Does migration reduce fertility?

Evidence from a very low fertility country

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Introduction

In his article "The Theory of Change and Response in Modern Demographic History", Davis argued that migration and decreasing fertility are responses that a population has in times of extraordinary hardship. Although his article refers to high fertility settings, his ideas make sense for other situations too, generally speaking, for any population that experiences a high level of poverty. The experience of Eastern European countries after 1990 seems to be a good example for Davis' theory: living in declining economies (Table 1), during times of extreme economic uncertainty, people migrate and reduce their number of children.

Table 1. GDP in Eastern European countries, 1989-1992 (1990 Geary-Khamis Dollars)

	Bulgaria	Czechoslovakia	Hungary	Poland	Romania	USSR	Yugoslavia
1988	6336	8675	6929	5790	4035	7032	6026
1989	6217	8729	6787	5685	3890	7078	5917
1990	5764	8464	6348	5113	3460	6871	5458
1991	4516	7244	6010	4798	2887	5793	4861
1992	4054	6845	5638	4726	2565	4671	3887

source: Maddison, 1995

Although high migration and declining fertility can be seen as independent outcomes of the same cause (high poverty) there are certain relationships between the two outcomes. Several studies (Lindstrom& Saucedo, 2002, Singley & Landale, 1998, Hervitz, 1985) investigated the relationships between fertility and migration for the case of people migrating from countries with high fertility to countries with lower fertility in various regions of the world. Some researchers suggest that migration is a *disruptive* process for fertility: migrants tend to postpone having children because of the socio-psychological stress associated with living in a new place and spouse separation. On the other hand, as other studies pointed out, migrants are not a random sample from the origin country population, they are selected, they have special characteristics and having fewer children is one of their features. Migrants, said other students, tend to adopt – gradually or quickly- the norms of the receiving country in many aspects, including number of children, and after a while their fertility resembles more the fertility of the destination country rather than that of the sending country.

This paper analyzes the relationship between international migration and fertility, after 1990, in an Eastern European country, Romania. Using various sources of data (Census data and surveys), I am trying to answer to the following questions: 1) are migration and low fertility interdependent? and 2) does migration distort fertility measures?

3.1. Migration and fertility. Interrelationships

Migration is a spatial phenomenon (Hammar&Tomas: 15), migrants being people who change their residence for a period of time. Even if "migrant" and "migration" seem to be easily understandable, the meaning can vary from study to study. Usually, refugees (people who were forced to migrate) are considered a distinct and special group of migrants, but even within the non-refugee migrants, the definitions can be very different. For example, under US law, an *immigrant* is a foreigner who is entailed to live and work permanently in the United States (Martin&Midgley: 5), but many studies discuss "undocumented migrants to the US" (Massey&Espinosa: 940), obviously not taking into account the US legal definition of immigrant.

Some researchers also consider the distinction between international and internal migration to be important, while others think it is rather a formal one (Hammar&Tomas: 15). *International migrants* are defined as people who change their residence from one country to another (they crossed at least one national border); *internal migration* is defined as migration within national borders.

Several micro and macro level theories try to explain how internal and international migration began and why they continue in the world. Taking into account to what moment of migration they refer to, these theories are often classified in two main groups: *initiation* and *perpetuation* theories.

Theories of the *initiation* of migration fall into four main perspectives: neoclassical economics, new economics of migration, dual labor market and world system theory. The second group (*perpetuation*) includes network theory, institutional theory, migration

systems and cumulative causation theory. *Neoclassical economics theory*, from a *macro* level point of view, pointed out the geographical differences in labor supply and demand as being the main cause of migration (Massey& all: 433). At a *micro* level, the neoclassical economic theory is a model of individual choice based on a cost – benefit analysis (Massey&all:434).Potential migrants estimate the cost and future benefits they would have from moving to another place, and choose the place where they can get the best returns (Massey&all:434)

The *new economics of migration* theory does not consider the migrant as an isolated individual, but as a part of a household (family). The migration decisions are made within the household and the people involved in them try to minimize different risks associated to the household (crop market fluctuations, unemployment) or to enable families to capital necessary for financing new projects (Massey& all: 436).

Dual labor market theory (or segmented labor market), developed by Piore, argues that immigration is not a result of the sending country conditions, but an effect of the industrial society's characteristics. Wages are not simply the result of supply and demand, they are also embedded in a hierarchy, and they are attached to a social status. In a dynamic economy, there will always be a need for a work force at the bottom of the hierarchy, because people who used to be there advance on the social scale. The need for low skilled work cannot be simply covered by increasing the wages attached to this work, because this will upset people who are doing more skilled work and get a lower wage. Two categories of native population are used to fill the need of low skilled work: women and teenagers (Massey & all: 423). In a less advanced society, women work mostly part – time, and their social status is not defined by the work that they do, but by the position of

their husband. The situation changed in nowadays-industrialized societies, where women have more stable jobs, and are more interested in their careers. Teenagers also used to be a segment of population that accepted low skilled jobs, but because of the drop in birth rates and increase in formal education they are not enough teenagers anymore to fill all these jobs. In this way, the immigration remains the only solution for filling the low paid jobs in an advanced economy. The immigrants do not consider themselves as a part of the host, but of the sending society, so they do not feel ashamed to be at the bottom of the host country hierarchy. They accept jobs and wages that the native would not accepted, helping in this way the receiving country economy to go up.

World system theory considers migration to be a result of the world market structure (Massey& all: 444). The incorporation of more and more land and population into the world market economy because of capital penetration into peripheral societies and global inequality as a structural given (Zolberg:403) makes more people migrate from a region to another.

