PERSPECTIVES ON POPULATION DYNAMIC WITHIN THE MEMBER STATES OF THE EUROPEAN UNION

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Abstract

The theoretical perspective of the study is represented by the second demographic transition characterised by lower fertility and death rates. The article analysed the population change and fertility rates in EU-28 member states for the period 1961-2012. The member states confront constant decrease of population change and fertility rates especially in newly Central and Eastern European member states. Last part of the paper prospects the demographic 2060 population change according with the low fertility rate scenario. As methodology the article uses secondary analysis based on Eurostat, the statistical office of the EU and the Population Policy Data Bank maintained by the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat.

Keywords: population change, fertility rate, EU-15, Central and East European member states

Résumé

La perspective théorétique de l'étude est représente par la deuxième transition démographique caractérise par taux réduits de fertilité et mortalité. L'article analyses le changement de la population et les taux de fertilité dans le 28 pays membres de l'Union Européenne pour la période 1961-2012. Les états membres confrontent une réduction de la population et de la fertilité spécialement dans le pays de l'Europe Centrale et de l'Ouest. La dernière partie de l'article este dédie aux prospections démographiques de la population en 2060 en ligne avec le scénario de la fertilité réduit. En termes de méthodologie l'article est base sur des analyses secondaires des base des donnes d'Eurostat, le bureau statistique de l'Union Européenne et la Division de la Population dans le Département Economique et des Affaires Sociales dans le Secrétariat de l'Organisation des Nations Unies.

Mots-clé: changement de la population, taux de fertilité, EU-15, les états membres de l'Europe Centrale et de l'Ouest

Rezumat

Perspectiva teoretică a studiului este reprezentată de a doua tranziție demografică cu rate scăzute de fertilitate și mortalitate. Articolul analizează schimbarea populației și ratele de fertilitate în statele membre UE-28 pentru perioada 1961-2012. Statele membre confruntă o scădere constantă de populație și rate scăzute de fertilitate în special în țările din Europa Centrală și de Est. Ultima parte a lucrării prospectează schimbarea demografică de populație în concordanță cu scenariul unei fertilități scăzute în perspectiva anului 2060. Din punct de vedere metodologic, articolul se bazează pe analize secundare ale Eurostat, biroul

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statistic al UE și Banca de Date a Politicii Populației din Direcția de Populație a Departamentului Economic și de Afaceri Sociale a Secretariatului Organizației Națiunilor Unite.

Cuvinte cheie: schimbarea populației, rata de fertilitate, EU-15, state membre din European Centrală și de Est

The co-existence of member states within the European Union (EU) is regulated taking into account their representations by the number of population. Number of representatives jobs at different EU institutions (including the commissioners) as well as European resources (i.g. pre-accession and post-accession founds) are allocated accordingly. But how the population change developed in EU member states? To what extend the demographic development in EU-28 support the general tendency to decreased fertility? And which are the premises for the future trends?

The first part of the paper analysis demographic trends in EU-28 population change for the period 1960-2013. The growing population after the Second World War was seen as an obstacle in developing the economy (Notestein 1967, p. 167). The 2012-2013 section on population change is elaborated from two perspectives: as total figures and as percent of 2012 population and includes two tops of countries accordingly developed. Still, positive population change in developed Western countries is partially explicable by the migration which could hide the low fertility rate. The negative values of population change in Eastern European countries are influenced by lower fertility rates and high migration (Rotaru 2010, p. 101). In this respect, among demographic factors influencing the population change, the fertility was selected. The second part of the paper looks at trends of fertility rates within EU-28. The third part of the article prospect the EU-28 demographic scenario in line with the low fertility rate perspective.

The article is part of a post-doctoral programme focused on the comparative social security analysis within member states taking into account the moment of their accession to the EU. From this perspective, alongside Western-Eastern European countries, the paper also uses three categories of member states: the EU founder states[1], other old member states of the EU than the founders[2], and Central and Eastern European (CEE) member states, also including the new member states[3]. Despite the fact that the third category of countries actually includes ten CEE countries alongside two Mediterranean (Cyprus and Malta), we choose to refer to this category by a short operational label: CEE member states. Research outputs are presented accordingly.

As methodology the article uses secondary analysis based on Eurostat, the statistical office of the EU as well as the Population Policy Data Bank maintained

[1] France, Germany, Italy, The Netherlands, Belgium, and Luxembourg

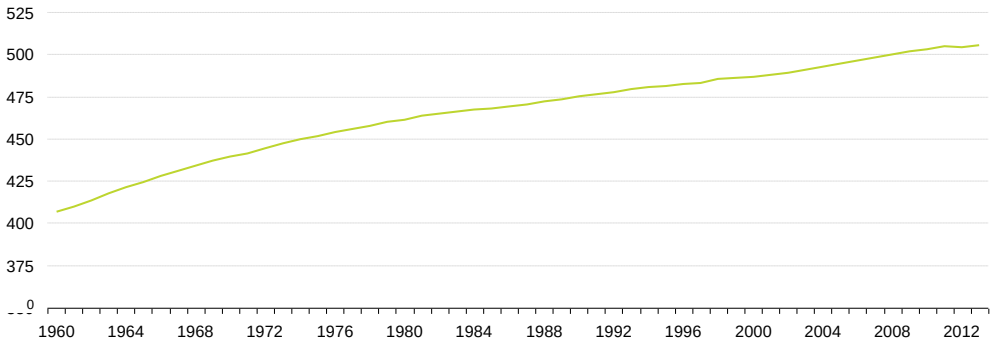
[2] Denmark, Ireland, United Kingdom, Greece, Portugal, Spain, Austria, Finland, and Sweden

[3] Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Bulgaria, Romania, and Croatia

by the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat.

