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EUROPEAN MIGRATION CRISIS AS AN OUTCOME OF GLOBALIZATION

Summary: Recently the European Union has accepted quite a large number of refugees. The aim of the paper is to analyze if globalization might have contributed to such a dramatic increase in flow of migrants (or, is it the only reason?). The strongest barrier of migration – incomplete information – has been overcome by free access to the Internet and mobile communications. This article looks at migration in 195 countries over the period from 2000 till 2015. It was found that indicators of high living standards in host countries or extreme life conditions in source countries do not affect the flow of migrants. The results support the hypothesis that better access to information is positively linked to the growth of migrants over the world.

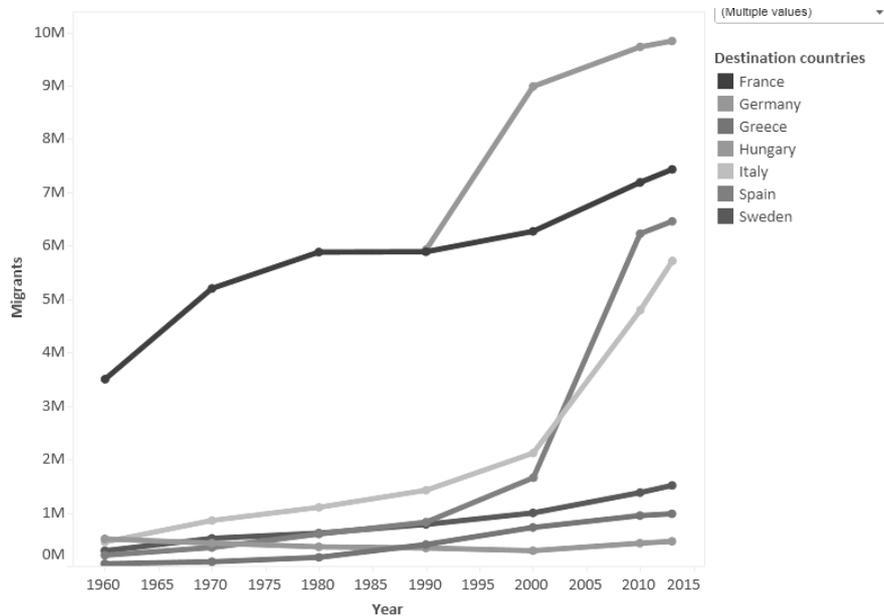
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JEL Classification: C23, F22, F60.

Introduction

The world has faced a migration crisis linked to the situation in the European Union in 2014-2015 when it accepted quite a large number of asylum seekers coming mostly from Africa and Middle East [BBC, 2016] (Fig. 1). The economic recessions, political, religious and war conflicts shift nations and push people out in search of new places to live. These factors could be considered as short-term shocks or the long-run migration tendency. However, the globalization itself is a challenge that might have caused such a dramatic and out-of-control increase in the flow of migrants.

Figure 1. International migrant population by country of destination in selected European countries (1960-2013)



Source: [www 5].

In 2015, the largest number of refugee applications in Europe (476,600) was received in Germany (MPI, 2016). It constitutes around 5.9 applications per thousand of residents and 34.2% of the EU/EFTA applications. On the other hand, the numbers provided by Migration Policy Institute (MPI) suggest that countries of Asia, Middle East, and North Africa, such as Jordan, State of Palestine, Pakistan, and Iran remain the countries receiving most refugees. Among top 25 European host countries, Germany is number 6 and France is number 15 (Table 1). Five-year growth of immigrant population (2015 to 2010) shows that the most remarkable growth happened in the United States, Saudi Arabia, Turkey, Lebanon, and Oman. The European countries take the 7th (the United Kingdom), the 12th (France), and the 17th (Germany) positions.

The geography of migration is determined by close distance between host and source countries, similar culture and language. Large variety of Gini coefficients, Human Development Index and Gross National Income per capita in host countries shows that high standards of life do not serve as the main dominant of the destination choice. It should be noticed that the top source countries are not the ones generating the large numbers of refugees. The statistics of MPI shows that both in-flow and out-flow of migrants in the countries such as Turkey, the

United Kingdom, Canada, and France are very high; therefore it can be assumed that these countries are seen as a transit location. In case of transit migration the pressure on socio-economic systems of these states might not to be seen as migration crisis.