One of the most popular theories trying to explain the *perpetuation of migration* nowadays is *network theory*. Migrants, former migrants and non-migrants in origin and host countries are related through a set of interpersonal ties that facilitate migration by reducing the costs of moving and risks. As a result, once a migration process began, the migration stream between two countries tends to expand and is less likely to be controlled by the governments, because the interpersonal networks are outside of their possible control (Massey& all: 450).

Institutional theory predicts that, once a migration process begins, private institutions that offer different kinds of services for migrants arise. Clandestine transportation,

counterfeit documents and visa, lodging in the country of destination, and many other services make migration and the adaptation of migrants in the receiving country easier (Massey& all: 450).

Cumulative causation theory argues that each act of migration changes the social context, making further movements more likely to occur (Massey& all: 451). Migration affects the distribution of land, income, and human capital, the organization of agriculture, culture and the social meaning of work. The *relative deprivation* hypothesis (people who feel poorer in comparison with their neighbors are more likely to migrate) is an example of how migration affects the distribution of income and is further affected by the changes induced in the distribution of income (Massey& all: 452).

Migration interferes with other demographic processes, such as mortality and fertility. Immigrants are selected populations coming from countries with a different culture than the receiving country has. Their mortality patterns can be very different than those of the native people, as the case of Mexicans in the US shows: Mexican groups in the US have one of the lowest infant mortality rates, and mortality at old ages is lower than the mortality of non-Hispanic White population, despite their low socio-economic status.

Immigration, on the other hand, is considered a possible solution for the problem of aging in the developed world (Jonsson & Rendall: 129). Although in the long term it is assumed that immigrants fertility will not differ from the native population fertility (Espenshade, 1994) so immigration does not have a direct effect on fertility, in the short term immigration brings an infusion of young population and delays the aging of a population.

Four main hypotheses regarding the relationship between migration and fertility have been developed. The s*election hypothesis* considers that migrants are a special group, with characteristics that differentiate them from the non migrants. Having fewer children – or norms regarding a low fertility – is one of these characteristics that differentiate them from the non migrants (Singley&Landale:1439). The *disruption hypothesis* suggests that migration lowers the fertility of migrants because of spousal separation and because moving to a new place is a stressful event, making migrants postpone having children until they adapt to the new country. The *assimilation and adaptation* hypotheses predict that the fertility of migrants will become – sooner or later – similar to the fertility of the receiving country population. These two last hypotheses were tested only for the case of migration from countries with high fertility to countries with low fertility. It would be interesting to see if migrants moving from low fertility countries to countries with higher fertility (as Eastern Europeans to Western Europe) tend to have higher fertility than the non migrants from the origin countries. Most of the studies investigate the relationship between fertility and migration in receiving countries - studies on the influence of emigration on the fertility of the sending countries are very rare, because in most cases sending countries have a high fertility and the levels of out-migration have little if any effect. Ebanks etal. (1975) investigated the influence of emigration on fertility in Barbados, and they concluded that emigration played an important role in the fertility decline of the country. Lindstrom& Saucedo (2002) studied the short and long term effects of US migration experience on Mexican women's fertility in Mexico and observed that spousal separation reduces the probability of a birth in short term and the fertility of Mexican women migrants in the US is lower because of

migration. The case of Eastern European countries, with below replacement fertility and countries of emigration is quite singular. Philipov (2001) was among the first who advanced the hypothesis that high emigration of Eastern Europe (especially South-Eastern Europe) leads to underestimates of fertility, because the official statistics are calculated without taking emigration[1] into account and, in this way, fertility is underestimated. He argued that, in the case of Bulgaria, where 8% of the population is estimated to work and live outside of the country (Philipov:9), the TFR in 1998 would be 0.2 higher if migration were taken in account. Migration could also have an impact on family formation, as Sklar (1974) argued for the case of Central Europe, where the massive emigration of young men in the early 1900s made 'increasingly difficult for women in the Czech, Baltic and Polish areas to find husbands' (Sklar:241) and, as a consequence, age at marriage and number of single women increased.

[1] Official statistics take into account only those emigrants who establish officially their residence outside of a country. However, most of the emigrants from South Eastern Europe are circulatory migrants, who work outside of their native country in many cases illegally, so their number cannot be computed from official statistics, but only estimated.

3.2. East –West Migration in Europe – levels and theories

a) East-West migration before 1990

The economic East –West migration in Europe was a negligible phenomenon during 1945-1989, because most of the communist governments did not allow migration between their countries and Western European countries. However, before 1950, the phenomenon had quite a history. During 1850-1920, when almost 30 million people left Europe for North or South America, several hundred thousand Polish and Ukrainians migrated to France, Germany or England (Fassman& Munz, 1994:520). About 3% of the Czech population and 6% of the Polish population migrated during 1900-1914 (Sklar:241). Three factors are considered important in explaining this trend: the economic growth of the West, due to the industrial revolution, differences in political systems between the East and West, and the rise of nationalism in Central and Eastern Europe, which forced ethnic and religious minorities to migrate (Fassman&Munz, 1994: 522).

During 1944-1989, migration from Eastern Europe had two main components: migration of people subjects to *special political agreements* (migration of ethnic minorities) and *economic migration*. In forty years, between 12 and 14 million people migrated from Eastern to Western Europe, most of them emigrated because of their ethnic origin.