1. Population change within EU-28 member states

According to the Eurostat data available for the period 1960-2013, population has been constantly growing from 406.7 million persons in 1960 to 505.7 in 2013. In practice, this means that in a little bit more than half of the century the EU-28 population increased with almost a quarter. The top population growth year was 1963 when population increased with 4.2 million persons. Other similar years were in 1964 with a growth of 3.5 million people; and in 1962 with 3.4 million. The overall increasing trend was only once disrupted in 2012 when a negative value of minus 0.4 million persons was registered as compared with 2011. The EU-28 population increased only with 0.8 million persons in the years 1996, and 2000.



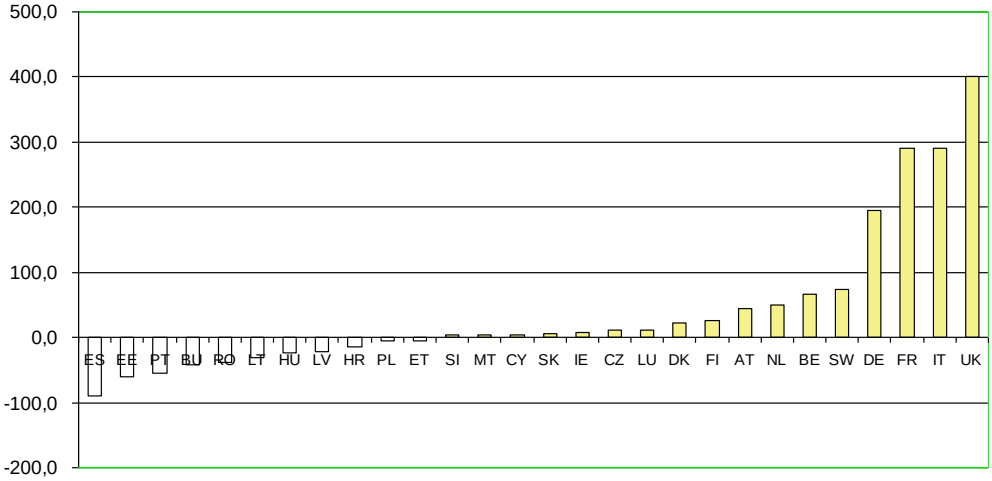
Source: Eurostat
Note: Excluding French overseas departments up to and including 1997. Breaks in series: 2001, 2007 and 2011–12.

Figure 1. Population, EU-28, 1960–2013 (on January 1st, in million persons)

In terms of demographic balance, EU-28 increased to 504582.5 people (at 1000) on January 1st 2013 as compared with 1st of January 2012.

2012-2013 population change registered positive values in twelve Western European countries (United Kingdom, Italy, France, Germany, Sweden, Belgium, The Netherlands, Austria, Finland, Denmark, Luxembourg, and Ireland) compared with five Eastern ones (Czech Republic, Slovakia, Cyprus, Malta, and Slovenia). Referring to contribution of natural change and net migration to population change in 2012, the demographic growth was registered in Ireland and Cyprus only due to natural change while in Germany, Italy, and Austria was only due to positive net migration (and adjustment).

Negative values were noticed in three Western European countries (Portugal, Greece, and Spain) compared with eight Eastern ones (Estonia, Poland, Croatia, Latvia, Hungary, Lithuania, Romania, and Bulgaria). The decline in 2012 was due only to natural change in Hungary, Romania, and Serbia and only to negative net migration in Spain, and Poland.



Source: Author's calculation based on Eurostat data

Figure 2. The EU-28 population change between 1st of January 2012 and 2013 (1000)

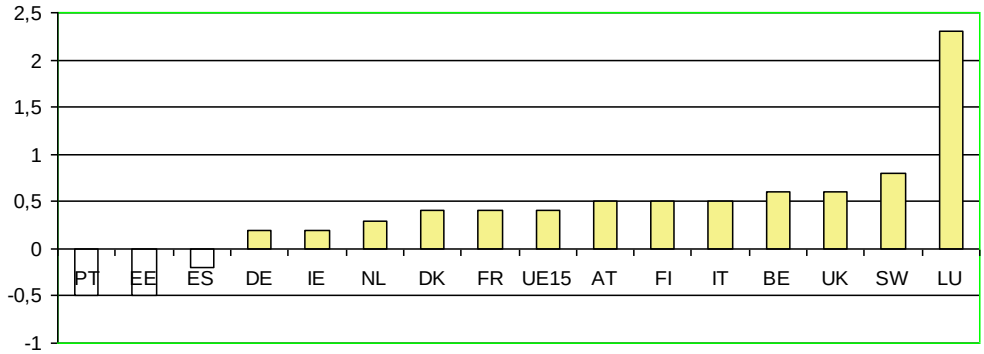
The positive values of population change showed dramatic differences while countries with negative differences have more similar values. The top three countries recording population growth were The United Kingdom (400.8 at 1000 people) followed by France, and Italy both with an increase of 291 persons per 1000 people. Top three negative values were registered in Spain (-90.3), Greece (-60.5), and Portugal (-55.1).

Looking at countries from the perspective of the three categories of EU member states, one can notice that EU founder states are most attractive for people living and moving in or within the EU space. All six founder states registered positive demographic balance. Both France and Italy ranked the top highest values, each with a 291 growth per thousand persons. Luxembourg recorded a 12.2 growth as the smallest registered value. The category of other old member states than the EU founder states is represented for both top positive and top negative values registered in 2013 as compared with 2012. Top positive difference was noticed in the United Kingdom (400.8). A third part of countries registered negative values: Spain (-90.3), Greece (-60.5), and Portugal (-55.1).

As briefly mentioned, five CEE countries showed positive differences in 2013 as compared with 2012. Top position was occupied by: the Czech Republic (10.7). The top negative value was in Bulgaria (-42.7).