Table 1. Top 20 countries with greatest numbers of migrants and living standards' indicators in these countries in 2015 (195 countries in comparison)

Country	Migrants (people) ^a	Five-year growth (people) ^a	Emigrants (people) ^a	Refugee population (people) ^b	GNI PPP ^b	Gini ^c	HDI ^d	Continent	Rank by the total number of refugees	Rank by the proportion of refugees	Rank by the proportion of immigrants	Rank by the proportion of emigrants
1. United States	46627102	2443459	3023657	267222	55860	41.1	0.915	North America	15	70	46	192
2. Saudi Arabia	10185945	1755989	270029	534			0.837	Asia	118	147	23	193
3. Turkey	2964916	1597882	3114471	1587374	18980	40.2	0.761	Asia	4	7	106	142
4. Lebanon	1997776	1177121	798140	1606709	17590		0.769	Asia	3	3	15	46
5. Oman	1844978	1028757	21333	151			0.793	Asia	138	137	16	203
6. Kuwait	2866136	994599	187871	614	79850		0.816	Asia	115	99	3	125
7. United Kingdom	8543120	938537	4917460	117161	39040	32.6	0.907	Europe	28	51	52	93
8. Australia	6763663	880683	526579	35582	42760	34.9	0.935	Oceania	47	61	27	173
9. Canada	7835502	824276	1286176	149163	43360	33.7	0.913	North America	25	36	35	151
10. United Arab Emirates	8095126	778515	136557	417	67720		0.835	Asia	123	129	1	184
11. Thailand	3913258	689127	854327	75137	14870	39.3	0.726	Asia	35	65	93	188
12. France	7784418	587937	2145975	252264	39610	33.1	0.888	Europe	17	38	60	156
13. South Sudan	824122	566217	634613	248152	1800		0.467	Africa	18	8	85	124
14. Ethiopia	1072949	505229	753492	659524	1500	33.2	0.442	Africa	8	25	164	194
15. Russian Federation	11643276	448566	1057676	235750	24710	41.6	0.798	Asia	21	55	80	96
16. Korea, Rep.	1327324	408049	2345840	1173	34620		0.898	Asia	104	143	126	131
17. Germany	12005690	400000	4045411	216973	46850	30.1	0.916	Europe	23	45	45	126
18. Jordan	3112026	389043	699719	2771502	11910	33.7	0.748	Asia	1	2	11	77
19. Singapore	2543638	378844	313884	3	80270		0.912	Asia	160	165	12	116

^a Calculation based on: United Nations [2015].

^b Calculation based on: [www 2].

^c Calculation based on: [www 4].

^d Calculation based on: [www 3].

Many studies of migration advocate that incomplete information is one of the strongest barriers of migration [Stark, Levhari, 1982; Katz, Stark, 1986; Berninghaus, Seifert-Vogt, 1991; Heitmueller, 2005; Williams, Baláž, 2012]. With consideration of risk-aversion, decision to leave the country is a step-by-step process as suggested by social network theory of migration. It is based on hypothesis that links between sending and receiving countries are established by pioneer migrants on their own [MacDonald, MacDonald, 1964]. Firstly, individuals, most likely single young men, take higher risk of losses related to migration and the move [MacDonald, MacDonald, 1964]. After connections have been established, other migrants will follow, travelling the 'beaten paths' [MacDonald, MacDonald, 1964]. Then they contact relatives and friends at home and share information on living conditions in the host country. This facilitates the move of risk-neutral and risk-averse family members and acquaintances to the new place taking relatively lower risk of losses in migration.

