 642	6 632	11 504	7 611	12 931	8 425	14 662	8 246	14 449
30-34	5 458	8 231	7 372	11 626	8 559	13 956	9 683	16 024	9 175	16 678
35-39	5 918	8 274	8 271	11 670	9 285	13 166	10 584	14 060	9 779	13 348
40-44	7 267	9 336	9 797	12 421	11 205	14 016	13 583	15 953	13 683	15 678
45-49	9 518	11 638	13 031	15 472	13 961	16 874	14 288	19 126	14 330	17 178
50-54	12 704	14 432	17 967	18 896	19 134	20 598	22 004	23 494	22 364	23 971
55-59	16 532	15 722	23 709	21 546	26 298	23 252	27 640	24 136	27 176	24 767
60-64	18 382	17 655	29 626	25 426	33 373	27 717	36 247	29 302	38 321	28 734
65-69	21 460	20 938	35 787	30 171	41 212	33 503	44 120	36 127	43 593	38 492
70-74	25 755	23 636	44 281	36 516	49 532	40 109	56 806	45 758	51 113	44 924
75-79	28 252	26 370	47 936	40 273	55 844	46 074	57 878	48 024	58 577	47 507
80-84	30 148	29 635	48 147	42 438	55 699	49 121	64 143	48 801	58 814	50 350
85+	25 710	29 045	45 399	44 718	54 563	53 365	63 887	57 746	56 108	55 365
Average	10 099	12 273	15 463	17 644	17 839	20 036	19 863	21 962	19 502	21 738

Source: CZSO (2012)

2 The “old-age trap” of the Czech Republic from the angle of income

The problem of the “old-age trap” from the angle of future income of the public budget and thus from the angle of creating the gross domestic product is analysed far less than the problem of future expenditures. It is known that capital does not suffer from over exaggerated sentiment, so it cannot really be assumed that it will remain in countries that will in the coming decades begin to be simultaneously confronted by several kinds of negative pressure as a result of their demographic parameters. It is necessary to properly understand that this strain (from the angle of capital) will begin to transform into significant risks with the passage of time. We can summarise these as follows:

- Strain on the expenditure side of the budget (the pension and healthcare system) will transform into risks of increased labour costs and into risks of higher taxation.
- The lack of manpower in the area of creative workers will lead to a growth of salaries in these fields, the same development will occur among manual labourers also, especially among those who need high qualifications to perform their duties.
- Demographically exhausted countries with a small proportion of young inhabitants will not provide sufficient innovatory potential.
- The entire field of creative industries will on the one hand suffer a lack of creative forces. On the other hand, it will be especially drastically affected by a reduction of domestic demand because of the increased ratio of inhabitants 65+. Age groups falling into the general appellation of 65+ will not be the natural consumers of products from the creative industry.
- The entire area of domestic demand will undergo significant changes and will be transformed in the direction of demand for other merchandise and services than those that have been in demand until the present. There will be a substantially greater demand for pharmaceutical products, dietary supplements, services of a social character.

We will now attempt to quantify these changes and describe them more precisely.

3 New risks connected with ageing

As regards the consequences of higher expenditures on the pension system and healthcare, we are probably unable to quantify these risks at present, with the exception of the general assertion that the growth of costs is potentially enormous and cannot realistically be financed without comprehensive reforms which will, however, primarily entail the transfer of these costs on citizens as such. Even so, there will be pressure to increase the tax burden on the productive (and non-productive) part of the population. If we arrive at a situation when pressure of increased taxation is viewed by capital as a real risk for making a profit, this capital will move or find a way to carry out taxation in other, more favourable regions.

As we have already said, the only other way to settle issues of public budgets will be to transfer these problems with demographic development directly to citizens in the form of lowering the standard of pension systems and lowering the standard of healthcare, perhaps to some degree through the increase of value added tax rates or other consumer taxation. The elimination of the risk of increasing the tax burden will entail increasing the risk of such a

method being politically unacceptable because it will be rejected by society. Finding a solution to this problem in a democratic context seems almost impossible.