Before 1918, some regions of Eastern Europe were part of the Habsburg Empire, and many Germans settled down in these regions. After 1918, when Habsburg Empire was divided into independent countries, some of these ethnic Germans remained in the newly

formed countries. Immediately after 1944, when Germany was defeated, some of the Germans living in Eastern Europe were dislocated and sent to Germany[2]. That was a first wave of Germans leaving Eastern Europe. Later on, Federal Republic of Germany, negotiated bilateral agreements with some of the Eastern European countries (including Germany Democrat Republic), allowing ethnic Germans living in those countries to move to if they wanted to. In return, the Eastern European countries received some financial support from FRG (Federal Republic of Germany). Similar agreements were negotiated by Israel, and Turkey. As a result, during 1960-1992, about 500,000 people (mostly Jewish) moved from Eastern Europe to Israel or United States. During 1946-1955, over 200,000 people left Bulgaria (Guentcheva&all:20), many of them members of ethnic minorities (Turks, Armenians, Jews, Czechs and Slovaks) and settled in their country of origin or in other countries.

Although there were mainly economic reasons behind these people emigration, they were able to leave only because of these special political treatises, so they are not considered either economic migrants or refugees. Among the former communist countries, only Yugoslavia allowed its citizens to work and immigrate to a capitalist country before 1989, and this is why only 15% of East-West migrants during 1950-1989 can be classified as labor migrants or as dependent family of labor migrants (Fassmann&Munz, 1994: 527).

[2] This was the case with the Germans living in Czechoslovakia, where the population suffered intensively during the Second World War because of the German occupation. The German minority from Czechoslovakia helped the German enemy, so when the War ended, the native population was very angry at their German fellows. As a result, most Germans were deported to Germany, and their possessions confiscated by the Czechoslovakian government.

b) East West migration after 1990

After 1990, three main groups of East-West migrants can be identified: ethnic Germans moving to Germany, refugees from former Yugoslavia and economic migrants.

The number of ethnic Germans (*Aussiedler*) moving from Eastern Europe to Germany increased, because the new Eastern European governments made easier the emigration of this category (Table 2).

Table 2. Number of ethnic Germans living in Eastern Europe who migrated to Germany after 1990

Country of origin	Year								
	1990	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
Total	397,073	217,898	177,751	134,419	103,080	104,916	95,615	98,484	91,416
Poland	133,872	1,677	1,175	687	488	428	484	623	553
Hungary	1,336	43	14	18	4	4	2	2	3
Romania	111,150	6,519	4,284	1,777	1,005	855	547	380	256
Former Czecheslovakia	1,708	62	14	8	16	11	18	22	13
Former Soviet Union	147,950	209,409	172,181	131,895	101,550	103,599	94,558	97,434	90,587
Former Yugoslavia	961	178	77	34	14	19	--	17	4
Other countries	96	10	6	--	3	--	6	6	--

source: Statistisches Bundesamt (Federal Statistical Office), apud *Migration Source*

The disruptive Yugoslavian war after 1990 made many Serbs, Croats and Bosnians migrate and ask for refugee status in Western Europe (Table 3). Because Yugoslavia allowed their citizens to work in Western countries before 1990, many Yugoslavian had ties in Western Europe, and that made easier for them to emigrate and ask for refugee status when the war began. After the war (or wars) was over, the economic situation of some of the former Yugoslavian republics (Bosnia Herzegovina, or even Serbia) prevent many of them from coming back to their countries.

Table 3. Stock of immigrants from former Yugoslavian republics in European countries

Country of citizenship	Population of foreign citizenship in			
	Germany (1.1.1999)	Austria (1.1.1999)	Italy (1.1.1998)	Belgium (1.1.1999
Bosnia and Herzegovina	281,380		10,246	1,995
Croatia	206,554		13,575	736
Former Yugoslavia*	721,029	337,863	74,869	12,130

source: Recent demographic developments in Europe, 1999

* Serbia, Montenegro, Croatia, Slovenia, Bosnia-Herzegovina

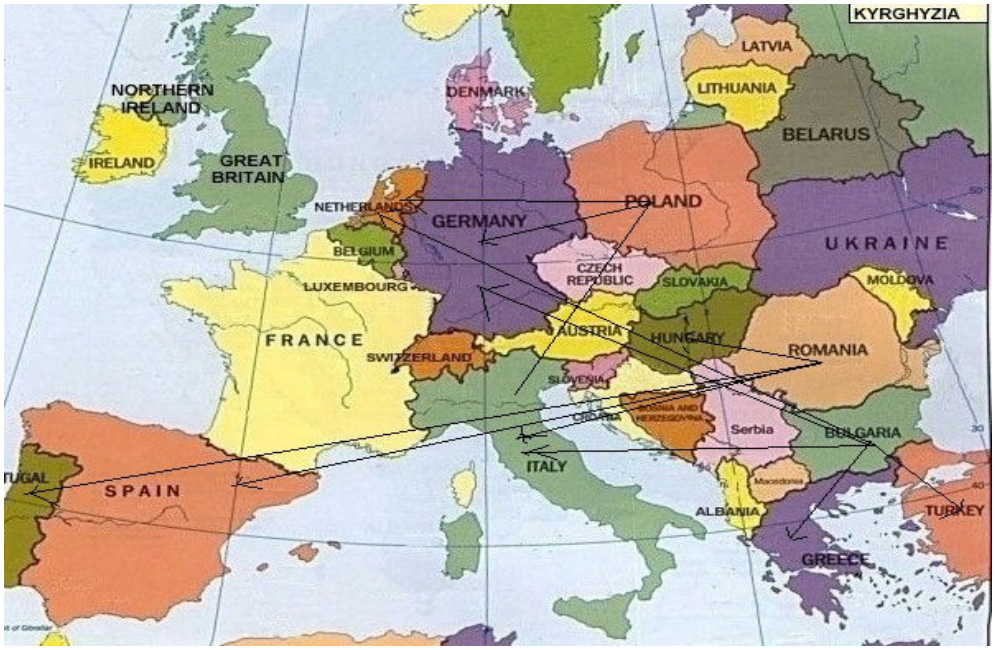
In the group of economic migrants, Romanians, Bulgarians, Polish and Albanians are well represented[3] left their countries and went to Western countries after 1990. Immediately after 1990, many of them applied for a refugee status, as the old laws (which allowed citizens of Communist countries to ask for refugee status) were still enforce. The difference in wages between Eastern and Western Europe is an important reason of these migrants, so the neoclassical theory of migration can offer a good explanation for why these people moved. However, these emigrants did not go to the countries with the highest wages, as it was expected, but preferred countries with rather low wages, as Spain, Portugal and Italy.