The limit of the data analyses detailed above is that it compares population change as pure numbers without taking into account the domestic context or any other influencing factors. From this perspective, we further compare above detailed 2012-2013 population change as percent of the total population registered on 1st of January 2012. As the figures bellow will show, the 2012-2013 population change distribution of EU-28 countries is different by this new element of comparison.

11 countries with negative values of 2012-2013 population change became 10 as percent of the 2012 population. The difference is explained by Poland's value which was almost 0. All 17 countries which registered positive values keep their positive percents. Still, the distribution among the two sets of countries is different but Western countries generally maintained their positions.



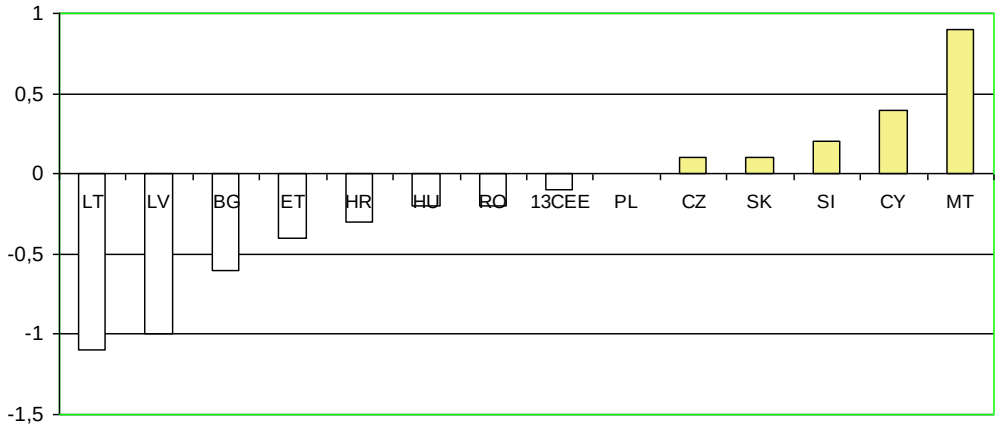
Source: Author's calculation based on Eurostat data

Figure 3. The 2012-2013 population change as percent of 2012 population in Western European countries

Five out of six EU founder states maintain their position. Luxembourg which registered the lowest population difference in 2012-2013 became the top one as the adjustments represented the equivalent of 2.3% of the 2012 population. Belgium which ranked on the third position for the 2012-2013 differences became top second country as these changes represented 0.6 % of the total population. Italy with top position as 2012-2013 population difference became the third top country as changes represented 0.5% of the total population. France follows with 0.4% of the population. The Netherlands occupied the fifth position on both tops. Germany, second top position as 2012-2013 population change occupies the sixth position in the second top with 0.2% of the 2012 population. Still, comparable percents of population change are noticeable among these countries, except Luxembourg. On the other hand, one explanation for the Luxembourg differences could be related to the activity of the EU Commission's institutions but the testing of this research hypothesis is not the topic of the present paper. For more details please see Annex 1. The 2012-2013 population change within the EU founder states.

Within the category of other old member states than the EU founders, the changes are not so dramatic. Sweden and United Kingdom switch positions. Sweden, the second in the 2012-2013 population change became the top country as the difference represented 0.8% of the 2012 population. The United Kingdom followed with 0.6%. Austria, Finland, Denmark, and Ireland maintained their position but Austria and Finland register the same percent of 0.5 of the 2012 population. Spain, Greece, and Portugal change their positions. Even if Spain registered the highest negative 2012-2013 population difference, this represented -0.2% of the 2012 population. It is to be noticed that even if Greece registered a population difference of 5 million people compared to Portugal, in both countries this represented the same -0.5 percent of the 2012 population. For more details please see Annex 2: The 2012-2013 population change within the other old member states than the EU founders.

None of the CEE countries kept its position on this second top. Previous 13 different positions merged in 11 as two pairs of countries registered the same values: the Czech Republic and Slovakia on one hand, and Hungary and Romania on the other hand.



Source: Author's calculation based on Eurostat data

Figure 4. The 2012-2013 population change as percent of 2012 population in Eastern European countries

The fourth 2012-2013 difference was in Malta as the country occupied the first position with a growth of 0.9% of the 2012 population. The previously third Cyprus, became the second with 0.4% of the 2012 population. The fifth Slovenia became the third one with 0.2%. The ones which took initially the first and second positions in the ranking (the Czech Republic and Slovakia) occupied the fourth position with a 0.1% growth. The case of Poland should be noticed where the

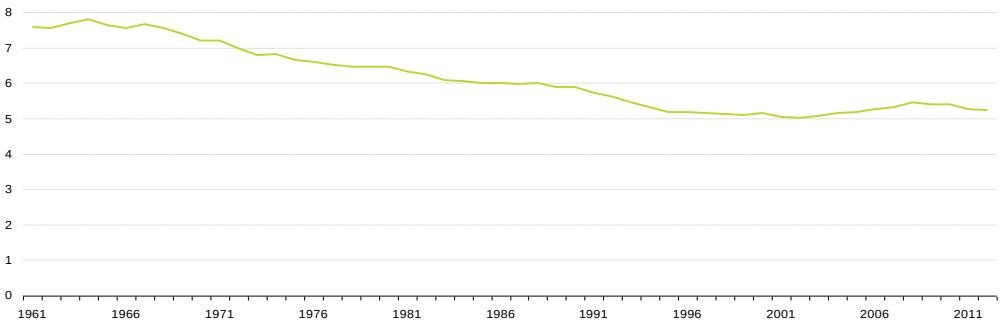
demographic change of -5.1 (per 1000) represents 0% of the 2012 population. Hungary occupied the tenth position of the first top and the sixth on the second top with -0.2% of 2012 population. Croatia changes the previous eighth position with seven by -0.3%. Estonia previously number six became number eight with -0.4%. Bulgaria which registered the biggest negative 2012-2013 difference became number nine. Latvia which previously occupied the ninth position out of 13 scores in the second top the tenth position out of eleven with -1 % of 2012 population. Lithuania previously the eleventh position out of thirteen occupies in the second top the eleventh position out of eleven with 1.1%. For more details please see the Annex 3 The 2012-2013 population change within CEE member states.