The basic problem is and will be the lack of manpower, especially the labour force of qualified and creative people, who are at an age of high creative ability and culturally adequately adapted to the reality of developed countries. Here let us draw attention to the fact that fertility, i.e. the number of children per woman of fertile age is below the level of simple reproduction at 2.1 children, or rather 2.14 children.

What does this necessarily lead to? The renewal of the population to at least the level of simple reproduction depends on the migration balance, or on the amount of inhabitants “brought over”, i.e. on immigrants. A positive balance arises if the number of immigrants is higher than the number of the “departed” or emigrants. In the bounds of the Czech Republic, a historically positive migration balance is an especially unusual situation as this region is otherwise traditionally more emigrational.

If we return to demographic data, the mean variant of the view of numbers of inhabitants not including migration (CZSO, 2009) assumes a drop in the number of inhabitants from 10.3 million (2010) to around 8.12 million (2050), a clear decrease of more than two million people. But let us assume at least some immigration. According to the positive migration balance, the view assumes that the number of inhabitants in the Czech Republic in 2050 will be between 8.1 million (a positive balance of ten thousand people per year) through 9.4 million inhabitants (25 thousand per year) up to 10.8 million inhabitants. This means that during this time the country would have to receive about 1.3 million immigrants (and their children, who would be born in the CR).

This is difficult to imagine. The Czech Republic’s experience has been rich with emigration, but only modest with immigration. Czech society is simply unprepared to accept such a development. Practically the only exceptional wave of immigration in the last few years were between 2005 to 2008, when the country saw the arrival of many foreign blue-collar workers during the height of the economic boom, and the migration balance was over thirty thousand people. But the economic boom between 2005 and 2008 was brought about primarily by the fact that people for the performance of work were secured through various agencies and at the given time it was not at all assumed that these people would for the most part remain in the country.

In reality we thus cannot realistically assume that it would be possible to reach the migration balance of 40 thousand people per year and it could in fact be considered quite

improbable that it could be 25 thousand people per year. In 2010, foreigners represented 4.2 percent of the population of the Czech Republic; this is about half a million people. Despite the fact that we are speaking of a forty-year perspective, a socially inconceivable change is at issue in the case of the Czech Republic and its thoroughly unprepared Czech society, and this would necessarily evoke unsolvable problems (Arltová and Langhamrová, 2010). Over the boundaries of economic aspects, it is not possible to overlook a further issue. It is inconceivable that a political formation which would promote a similar immigration policy could remain in power.

The Czech economy will face a dramatic lack of manpower – in 2010, about 6.6 million people are in productive age (20 to 65 years). In 2050 this will be roughly 4.2 to 4.6 million inhabitants in the country, even if we consider significant immigration (the above-mentioned balance of 10 to 25,000 people per year). It can be partly solved through the import of new inhabitants and thus new manpower but we have to take into account the traditional Czech trauma given by possible loss of national identity.

4 The impacts of the “old-age trap” on the Czech economy

A significant drop in available manpower will manifest itself in the whole economy; the impact on individual fields will vary. High recruitment of workers from abroad between 2005 and 2008 showed that, as far as the education structure and measure of qualification is concerned, the Czech Republic is not in a position to attract highly qualified workers. It is probably not possible to expect an improvement from this direction.

On the other hand, qualified employees came almost exclusively from the Slovak Republic. But because the Slovak economy has been growing faster than the Czech economy for several years, whereas the demographic development in the Slovak Republic is similar to that of the Czech Republic, a further influx of workers from this region can probably not be expected.

The change in the demographic structure of the population and the general drop in the number of inhabitants – even if these phenomena are partially alleviated by a positive migration balance – will lead to extensive changes in the structure and performance efficiency of the economy in the Czech Republic. What kind of pressure will this actually be?

- Pressure to relocate manufacturing businesses abroad, which will arise due to the lack of qualified manpower especially in the processing industry, which will lead to a

stagnation of demand for products of heavy industry and to a cessation of manufacture in this segment.