The pattern of migration (which countries send people in what countries) it is an important point in understanding East-West migration in Europe. The direction of migration (where people from a certain country migrate) can be explained from several points of view. First, geographic vicinity plays an important role: people tend to move to

[3] Russian immigration was also feared by Westerners: in a study done in 1993, demographers estimated that, in the future, 1.5 million Russians plan to emigrate to Western Europe (Shevtsova: 244), and this seems to be an underestimation given the fact that, in 1991, 50% of Russians declared they were ready to leave the country (Shevstova: 244)

states that neighbor their native country. This is the case with some waves of migration in Eastern Europe (Romanians of Hungarian origin into Hungary, Bulgarians with Turkish origin going to Turkey, Albanians going to Greece, Polish going to Germany), although it does not work for other emigrant groups. A second hypothesis argues that cultural, political and historical connections between the origin and host country determine the direction of migration (Fassman & Rainer, 1992:469). This hypothesis can explain the emigration of Romanians in Italy, Spain and Portugal, countries that share with Romanian a Latin background in languages and cultures.

Figure 3.1. East-West main directions of migration in Europe, after 1990



One group of migrants that received special attention during the last years are Gypsy, maybe because they are the only one groups with special racial and cultural traits that can be easily identified. Between January and September 1991, a first wave of about 70,000

Gypsies from Romania and another couple of thousand from Macedonia reached Germany (Barany: 243), and they were received with high hostility by the local population. Later on, groups of Gypsies went to Finland (many of them from Bulgaria), England (from Slovakia), Ireland (from Romania), France, Italy and Spain (Romania and Bulgaria) and Austria (Slovakia). Although they are not very numerous – far less numerous than the African migrants – mass media and population reacted very strongly to their presence on the streets and town of Western Europe[4]. Eastern European Gypsies are even rejected by the Western Gypsies, maybe because they are much poorer than the last ones.

As an overall, the number of migrants from Eastern European countries was much lower than it was feared, (Lazaroiu, 2003, Guentcheva, 2003, Korys, 2003). The benefits that Western Europe has by getting foreign people to work for low wages seem to surpass the negative effects of having immigrants, and this is why the immigration regulations regarding Eastern Europeans became more and more relaxed. On the other hand, the remittances sent by immigrants back to their countries of origin play an important role in the GDP of these countries. For Bulgaria it was estimated that in 2002, emigrants sent home 449.6 million USD, which represent 2.9% of the Bulgarian GDP, and surpass the amount of direct foreign investment by 20.9 million (Guentcheva&all:16). National Bank of Romania estimates that, during 2002, the emigrants transferred home 1.2 billion USD (Lazaroiu:20). Poland, with an estimated number of 786,100 emigrants, benefited from 900 million USD in remittances in 1998 (Korys: 40).

[4] French newspapers used to have large articles about Gypsies in France, and their involvement in prostitution and human traffic.

However, the citizens of the former communist countries who joined EU in 2004 still face restrictions in working in some of the old EU countries. These restrictions do not seem to be the result of a careful analysis regarding migration, but rather the result of the Westerners fear of the EU enlargement effects. Some of the Eastern European countries – as Czech Republic and Slovenia – actually became countries of immigration after 1995, and their citizens have hardly any reasons to move massively toward West, when the economic growth moves East in Europe.

3.3. Data

While emigration has positive effects on the economic growth of some of the Eastern European countries, there are also negative effects to be analyzed. Romania is one of the countries with high migration and below replacement fertility. UN studies placed Romania among the first ten countries of emigration with an estimated 80,000 emigrants per year (around 1995). At the same time, fertility attained 1.3 children per woman in 2003, a level well below replacement. The last census (2002) shows that between 1992 and 2002, the Romanian population decreased by one million (~5%) as a result of migration and negative natural increase. It can argued that the high emigration rate has a negative, disruptive effect on fertility, because of spousal separation and because moving to a new place is a stressful event, making migrants to postpone having children until they adapt to the new country.

There are two types of data available for studying the relationship between migration and fertility: censuses and surveys. Migration became significant only after 1990, so I will use 1992 and 2002 censuses to estimate the number of migrants and the influence of migration on fertility. For survey data on migration, I will use "Community census on temporary external migration of rural population", a survey conducted by International Migration Organization, University of Bucharest, Ministry of Public Information and Ministry of Internal Affairs in 2001. There were 12357 villages (from 127000) and 148 small towns (from 152) included in this study. For each village and small town information was recorded on the number of emigrants, on people who worked abroad and

came back, and some characteristics of the community (Sandu, 2001). People involved in the study recognized that data can be affected by errors, taking into account that the study was done on the village/small town level not on the individual/household level (Sandu, 2001), and they suggested that data at the county/region level are much more reliable than data on the village/town level. This study does not have any data about fertility, so for studying the relationship between migration-fertility, I used fertility data from annual publications of Romanian National Institute for Statistics, Romanian Yearbook (2001) and National Census (1992).