The 2013 population in EU-28 grew with a quarter compared with the 1960 value. The 2012-2013 population change reflects positive values in 17 member states (twelve Western European countries and five Eastern ones), and negative values in 11 member states (three Western European countries and eight Eastern ones). Top 2012-2013 population change in EU-28 per category of countries compared with top 2012-2013 population change as percent of 2012 population reflect different positions especially in the case of CEE countries.

2. Fertility rate in EU-28 member states

Fertility is the key demographic phenomena focus on the most dynamic element of population movement (births) (Rotaru, 1993, p. 251).

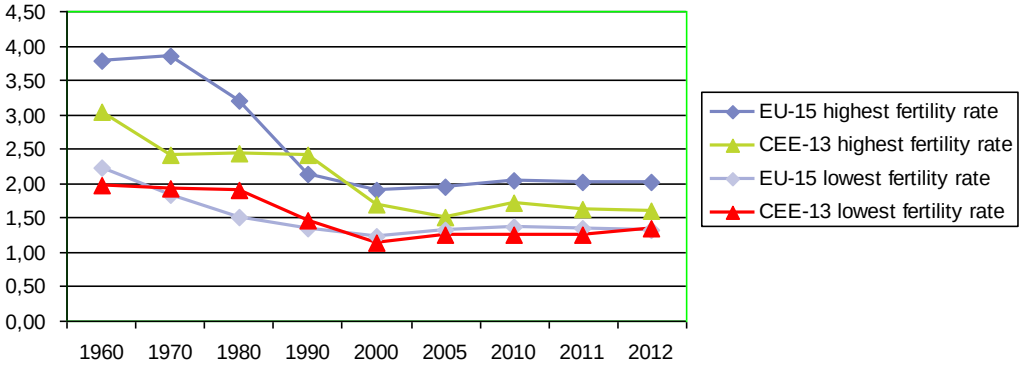
The evolution in the number of EU-28 live-births for the period 1961-2012 showed continuous decrease followed by an increasing trend after 2002 when the smallest value was registered (5.03). Since 2009 the trend is again a decreasing one. The value of 5.47 births registered in 2008 represents the highest value recorded lately but it is to be mentioned that it is surpassed by all 1961-1992 data. Still, comparable 5.45 births were registered only in 1993.



Source: Eurostat
Note: Excluding French overseas departments before 1998. Breaks in series: 2001, 2007 and 2010–12.

Figure 5. Number of live births, EU-28, 1961–2012

The fertility rate for the period 1960-2012 is analysed per Western versus Eastern European member states. Comparing highest values registered in the two categories of countries, the EU-15 values were constantly bigger than the ones registered in CEE-13. The year 1990 was an exception when Cyprus registered the highest value at EU-28 level. The EU-15 lowest fertility rate in 1960 was bigger than the ones registered in CEE-13. Starting with 1970 the lowest fertility rate registered in CEE-13 had a bigger value than the ones in EU-15. For the period 2000-2011, the lowest value of fertility rate in EU-15 was again bigger than the lowest fertility rate registered in CEE-13. The situation switched again in 2012.



Source: Eurostat

Figure 6. Highest and lowest values of fertility rates in EU-15 compared with CEE-13

The EU-28 highest fertility rates were registered three times in EU founder states (2000, 2005, and 2012), eight times in other old member states than the EU founders (1960, 1970, 1980, 2000, 2005, 2010, 2011, and 2012), and only once in CEE member states (1990). In 2000, as well as in 2012, the highest value among EU founders recorded the same values as the one from other old member states. In both cases it was hared by France and Ireland (Stănescu, 2015). According to the Eurostat data, the highest value of fertility rate was registered in 1960 in Ireland with 3.78. The most frequent top countries by categories of member states were: Ireland[4] (eight times) and France[5] (seven times), and Estonia (three times). In 1990 Cyprus registered the highest EU fertility rate. Other countries which did not registered the highest EU fertility rate but occupied first position within their

[4] Eight times both EU-28 highest fertility rate and seven times as top position among other old member states than EU founders

[5] Three times as highest EU-28 fertility rate and seven times as top position among EU founders

category of countries were: The Netherlands (twice), Slovakia (twice); Sweden (once); Romania (once); Malta (once); and Lithuania (once). For more details please see Annex 4 Highest fertility rates per categories of member states of the European Union 1960-2012.

The EU-28 lowest fertility rates were registered twice in EU founder states (1980 and 1990), twice in other old member states than the EU founders (1970 and 2012), and five times in CEE member states (1960, 2000, 2005, 2010 and 2011). The lowest EU-28 fertility rate was in 2000 in Czech Republic. The most frequent top countries by categories of member states were: Germany (four times); Spain[6] (five times), and Hungary[7] (four times). Other frequent countries with lowest fertility rate among their categories of countries were: Luxembourg[8] (three times); Italy[9] (three times); Greece (twice); Czech Republic (twice); Finland[10] (once); Denmark (once); Estonia[11] (once), Slovenia (once); and Poland[12] (once). For more details please see Annex 5 Lowest fertility rates per categories of member states of the European Union 1960-2012.

The fertility decline in developed countries is influenced by macro social factors; awareness about birth control, and development of specific medical support (Rotaru 1993, p. 251).