In 2000 there were 6.4 Internet users per 100 people in the world. In 2014 the 40.7 per cent of the world population used Internet: with average 83 per cent in high income countries and 6.5 per cent in low income countries. The number of cellular phone subscriptions grew from 12 per 100 people in 2000 to 97 in 2014 [www 1]. Access to the Internet and mobile communications is one of the strongest factors of globalization. The Internet, its search engines, thematic sites for travellers, social networks have expanded available information and people's capacity to make decision on migration enormously. This provides better opportunities to compare potential host countries by their migration law, job opportunities, housing, and welfare. In turn it accelerates the process of finding needed information. It is hypothesized that growing Internet and cell phone use have reduced the time between the move of pioneer and the move of risk-averse individuals, which leads to observable growth of the annual migration flow. Moreover, such a remarkable drop of information barrier eases the process of recruiting new migrants and triggers even greater growth in flow of incomers in the next period.

The models of in-flow and out-flow migration were constructed and estimated based on the data of the World Bank and the United Nations. The analysis looks at 195 countries over the period from 2000 till 2015. The results support that new communication opportunities such as the Internet and cell phones use are positively associated with the rapid growth of the migration flow.

1. Literature background

Geographers explain migration by resource devastation and need to find other resources for living. Devastation of resources in absolute value can be caused by fast population growth, natural or man-made disasters (loss of harvest by flood, drought, etc., war conflict and economic collapse). On the other hand, subjective evaluation of the stock of available resources can be made by comparison of life standards 'here and there'. The concept of relative deprivation is originally proposed by Runciman [1996]. According to the concept "[...] a person derives happiness not only from the goods his own income can buy, but also on how his income ranks relative to his peers" [Bodvarsson, Van den Berg, 2013, p. 23]. This explains migration directions from periphery to core regions and from rural to urban movements found by Ravenstein [1889]. However, lack of information on job opportunities, housing and other living conditions in a new place, as well as potential loss of ties with relatives and native community, prevent migration flows to balance out source and host countries in resource availability.

There are several basic approaches to explain migration decisions from different points of view. Among them, willingness to raise returns to human capital (Sjaastad, 1962; Becker, 1975; Borjas, 1987; Borjas, 1991) and, close to this, willingness to increase consumption [Rosen, 1974]. Besides, there is an aspiration towards public goods provision and the supply of non-tradable goods in a host country [Tiebout, 1956]. Among them, a free and democratic society, personal security, and quality health care and educational systems that contribute overall to a higher quality of life.

The most popular model of 'yes/no' decision on migration is Borjas model [Borjas, 1987, 1991] that adds uncertainty in the basic model proposed by Sjaastad [1962]. In the model, source and host countries have different earnings distributions explained not by skills but differences in markets and policies. Todaro [1969] and Harris and Todaro [1970] introduce uncertainty of migration outcomes in modeling internal rural-to-urban migration. Uncertainty is found the main reason in sluggish response of migration from East Germany to the West Germany after the Fall of Berlin Wall despite their great income differences [Burda, 1993, 1995]. Losses associated with lack of information and uncertainty of migration outcomes lead higher value of delayed migration, as it is shown by Anam, Chiang and Hua [2005].

Social network, providing information, decreases uncertainty, reduces costs and risks of migration, and facilitates the likelihood of international movement [Massey, Garcia Espana, 1987; Mahler, 2001]). Tilly [1990, p. 84] states that "[...] the effective units of migration were (and are) neither individuals nor

households but sets of people linked by acquaintance, kinship, and work experience". These globe-spanning networks are found stimulating migration [Massey, Garcia Espana, 1987]. Due to migrant network or greater access to the community of earlier migrants from a similar ethnic or regional background psychological, social and information costs tend to fall [Hugo, 1981; Taylor, 1986; Massey, Garcia Espana, 1987; Lundborg 1991]. This facilitates job search, assists faster accommodation, housing, child-care, and reduces vulnerability to exploitation, fraud, and crime. Despite different approaches, researchers model how people deal with incomplete information and risk of migration decision.

There are few studies linking international migration and media and social media, in particular. Dekker and Engbersen [2014] provide evidence based on interviewing migrants that social media, as online activity, facilitates international migration. Boom in cheap international telephone calls in 1990s is found connecting migrants and non-migrants all over the world and improving psychological environment for migrants [Vertovec, 2004; Horst, 2006]. This occurs due to maintaining strong ties with family and friends; weak ties relevant to organizing the process of migration and integration and to get insider knowledge on migration that can be discrete and unofficial.