3.3.1. Census data

One method for estimating the number of out-migrants from a country with low immigration is by using data from two consecutive censuses. For the relationship between fertility and migration, it is particularly important to estimate the number of women migrants who are in the reproductive ages.

By comparing the female population ages 15-64 in 1992, on age groups and nationalities in Romania[5], with the female population age 25-74 in 2002, I find that for all ethnic groups except Gypsies, the female population decreased (Table 4).

Table 4. Difference in size between 1992 and 2002 (female cohorts age 15-64 in 1992)

	Total	**Romanians**	**Hungarians**	**Gypsy**	**Ukrainians**	**Germans**
15-19	101224	88033	10805	-480	618	2156
20-24	56147	46471	9077	-1547	304	2023
25-29	30828	26828	4164	-1081	149	1141
30-34	42151	37353	4377	-987	144	1411
35-39	44282	38796	4431	-684	149	1577
40-44	33697	29300	3573	-354	144	1039
45-49	39709	32670	4891	335	206	1475
50-54	71367	61296	6084	800	274	2324
55-59	100221	85771	8727	1602	336	2751
60-64	138001	118959	12328	1579	462	3082

The number of Gypsy females increased for all age groups between 1992 and 2002, which is not an expected result there is no evidence of Gypsy immigration to

[5] In this chapter I focus only on out migration. In 2002, there were 23,945 foreign citizens living in Romania for 12 months and over (Romanian Census, 2002).There were also 109,924 Romanian citizens born in other countries (Romanian Census, 2002). Most of these people lived all their life in the same place, but because of the frequently changing borders during the 20th century they are recorded as being born in another country. In the following I will assume no immigration.

Romania. Actually countries as France, Italy and Spain claim to have an increasing stock of Romanian Gypsies.

There are two possible explanations for this result. Figures regarding the number of Gypsies are not very reliable anywhere and there are still cases of children born at home who do not have birth certificates. It is also very possible that the counting was not accurate in 1992, or in 2002 or in both years. Another reason can be related to how ethnicity is recorded: the respondent identifies himself/herself as belonging to a certain ethnicity, so people can declare themselves as being Gypsies at one point in time, and then declare some other ethnicity. Usually, Gypsies choose to declare themselves as Romanians, but there are cases when they declared other ethnicities. One well publicized case of such shifting in identity appeared in Transylvania when the Hungarian government decided to give some special rights to Hungarian ethnics living abroad (so called Status Law). The so called Hungarian Gypsies – a Gypsy tribe claiming to be similar to Gypsies living in Hungary - living mostly in the Western part of the country, declared themselves as Hungarians in order to qualify for the Status Law rights, and got very angry when the Hungarian associations denied they were Hungarians. During the past years, several policies aimed to make Gypsies more aware of their own ethnic identity and to take away the blame from being a Gypsy. Probably the results of the 2002 census show that these policies were successful. The data problems with counting Gypsies made me use, in the following, only the other four ethnic groups (Romanian, Hungarian, Ukrainian, German).

In order to estimate the number of women migrants, I computed (from 1992 figures) the number of women there would be in 2002 in the absence of migration. As

migration occurs usually at young ages, I used only the cohorts that were 15-34 in 1992, and I estimated the number of deaths for these cohorts using the death rates from the life tables published by the Romanian National Institute for Statistics (Demographic Yearbook, 2001)[6]. I considered all ethnic groups as having similar death rates; as the death rates were not very high (see footnote 3), they would not be significant even if there would be differences in the death rates. Table 5 shows the number of women that should be alive in 2002 in the absence of migration, and the number of women that were alive in 2002, for the four ethnic groups.

Table 5. Number of women that are that should be alive in 2002, in the absence of migration

	Romanians		**Hungarians**		**Ukrainians**		**Germans**	
Age in 1992	*without migration*	*actual*	*without migration*	*actual*	*without migration*	*actual*	*without migration*	*actual*
15-19	817570	744186	62159	52468	2793	2225	3435	1341
20-24	892063	866261	65778	58225	2251	1999	3691	1754
25-29	539122	529674	39503	36612	1924	1837	2199	1129
30-34	658464	655462	46953	45025	2008	1969	2886	1626

These data show that, among women who were age 15-34 in 1992, and belonging to one of the four ethnic groups (Romanian, Hungarian, Ukrainian, and German), about 4% migrated by 2002 – 5% of the Romanian group, 12% of the Hungarian groups, 2% of the Ukrainian group and 72% of the German group emigrated. Let us consider the worst scenario, with these migrants never having children in Romania during 1992-2002. Suppose that these women would have the same fertility as the women who did not

[6] I had the death rates only until 2000, so I assumed they remained until 2002. The death rates were between 0.002 and 0.008.

migrate if they stayed. Then, for each 1000 women who migrated, we can estimate the number of children lost as the difference between the numbers of children ever born in 2002 and in 1992 to women who stayed (Table 6).