- Stagnation or reduced demand for energy and network deliveries will lead to the reduced effectivity of these systems.
- Pressure for salary growth. It is improbable that it will be possible to maintain the growth of work productivity in a way that could eliminate increasing salary demands of scarce manpower.
- Problems in the field of innovation and the transfer of innovative processes abroad.
- The weakening of creative industries, creative industries in which we usually include such activities which do not create products which are directly useful. It will be confronted with a lack of bearers of necessary creativity (Cikánek, 2009).

In the table 3 we can see the share of certain branches in the creation of gross added value in 2005, then in 2010 and a very rough estimate for 2050, whereas fields such as healthcare are not among the originally highest performing fields. At the same time, we must realise that in view of many arguments which we have previously raised, there will be a general and quite robust drop in the created gross domestic product.

Tab. 3: : Share of certain branches in the creation of gross added value in percentages

Branch	Years		
	2005	2010	2050
Processing industry	25.5	23.3	11.1
Commerce, repair and maintenance of motor vehicles	12.0	10.5	9.0
Information and communication activities	4.8	5.1	9.5
Finance and insurance	2.9	4.7	8.2
Activities in the field of real estate	6.3	7.0	10.0
Professional, scientific and technical activities	4.9	5.0	5.0
Public administration and defence, mandatory social welfare	7.0	7.0	15.0

Source: CZSO (2010), 2050 estimate own

Conclusion

This paper has examined the future impacts of a generally ageing population connected with low natality on the Czech economy. The “old-age trap” in the Czech Republic was discussed from the angle of expenditure, income and other connected risks which will affect the Czech economy in next decades. Drastically effected activities in the field of economy will include especially creative industries, innovative fields, science and research, stagnation or only minimal growth of gross domestic product in the next decades is, then, merely one question from among those facing developed economies.

This contribution did not include precise estimation or possible solutions because many pressures and impacts cannot be estimated at the given time and we have no method at our disposal that can quantify it. On the other hand the paper precisely described future trends connected with the ageing of the population not only from the political or social view but also from the economical view and impacts on the economy and its productivity.

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References

- Arltová, M., Langhamrová, J., & Langhamrová, J. (2013). Development of life expectancy in the Czech Republic in years 1920-2010 with an outlook to 2050. *Prague Economic Papers*, 22 (1), 125-143.
- Arltová, M., & Langhamrová, J. (2010). Migration and ageing of the population of the Czech Republic and the EU countries. *Prague Economic Papers*, 29 (1), 54-73.
- Cikánek, M. (2009). *Kreativní průmysly: příležitost pro novou ekonomiku*. Prague: Institute of Art – Theatre Institute.
- Czech Statistical Office (CZSO). (2009). *Projekce obyvatelstva České republiky do roku 2065*. Retrieved from website: <http://www.czso.cz/csu/2009edicniplan.nsf/p/4020-09>
- Czech Statistical Office (CZSO). (2010). *Regionální účty 2010 – hl. m. Praha*. Retrieved from website <http://www.czso.cz/>:
- Czech Statistical Office (CZSO). (2012). *Výsledky zdravotnických účtů ČR 2000 až 2010*. Retrieved from website: http://www.czso.cz/csu/2012edicniplan.nsf/publ/3306-12-r_2012
- Peterson, P.G. (1999). Gray Day: The Global Aging Crisis. *Foreign Affairs*, 78 (1), 39-52.
- Smrčka, L., & Arltová, M. (2012). Ekonomické aspekty stárnutí populace ve vyspělých zemích. *Politická ekonomie*, 60 (1), 113-132.
- UNITED NATIONS. (2010). *World Population Ageing*. New York: Economic&Social Affairs. Retrieved from website: <http://www.un.org/esa/population/publications/WPA2009/WPA2009-report.pdf>.
- WORLD BANK. (1994). *Averting the Old Age Crisis*. New York: Oxford University Press.
- Walker, A. (2005) Towards an international political economy of ageing. *Ageing and Society*, 25 (November), 815-839.

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