Without reducing the fertility at abortion, it is to be mentioned that its liberalisation developed differently in Western and in Eastern European countries. The post-communist countries pioneered the liberalisation of abortion mainly due to ideological communist idea of full employment. Estonia, Latvia, Lithuania, Hungary, Romania and Bulgaria experienced its prohibition followed by a second liberalisation. The German Democratic Republic did not liberalise abortion during the communist period but only in 1992 after reunification with ex-Federal Republic of Germany and after long negotiations. Western European countries liberalised abortion later most probably supported by democratic debates involving public stakeholders, civil society, and the Church. Malta continues to be the only European country where abortion is not allowed for any of the seven internationally recognised grounds[13] (Stanescu, Nemtanu, 2015). For more details please see the figure bellow.

[6] One as lowest EU-28 fertility rate and five times as lowest value among other old member states than the EU founders

[7] Twice the lowest EU-28 fertility rate and four times as top position among CEE countries

[8] Once the EU-28 lowest fertility rate

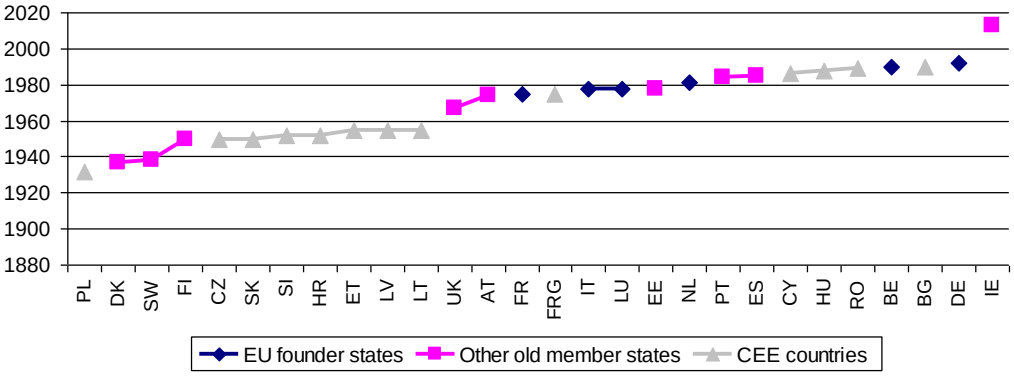
[9] Once the EU-28 lowest fertility rate

[10] Once the EU-28 lowest fertility rate

[11] Once the EU-28 lowest fertility rate

[12] Once the EU-28 lowest fertility rate

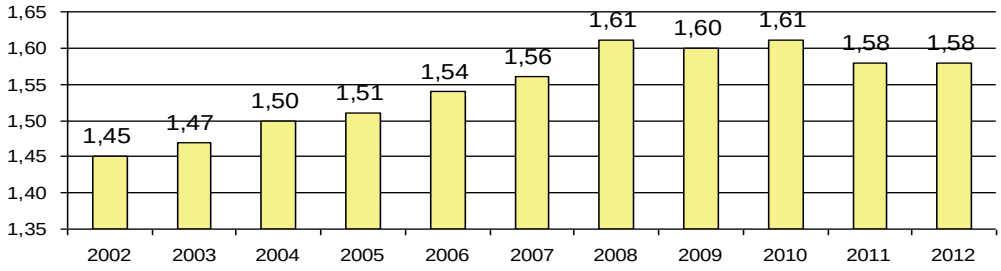
[13] to save the life of the woman, to preserve physical health, to preserve mental health, in cases of rape or incest, foetal impairment, economic or social reasons, and available on request.



Source: The Population Policy Data Bank maintained by the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat

Figure 7. Liberalisation of abortion in EU-28 member states

For the period 2002-2012, the EU-28 total fertility rates per women constantly increased as of 2008 and from when upwards and downwards trends started to be registered. The smallest value of 1.45 was registered in 2002 while the highest one 1.61 was recorded in both 2008, and 2010.



Source: Eurostat

Figure 8. Total fertility rate in EU-28 (live births per woman)

According with the EU-28 data for the period 2002-2012, the mean age of women at childbirth constantly increased and with the same value consecutively registered in 2011 and 2012 (see *Figure 9*).

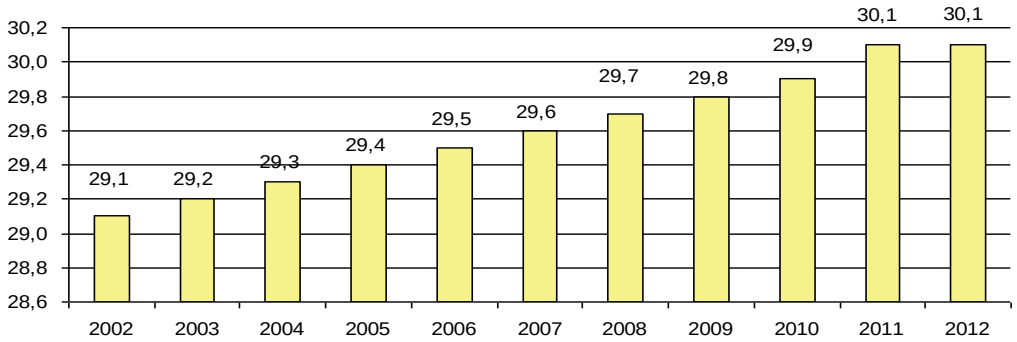
The EU-28 number of live births for the period 1961-2012 showed a decreased trend.