Possible consequences of Internet use for migration processes are studied in a row of papers [Hiller, Franz, 2004; Parham, 2004; Diminescu, 2008; Ros, 2010; Komito 2011). Though, the effect of Internet use may vary widely within countries because of differences in socio-economic status, level of education, urban/rural residence, etc. [DiMaggio et al., 2004]. The Internet provides opportunities to get information from and share with millions of people through effective information channels. This is of particular significance for migrants and non-migrants. Despite thousands of kilometers between them they often remain connected through transnational networks [Mahler, 2001]. Therefore, modern communications technology decreases barrier for migration.

2. Model

It is hypothesized that access to information for making migration decision is more complete due to the widespread use of the internet and cell phone. Keeping ties with relatives and friends due to social networking and chip calls also facilitates life in a new place in psychological meaning. Empirical estimates are based on additive form of a model. Linear and exponential growth of migration in response to the increased communication opportunities is tested. Models for host countries (immigration model) and source countries (emigration model) are estimated with and without controls on country's living conditions.

Further, we introduce terms which respect to availability of information. They are Internet use and mobile cellular subscriptions (mobile use). They are strongly correlated and included in estimation separately.

Time and country fixed effects are included in specifications. It is reasonable to assume positive autocorrelation since the 'beaten path' attracts greater number of migrants. Therefore, lagged indicators of migration are included into the model.

Model of immigration. The proportion of immigrants in the population and its growth are considered as indicators of immigration comparable over countries. It is assumed that people are attracted by better living conditions expressed in purchasing power parity gross national income per capita (GNI_PPP) and distribution of wealth in society measured by Gini coefficient (Gini). Greater wellbeing attracts migrants as the main signal of resource availability. In particular, Borjas [1987] states attractiveness of countries with high income inequality as places with good opportunities to reach wealth during life (in one generation). This is empirically supported on data for late XXth century for US immigration. However, income inequality might avert from migration as well. This occurs because of higher rates of criminal income redistribution, violence and low private security, as well as limited access to health care and education in societies with income inequality. Therefore, Gini coefficient as the inequality measure is introduced into the model. Male life expectancy at birth (LE_male) is introduced in the model as another measure of wellbeing. In contrast to female life expectancy, this is supposed to be more sensitive to life quality. Therefore, these terms reflect resource availability/non-availability in the countries of destination and origin.

Model of migration by source country. Similar to immigration model, the proportion of emigrants in the population and its growth are considered as indicators of out-migration. Regional amenities are supposed to be more valuable for those, who migrate from developing to developed countries. It is assumed that people intensively move from places of war conflicts and persecution threats, that are controlled by introduced dummy variables. For EU countries dummy variable is introduced. This is to test significance of EU changes in immigration pattern compared to other countries.

3. Data and empirical results

Most of data are from World Bank statistics. Gini coefficient and HDI with its components are taken from UNDP statistics, and migrant stocks data – from UN Department of Economic and Social Affairs, Population Division. Only

5-year data on migration are available. Therefore, panel data are constructed with taken only 1995, 2000, 2005, 2010, 2015. Indicators not available on 2015 are approximated by 2014 values.

Data on Gini coefficients are available with numbered missing values. To incorporate Gini into models, the missing values are approximated by the nearest value. Descriptive statistics are given in Table 2.

Table 2. Descriptive statistics (2000-2015, 195 countries)