Table 6. Number of children 'lost' because of migration, for every 1000 women, 1992-2002

age in 1992	Romanians	Hungarians	Ukrainians	Germans
15-19	877.4	852.9	1299.3	666.3
20-24	765.7	839	1263.1	769.4
25-29	348.9	395.1	761.1	334.2
30-34	128.6	142.7	384.3	160.8

Table 7. Estimated number of women-migrants

	Romanians	Hungarians	Ukrainians	Germans
15-19	73384	9691	568	2094
20-24	25802	7553	252	1937
25-29	9448	2891	87	1070
30-34	3002	1928	39	1260

From Table 6 and 7, about 108, 430 children were 'lost' because of female migration. Taking into account that, during 1992-2002, there were around 2.4 million children born in Romania, it means that the ***fertility would be at most 5% higher if women did not migrate during this interval of time.***

Considering the second issue, that high migration causes the fertility measures to be underestimated, I compared the TFR for 1999-2001 from official statistics with the TFR computed with 2002 census data. Using the 2002 census data and probabilities of

death for women age 15-49[7], I projected backwards the number of women that would be alive in 2001, 2000 and 1999 for each year of age. Then I computed the TFR for 1999-2001 using figures resulting from the projection as the denominator [8] and I compared them with data published by the National Institute for Statistics. The results are presented in Table 8.

Table 8. TFR and number of women age 15-49 years

	Women, age 15-49		**TFR**	
Year	***Projected***	***Used in statistics***	***Projected***	***Used in statistics***
2001	5538580	5817197	1.32	1.2
2000	5543080	5816755	1.38	1.3
1999	5549933	5817083	1.41	1.3

As it can be observed, TFR is 0.1 higher when the backwards projected number of women is used as the denominator because the number of women age 15-49 used in official statistics is about 5% smaller than the number of women resulting the projection. The difference is probably a result of not taking out migration into account the official statistics, so, as Philipov (2001) argued for the Bulgarian case, there is certain bias in measuring fertility in Romania, due to a high rate of out migration. ***As these results showed, the TFR would be around 8% higher if migration is taken into account.***

[7] For probabilities of death, I used the complete life table on sex, 1998-2000, the only one with data for each year of age.
[8] For number of births I used published data (Births, 1999, 2000, 2001, *Romanian National Institute for Statistics*).

Survey data

One of the few studies that examined the migration process using data from a country of origin was done in Romania in 2001. Using a so called "community census" –in which for each village, data were recorded regarding the characteristics of the village, the history of internal migration and international migration - the authors were able to estimate the volume as well as the main directions of economic migration from Romania to European Union.

Data were recorded about temporary migration during 1990-2001 for people from 12300 villages (from a total 12700 villages) and 148 small towns (from 152). The results showed that the large villages, with a high level of development, located especially in Transylvania or in the Western part of the country have the highest level of international out migration.

Six countries seem to absorb most of the migrants from Romania: Yugoslavia, Hungary, Germany, Turkey, Italy and Spain. In the late 1990s, Germany is no longer a preferred destination of Romanian migrants; Italy and Spain now capture more and more migrants with few of them returning. Yugoslavia and Hungary have a special position; people travel frequently in these countries for buying and selling things, but also for working there. Gypsies (a category frequently mentioned in the articles about migration in Western Europe), go especially to Germany, Yugoslavia and Spain.

From a demographic, as well as an economic point of view, Romania is not a homogeneous country. During 1945-1990, the communist governments tried to reduce

the economic disparities between regions by industrializing and urbanizing the poorest parts of the country (Moldavia and the southern part of Wallachia, Figure 2).

Figure 2. Historical regions in Romania

Historically divided in regions (Transylvania, Moldavia, Banat, Crisana-Maramures, Oltenia, Wallachia, Dobrogea), the Romanian administrative structure changed several times during the last one hundred years. The concepts of the main administrative units (village, comuna, town and county) remained unchanged during the last forty years, although the number and boundaries of counties and towns changed frequently. After 1990, the administrative changes were minor, with the rural region around Bucharest becoming a county and being separated from the main town.

The forty one counties that now compose Romania have different demographic and economic characteristics: those situated in the North Eastern part are among the least developed and have the highest fertility rates, while those in the Western part and the capita (Bucharest) are the most developed and have the lowest fertility rates (Table 9.).

Table 9. Demographic indicators in the poorest and richest counties from Romania

County	Region	Rank of development, 1998*	TFR 1989	TFR 2000	Life expectancy, males, 1988-1990	Life expectancy, males, 1998-2000
Vaslui	Moldova	1	2.16	1.8	68.01	67.92
Botosani	Moldova	2	2.97	1.8	65.98	66.17
Suceava	Moldova	3	2.57	1.7	68.02	68.57
Sibiu	Transylvania	37	2.02	1.2	67.24	67.14
Cluj	Transylvania	38	1.91	1.3	67.01	68.22
Timis	Banat	39	1.86	1.2	65.57	66.93
Brasov	Transylvania	40	1.87	1.1	67.34	67.75

source: Demographic Yearbook *and* The villages of Romania, World Bank Report

In terms of out-migration, Romania is not homogeneous either: 4.5% of all villages contain 60% of all returned migrants and 20% of all migrants (Sandu:26), which shows the emigration phenomenon is regionally concentrated. Most migrants come from the North Eastern and Western part of the country. There are three major groups of migrants: one group is the migrants leaving the Central-Western counties (Covasna, Harghita, Mures, Salaj), many of them with Hungarian origin, who go to work in Hungary because they know the language and also have various benefits[9]. As statistics show, the most numerous group of foreign citizens living in Hungary are those coming from Romania: 62,130 on January 1st, 1998, which represent about 42% of all foreign citizens living in Hungary (*Recent demographic developments in Europe*, 1999). A second group is formed by those coming from the Northeastern counties (Moldavia), who go for work to

[9] Status Law gives various benefits to ethnic Hungarians living outside Hungary who come and work in Hungary: they get an work permit very easily, and the state pays the health insurance. A person who works continuously for three years in Hungary is eligible to apply for permanent residence.