For the period 1960-2012 the highest values of fertility rates were registered in Western European countries compared with Eastern except for 1990. The highest value of fertility rate was 3.78 in 1960 in Ireland while the lowest one was 1.15 in Czech Republic in 2000. Highest fertility rates at EU-28 level were mostly recorded in Ireland (eight times and twice with the same value as France), twice in

France and once in Cyprus. The lowest vales of fertility rates at EU-28 level were registered twice in Hungary and once in Estonia, Finland, Luxembourg, Italy, Czech Republic, Poland, and Spain.

Among factors explaining fertility dynamic, the liberalisation of abortion happened differently in Western compared with Eastern European countries.

According with 2002-2012 Eurostat data, the total fertility rates is under 1.6 while the mean age of women at birth increase.



Source: Eurostat

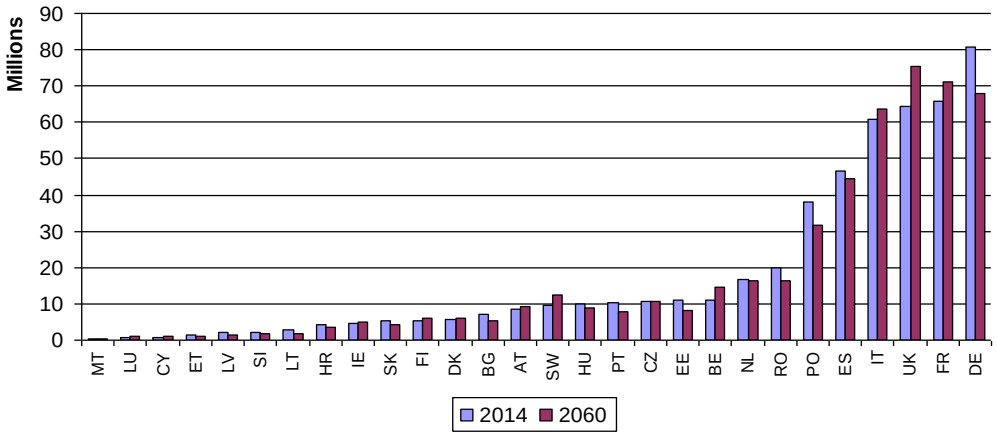
Figure 9. Mean age of women at childbirth in EU-28 (years)

3. Looking to the future population of the European Union

Demographic scenarios for the future are projected taking into account the life expectancy, fertility rates, and migration. This section analysis the EU-28 population changes in 2060 the case of a lower fertility rate scenario. Firstly we compare EU-28 member states as total figures. Secondly we compare the 2060 modifications as percent of 2014 population by Western and Eastern member states.

The dynamic of the population change in 2060 compared with 2014 data is presented in the figure 10. Ten Western European countries and three Eastern ones will register growth of population in 2060. Five Western countries and ten Eastern ones will register decline of population in 2060. United Kingdom will register the bigger population in EU-28. Poland will have the larger population among Eastern member states (see *Figure 10*).

We further analyse 2060 population change as percent of 2014 by Western and Eastern member states. Among countries with positive trends for the population growth, the smallest value will be in Italy (5%) followed closely by Malta, and Ireland with 7%. These two late countries are the most restrictive ones in terms of abortion liberalisation (Stănescu and Nemtanu 2015). Luxembourg presents the most spectaculars increased with 97%.



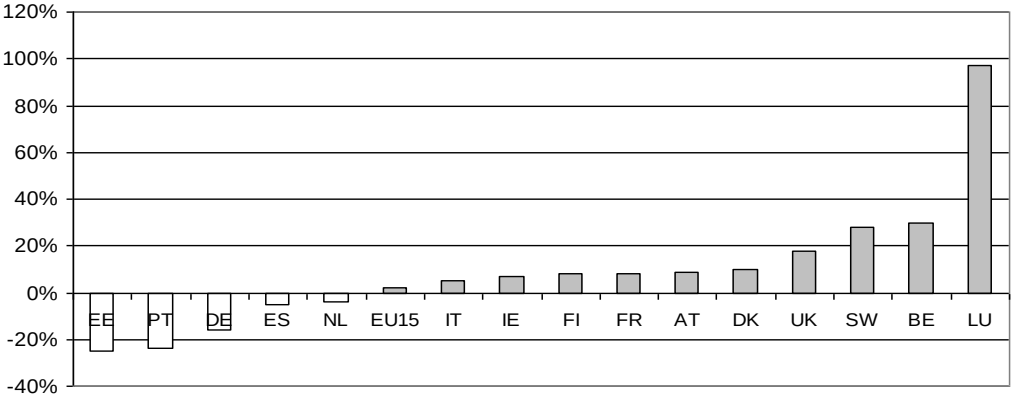
Source: Eurostat

Figure 10. The 2060 population change in EU-28 by low fertility rate scenario

The smallest negative population change in 2060 will be registered in The Netherlands –4 percents. Spain with – 5 percents is the next country. Lithuania will confront the highest value of decreased population with – 41 percents Latvia will follow with – 34 percents.

The average of the EU-15 population in 2060 will increase with two percents compared with 2014. The average in CEE-13 will represent –16 percents in 2060 compared with 2014.

Looking at Western European countries, five countries will lose population while ten will have positive population change in 2060. The most dramatic population decline within EU-15 will happen in Greece which will lose a quarter of population. Portugal with 24 percent will follow.