Specification	N	min	max	median	mean	std.dev
Stock of migrants by destination	908	0	46627102	138026.5	910885	3170879
Stock of migrants by origin	904	44	15575724	302658.5	871555	1672307
Population	828	9471	1.36E+09	5839469	32159507	1.27E+08
Stock of refugees by destination	828	0	2771502	1159.5	75652	276330.8
Stock of refugees by origin	828	0	3865720	478	51762.1	268840.2
The proportion of migrants in population by destination	828	0	89.09	3.99	10.6	15.51
The proportion of migrants in population by origin	828	0.06	100.4	5.89	12.0	15.4
Immigration stock growth rates	827	-39.41	96.8	0.17	1.4	6.5
Emigration stock growth rates	827	-46.97	43.1	0.48	1.1	3.6
GDP_per_cap	712	119.9	145221.2	3839.95	12285.4	19559.3
GNI_PPP	707	380	134420	7890	14276.6	17295.2
Gini (%)	576	16.6	64.7	37.6	39.1	8.6
Internet use (% of population)	782	0	98.2	17.1	27.9	27.9
mobile use (% of population)	796	0	323	64	65.4	51.0
LE_female (years)	770	40	87	75	71.6	10.2
LE_male (years)	770	39	82	69	66.9	9.0
Poverty (% of population)	138	0.6	75.3	25.45	29.9	17.0
Unemployment (% of population)	684	0.3	37.3	7.2	8.7	6.3
War conflicts (0 – no, 1 - yes)	828	0	1	0	0.1	0.3
EU_countries (0 – no, 1 - yes)	828	0	1	0	0.1	0.3
HDI	700	0.348	0.9	0.727	0.7	0.2
Expected Schooling (years)	700	4.1	20.2	13.3	12.9	2.9
Mean Schooling	700	1.4	13.1	8.5	8.1	3.2

Figures 2 and 3 confirm that there is a positive link between mobile and internet use and growth of migration flows. This is more remarkable in countries of destination than in source countries. This may advocate that spread of knowledge about better living conditions in host countries reach people and increase migration flows.

Immigration. Empirical estimates (Table 3) contain the base model with explanatory variables except variables of interest (col. 1) and four specifications with Internet or cell phone use introduced. The proportion of migrants in population is a dependent variable.

Figure 2. The proportion of immigrants in the population and mobile (Internet) use

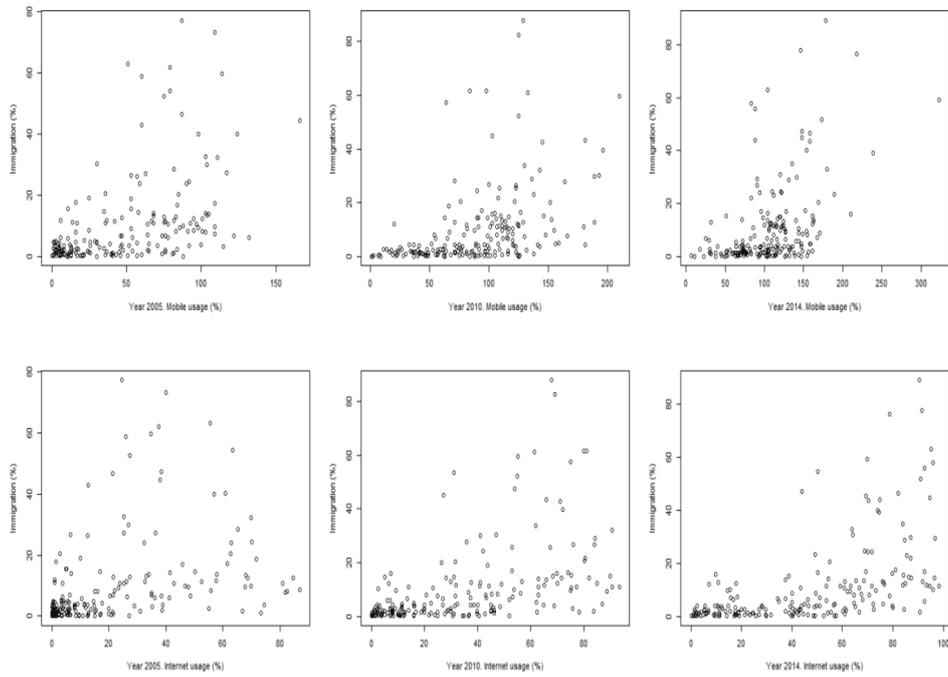
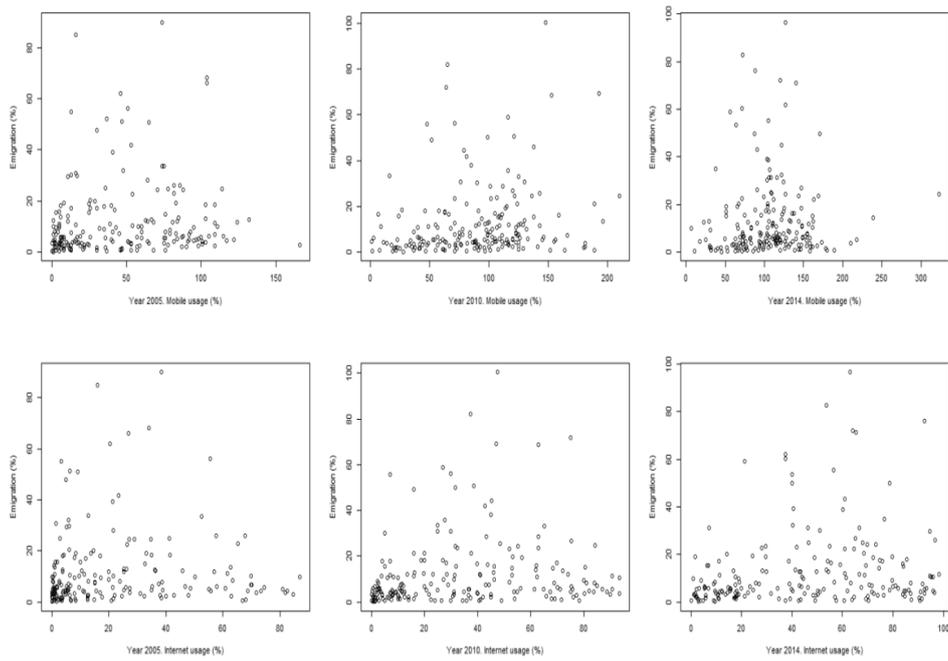