Portugal, Italy and Spain. A third group of counties (Timis, Arad, Sibiu, Brasov) send most of the emigrants to Germany. Gypsies from Transylvania migrate to Germany (26% of people who came back from Germany are Gypsy), Hungary (15% of all people who came back from Hungary are Gypsy) and Spain (Sandu: 25). Although French media concentrates on Gypsies' migration in France (from Romania as well as other Eastern European countries), in the general picture this group is not numerically important: only 4% of people who came back from France are Gypsy.

The relationship between migration and fertility in Romania can be studied from two points of view: 1) emigration has a disruptive effect on fertility (and, in this case, those counties with the highest levels of migration would also be those with the lowest levels of fertility) and 2) emigrants postpone having children until they get back from working abroad (and in this case, the counties with high rates of returning migration would have higher fertility). For these hypotheses there are several arguments: migrants are, generally speaking, young men and women who, by going to work abroad, postpone marrying and having children. On the other hand, it can be argued that people postpone having children and migrate because they live in poverty and want to get a better economic situation.

In the following, I tested these hypotheses at the county level. For migration, I used two types of measures: a 'rate of out migration': the number of people from a county who, at the time of the interview, were working abroad divided by the population of that county (measured at 1st of July 1997[10]) and a 'rate of return': the number of people

[10]The ethnic distribution of population in Romania is available only for the census years - 1992 and 2002. For this study, because data regarding migration refer to whole period between 1990-2001, for the proportion of Gypsies I used an average of the census figures for 1992 and 2002. Theoretically, this would

who came back in the county after working abroad during 1990-2000 divided by the population of county (measured at 1st of July 1997).

For fertility, I used two measures: Total Fertility Rate in 2000 (TFR2000) and the difference between Total Fertility Rate in 1989 and Total Fertility Rate in 2000 (TFRD).

Among the three most numerous ethnic groups (Romanians, Hungarians, Gypsies), Gypsies tend to have higher fertility, while Romanians and Hungarians have similar levels (Hungarians tend to have fewer children, but the difference between Romanians and Hungarians is not significant as data from censuses and other studies show) (*see* Table 10).

Table 10. Fertility of Romanians, Hungarians and Gypsies in Romania

	TFR*	**CFR1**	**CFR2**
Romanians	1.2	2.07	1.84
Hungarians	1.3	2.03	1.82
Gypsies	2.6	4.03	3.71

source: Reproductive Health Survey, 1999 and Romanian Census, 2002

*- TFR was estimated for 1994-1996 from survey data

CFR1 – cohort fertility rate, measured in 2002, for women age 40-44 in 2002

CFR2 – cohort fertility rate, measured in 2002, for women age 35-39 in 2002. Although it is not the final cohort fertility, because women will still have children, I thought it could be useful to show that the differences in fertility between ethnic groups continue to manifest even for young women.

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be the proportion of Gypsies in the middle of the interval 1992-2002, which is July 1, 1997. This is why I used population at July 1, 1997 for the other variables included in the analysis.

Additionally I controlled for several variables:

- *ethnic composition* of the county measured with the variable:
  - *Gypsy* (proportion of Gypsy in the county in 1997- see note 7)
- *economic performance of the county:* - rate of unemployment in 1997
- *location of the county* (Moldavia is historically a region with high rates of fertility)
- *age at first marriage* for women (age at marriage is considered to play an important role in fertility)
- *fertility in 1989* (I used this factor to include the unmeasured things that remained constant after 1989: values related to fertility, ideal number of children, etc)

The data regarding migration have two components: 1) people who left after 1990 and are, at the moment of the survey, working abroad, and 2) people who worked abroad for a while after 1990, but came back later on, and are living in Romania at the moment of the survey. In order to test the influence of migration on fertility, I used two models. In both these models, I included in the analysis all Romanian counties, so this analysis in done at the population, no sample level. This is why there is no need for testing if the coefficients are significant or not.

a) Relationship between fertility and out migration

In the first model, I tried to estimate the relationship between out migration during 1990-2000 and fertility change during this period of time. I expected to find a negative relationship between the fertility change and out migration (the higher the rate of out

migration, the higher the decline in fertility). This result would reinforce the idea of migration as having a disruptive effect on fertility. I measured fertility change with the difference between the total fertility in 2000 and the total fertility rate in 1989 as the dependent variable. Fertility declined for all counties during 1989-2000, so TFR2000-TFR1989 is a negative variable (varying between -0.36 to -1.3). I measured migration with a variable called 'rate of migration': total number of people who worked abroad during the interval 1990-2001, divided by the population at July 1, 1997. I controlled for fertility in 1989 as a measure for all ideas regarding children and family that eventually remained unchanged after 1990.

The regression coefficients for this model are reported in Table 11.

Table 11. Regression coefficients

	Unstandardized Coefficients		**Standardized Coefficients**
	B	**Std. Error**	**Beta**
(Constant)	0.449	0.181	
%Gypsy	0.020	0.015	0.147
Moldova	0.185	0.059	0.404
Unemployment	0.003	0.007	0.045
Change in age at marriage	-0.053	0.056	-0.112
Rate of migration	-0.001	0.001	-0.079
TFR89	-0.602	0.068	-0.920

R^2 adjusted=0.66,

N=41

TFR1989 : total fertility rate in 1989

%Gypsy: percentage of Gypsy population in the county (1997, see note 7)

Moldavia: dummy variable, with 1 if the county is located in Moldavia and 0 otherwise.