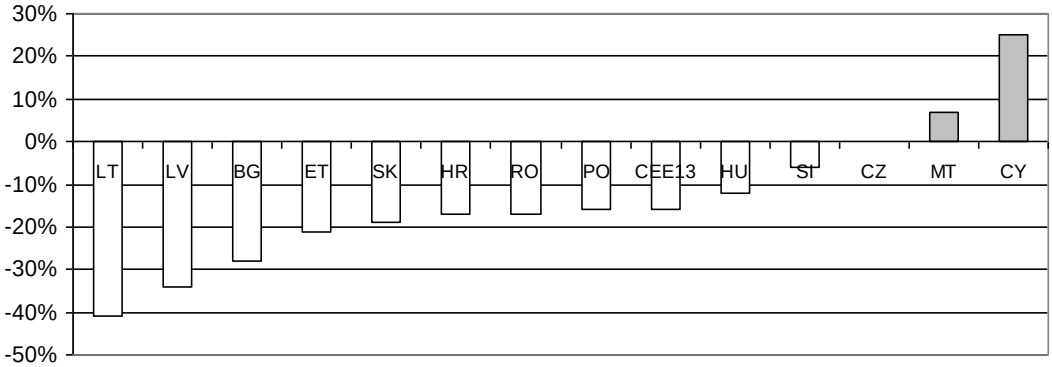


Source: Author's calculation based on Eurostat data

Figure 11. The 2060 population change in Western European countries as percent of 2014 population

Per category of member states, four EU founders will register positive values (Italy, France, Belgium, and Luxembourg) and two negative values (The Netherlands, and Germany). The category of other old member states than the EU founders will also register rather positive values with six countries: Ireland, Finland, Austria, Denmark, United Kingdom, and Sweden. However, three states will have negative values: Spain, Portugal, and Greece.

11 out of 13 CEE countries will register negative values. Only Malta and Cyprus will register population increase. Cyprus will gain in 2060 the equivalent of a quarter of 2014 population. The most dramatic loose of population will happened in Lithuania It is to be noticed that the population of Czech Republic will slightly increased with the equivalent of 0.26%.



Source: Author’s calculation based on Eurostat data

Figure 12. The 2060 population change in Eastern European countries as percent of 2014 population

Regardless the category of EU member states, four pairs of countries with similar 2060 population changes were identified: Croatia and Romania (-17 percents); Germany and Poland (-16 percents); Malta and Ireland (7 percents) and France and Finland (8 percents).

In the most probably scenario of low fertility rate, the EU-28 population will decrease in 2060 mostly in Eastern countries. Among Western European countries, United Kingdom will host the biggest number of population. In Eastern Europe this will happened in Poland.

2060 population change as percent of 2014 population will mostly affect Luxembourg by positive change. Greece and Portugal will lose a quarter of 2014 population. Among Eastern European countries, Cyprus will gain in 2060 the equivalent of a quarter of 2014 population. The most dramatic decline will happened in Lithuania.

Conclusions

The article confirms the general tendency towards decreased fertility (Rotaru 1993, p. 382; Popescu 2009, p. 163). During the period of 1960-2013 the EU population grew at a constant rate due to increasing life-expectancy, while the number of live-births for approximately the same period, 1961-2012, underwent a continuous decrease. The highest EU-28 fertility rate was registered in Ireland in 1960 while the lowest one in Czech Republic in 2000.

The decline of modern societies is explicable by the fertility decrease, the ageing population, and the lower numbers of people (Rotaru, 2009, 102-104). This corresponds to the second demographic transition with low fertility and death rates in contrast with the high values registered within the first demographic transition (Thompsoon 1929; Notestein 1945; Kirk 1996, p. 361; Mureşan 2008, pp. 440-441; Rotariu 2010, p. 61; Popescu 2009, pp. 43-75).

The total population change 2012-2013 registered positive values in twelve Western countries and in five Eastern ones. Negative values were noticed in three Western countries and in eight Eastern ones. As demographic balance, for 2012-2013, the top three countries were the United Kingdom, France, and Italy. At the opposite end, negative values were recorded in Spain, Greece, and Portugal.

The paper further classified Western and Eastern European countries by two dimensions: as the total 2012-2013 change and as percent of the 2012 population. The first top of countries and the second one showed a different picture of EU member states. The most stable category of countries is represented by other old member states than the EU founders. The most dramatic changes were registered in the CEE countries.

The paper analysed the highest and lowest fertility rate registered by EU-28 member states. Western European states have higher fertility rates than Eastern ones. Comparing their lowest values of fertility rates, the Eastern European countries recorded bigger ones. In other words, the number of children in Eastern Europe is decreasing.

The decreased fertility reduces the number of children and increases the role of elderly population (Rotaru 2009, 76-77). The total fertility rate per women constantly increased since 2002 till 2008, and from when upwards and downwards trends started to be registered. The mean age of women at birth increased.

In the scenario of low fertility rate, 15 EU member states will register negative population change in 2060. Czech Republic will remain almost unchanged and 12 countries will increase their population. Top three countries with positive growth will include Luxembourg Belgium, and Sweden The negative top includes Lithuania (-41%), Latvia (-34%), and Bulgaria (-28%). Per category of member states, positive values will be registered in four out of six EU founders, in six out of nine other old member states than the founders, and in two countries from the category of CEE member states.

The population change for the period 1961-2012 shows different trends among Western and Eastern EU member states. EU-28 started to confront the risk of low fertility. The demographic scenario for 2060 emphasised this risk. This will affect national representations at the level of various EU institutions but also the capacity to procure the contributory needed labour market and last but not least to assure pensions.

Family planning, social and health policies towards fertility remain a national area of interest. In terms of social policy, both risks of increased life expectancy versus low fertility rate (Rotaru 2010, pp. 95-110) will require suitable adjustments for contributory versus non-contributory systems. Besides, social policy interventions confront the challenges of a needed intervention to increase fertility alongside the concern to respect private life (Popescu 2009, p. 174). One possible solution could be represented by adopting child-oriented and families with children policy programs rather than increased fertility policy measures (Zamfir, 1993, pp. 174-179). Further harmonisation of social policies among EU-28 taking into account fertility rate but also migration could answer to the shared EU concern for finding sustainable answers to current demographic challenges.