Unemployment: rate of unemployment on 1 July 1997

Change in age at marriage: the difference between age at first marriage for women in 2000 and age at first marriage for women in 1989.

Percentage of Gypsy in a county has a positive influence on the difference in fertility: 1% increase in the percentage of Gypsies in a county increases the change in TFR during 1989-2000 with 0.147. However, because the dependent variable has only negative values, an increase in the dependent variable represents a decrease in the absolute value of the dependent variable (for example, if the dependent variable increases with 0.147 from -1.3, it means it will get the value of -1.153, and $-1.3 < -1.153$, but $|-1.3| > |-1.153|$. In other words, a higher percentage of Gypsies in a county makes the absolute change in fertility during 1989-2000 to be smaller.

A higher rate of migration is associated with a decrease in the dependent variable, but, in absolute terms, it makes the gap between fertility in 2000 and in 1989 to be wider. So out migration has a disruptive effect on fertility, as those counties with higher rates of out migration are also those who recorded the largest decrease in fertility.

b) Relationship between fertility and return migration

In the second model, I wanted to see what is the relationship between returning migration and fertility. My hypothesis is that a higher density of returning migrants makes the fertility to increase, because these migrants have now the financial means to

establish families, so they have no reasons to delay having them. The dependent variable in this model is total fertility rate in 2000 (TFR2000) and the independent variable is: 'rate of return' (number of people who worked abroad and came back, divided by the total population (measured at July 1st, 1997)). The coefficients are presented in Table 12.

Table 12. Regression coefficients for analysis, fertility

	Unstandardized Coefficients		Standardized Coefficients
	B	**Std. Error**	**Beta**
(Constant)	1.525	0.973	
TFR 1989	0.364	0.074	0.542
%Gypsy	0.022	0.015	0.153
Moldova	0.210	0.056	0.448
Rate of returning migratior	0.001	0.004	0.024
Rate of out migration	-0.003	0.003	-0.117
Unemployment	0.002	0.007	0.024
Age at first marriage, 2000	-0.046	0.038	-0.141

R^2 adjusted=0.67,

N=41

I controlled for additional variables:

Rate of out – migration: number of people who were working abroad at the moment of the survey divided by the population[11]

TFR1989 : total fertility rate in 1989

%Gypsy: percentage of Gypsy population in the county. I used an average of 2002 and 1992 census data for this variable- ethnic composition of population is available only

[11] I used population at 1st of July, 1997, from Romanian Yearbook, 1997, published by Romanian National Institute for Statistics.

for census years (which, theoretically, would be proportion of Gypsy population in the county in 1997).

Moldavia: it is a dummy variable, with 1 if the county is located in Moldavia and 0 otherwise. Moldavia is historically a region with high fertility rate

Unemployment: rate of unemployment on 1 July 1997

Age at first marriage, 2000: age at first marriage for women in 2000.

As can be observed from the standardized coefficients, the total fertility rate in 1989 and being locate in Moldavia play the most important role in the fertility level in 2000. An increase in the age at first marriage is associated with a decrease in fertility; this is not an unexpected result, as many fertility studies show that fertility and age at marriage are negatively correlated.

The rate of return migration, controlling for all other factors, has a positive influence on fertility, while the rate of out-migration decreases fertility. Migration has a disruptive effect on fertility: young people who leave the country to go to work abroad postpone marrying and having children until they will have a better financial situation[12]; the negative coefficient for out migration rate shows that the more people are leaving, the lower the fertility will be, while the positive coefficient associated with the return migration rate show that, in the counties where more migrants are coming back, fertility is higher. People avoid having children when they are in a bad financial situation. The coefficient for the unemployment rate shows that the higher the rate of unemployment, the lower the fertility. However, many returning migrants are in a good financial situation, so they can afford to have children.

[12] It is possible that some of the migrants have kids while abroad, but I do not have any data regarding the number of children born abroad.

Conclusions

Given that Romania is a country with a high rate of inflation and unemployment, where almost 50% of people are below poverty and the average salary is around 150 euros, neoclassical economic theory of migration seems to explain well the reasons for which drive Romanians to look for jobs in Western Europe. There is a large gap between the incomes one can get in Romania and in Western Europe, on one hand, and, on the other hand, there are many jobs available in the Western Europe, especially in agriculture and construction industry. However, the direction of migration waves- in which countries go the emigrants from Eastern European countries- is not well predicted by the neoclassical theory. Migrants go in countries where they can adapt easily – as the case with the ethnic Hungarians migrating to Hungary, ethnic Germans going to Germany, Romanians going to Italy and Spain and ethnic Turks from Bulgaria going to Turkey show.

The data discussed in this chapter show that migration influences other demographic phenomena, namely fertility. A high rate of out migration has a disruptive effect on fertility, on one hand, and bias fertility measures, on the other hand, because the denominator of various fertility rates is artificially inflated by including those people who are not actually in the country. Migrants tend to be young people, and they postpone having children until they achieve a better economic situation. Once they achieve that, they have children, as the results regarding return migration show: those counties with higher rate of return migration also have higher fertility. Therefore, even if on the short

run migration decreases fertility through disruption and biases fertility measures, in the long term it has a positive influence.

Of course, as census data show, migration is not the main factor depressing fertility – even if nobody had migrated after 1990 from Romania, fertility would not be more than 8% higher than it is. As more and more return migrants go back, fertility has a chance of increasing, especially in those areas, such as Moldavia, where the idea of having many children is still strong.

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