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References

1. Kirk, D. (1996). Demographic Transition Theory. *Population Studies*, **50**, Great Britain, 361-387.
2. Mureşan, C. (2008). Impact of Induced Abortion on Fertility in Romania. *European Journal Population*, **24**, 425-446.
3. Notestein, F. (1945). Population – The Long View, In Schutz, T. W (ed.). *Food for the World.* University of Chicago Press, Chicago.
4. Notestein, F. (1967). The population crisis: reason for hope. *Foregin Affairs*, **46**, 167-180.
5. Popescu, R. (2009). *Introducere în sociologia familiei. Familia românească în societatea contemporană*, Editura Polirom, Iaşi.
6. Rotariu, T. (1993). Fertilitate, In Zamfir, C. and Vlăsceanu, L. (eds.), *Dicţionar de sociologie.* Editura Babel, Bucureşti, 162-164.
7. Rotariu, T. (1993). Natalitate, In Zamfir, C. and Vlăsceanu, L. (eds.), *Dicţionar de sociologie.* Editura Babel, Bucureşti, 382.
8. Rotariu, T. (2009). *Demografie şi sociologia populaţiei Structuri şi procese demografice.* Editura Polirom, Iaşi.
9. Rotariu, T. (2010). *Studii demografice.* Editura Polirom, Iaşi.

10. Stănescu, S.M. (2015). Back to work with small children Comparative analyses of maternity/ paternity leave in the member states of the European Union. *Mediterranean Journal of Social Sciences*.
11. Stănescu, S.M. and Nemțanu, M. (2015). Comparative analysis of abortion liberalisation in the European Union. *Revista Calitatea Vieții,* **1**, 2015.
12. Zamfir, C. (1999). Tranziția demografică și problemele sociale associate, In Zamfir, C. (ed). *Politici sociale în România.* Editura Expert, Bucureşti, 149-179.
13. Warren, T. (1929). Population. *American Journal of Sociology*, **34**, 959-975.

Annexes

Annex 1. The 2012-2013 population change within the EU founder states

No.	Country	Total change 2012 and 2013 change		% of 2012 population	
		Per 1000	Top position	%	Top position
1.	Italy	291.0	1	0.5	3
2.	France	291.0	1	0.4	4
3.	Germany	195.8	2	0.2	6
4.	Belgium	66.8	3	0.6	2
5.	The Netherlands	49.2	4	0.3	5
6.	Luxembourg	12.2	5	2.3	1

Source: Author's calculation based on Eurostat data

Annex 2. The 2012-2013 population change within the other old member states than the EU founders

No.	Country	Total change 2012 and 2013 change		% of 2012 population	
		Per 1000	Top position	%	Top position
1.	United Kingdom	400.8	1	0.6	2
2.	Sweden	73.0	2	0.8	1
3.	Austria	43,7	3	0.5	3
4.	Finland	25.4	4	0.5	3
5.	Denmark	22.1	5	0.4	4
6.	Ireland	8.4	6	0.2	5
7.	Portugal	-55.1	7	-0.5	7
8.	Greece	-60.5	8	-0.5	7
9.	Spain	-90.3	9	-0.2	6

Source: Author's calculation based on Eurostat data

Annex 3. The 2012-2013 population change within CEE member states

No.	Country	Total change 2012 and 2013 change		% of 2012 population	
		Per 1000	Top position	%	Top position
1.	Czech Republic	10.7	1	0.1	4
2.	Slovakia	6.5	2	0.1	4
3.	Cyprus	3.9	3	0.4	2
4.	Malta	3.8	4	0.9	1
5.	Slovenia	3.3	5	0.2	3

No.	Country	Total change 2012 and 2013 change		% of 2012 population	
		Per 1000	Top position	%	Top position
6.	Estonia	-5.0	6	-0.4	8
7.	Poland	-5.1	7	0	5
8.	Croatia	-13.8	8	-0.3	7
9.	Latvia	-21.0	9	-1	10
10.	Hungary	-23.1	10	-0.2	6
11.	Lithuania	-31.7	11	-1.1	11
12.	Romania	-38.5	12	-0.2	6
13.	Bulgaria	-42.7	13	-0.6	9

Source: Author’s calculation based on Eurostat data

Annex 4. Highest fertility rates per categories of member states of the European Union 1960-2012

	EU founder states	Other old member states	CEE member states
1960	3.12 Netherlands	3.78 Ireland	3.04 Slovakia
1970	2.57 Netherlands	3.85 Ireland	2.41 Slovakia
1980	1.95 France	3.21 Ireland	2.43 Romania
1990	1.78 France	2.13 Sweden	2.41 Cyprus
2000	1.89 France	1.89 Ireland	1.70 Malta
2005	1.94 France	1.86 Ireland	1.52 Estonia
2010	2.03 France	2.05 Ireland	1.72 Estonia
2011	2.01 France	2.03 Ireland	1.61 Estonia
2012	2.01 France	2.01 Ireland	1.60 Lithuania

Source: Eurostat

Annex 5. Lowest fertility rates per categories of member states of the European Union 1960-2012

	EU founder states	Other old member states	CEE member states
1960	2.29 Luxembourg	2.23 Greece	1.98 Estonia
1970	1.97 Luxembourg	1.83 Finland	1.92 Czech Republic
1980	1.50 Luxembourg	1.55 Denmark	1.91 Hungary
1990	1.33 Italy	1.36 Spain	1.46 Slovenia
2000	1.26 Italy	1.23 Spain	1.15 Czech Republic
2005	1.34 Italy 1.34 Germany	1.32 Greece	1.24 Poland
2010	1.39 Germany	1.37 Spain	1.25 Hungary
2011	1.36 Germany	1.34 Spain	1.26 Hungary
2012	1.38 Germany	1.32 Spain	1.34 Hungary

Source: Eurostat