Figure 3. The proportion of emigrants in the population and mobile (Internet) use



All models exhibit autocorrelation of the process with the coefficient 0.520-0.597. This means that countries hosting immigrants previously are attractive for migration. Otherwise, countries with low proportion of migrants keep this attribute. Hypothesis that opening borders by EU countries play a role in immigration is not supported by the results. Negative connection of immigration to higher economic development (GNI PPP) is quite strong and suggests that high developed countries are not among the preferable, which does not contradict to the data in Table 1 and to country profiles on immigration provided by MPI. Neither life expectancy nor Human Development Index seem to be valuable in the choice of destination. Significance of specific time effects reveals that proportions of migrants in population indeed have been growing over the studied period despite variance in living conditions and other explanatory variables.

Table 3. Estimates of immigration model

	Dependent variable:				
	(1)	(2)	Immigration (3)	(4)	(5)
Migr_destin_sh_5	0.597*** (0.043)	0.541*** (0.044)	0.520*** (0.045)	0.592*** (0.043)	0.569*** (0.043)
EU_countries	0.398 (0.596)	-0.327 (0.612)	-0.381 (0.608)	0.408 (0.592)	0.311 (0.586)
log(GNI_PPP)	-2.212*** (0.570)	-2.636*** (0.571)	-2.431*** (0.563)	-2.607*** (0.592)	-2.617*** (0.571)
LE_male	-0.072 (0.059)	0.011 (0.061)	0.011 (0.060)	-0.046 (0.059)	-0.030 (0.059)
Internet_usage		0.040*** (0.010)			
Internet_usage_exp			0.044*** (0.009)		
mobile_usage				0.009** (0.004)	
mobile_usage_exp					0.007*** (0.002)
factor(time)4	0.967*** (0.240)	0.578** (0.256)	0.557** (0.253)	0.803*** (0.248)	0.812*** (0.239)
factor(time)5	1.879*** (0.363)	0.929** (0.423)	0.887** (0.414)	1.379*** (0.430)	1.308** (0.386)
factor(time)6	2.556*** (0.459)	1.219*** (0.554)	1.138** (0.543)	1.941*** (0.545)	1.790*** (0.495)
observations	639	630	630	634	634
R2	0.388	0.408	0.414	0.391	0.405
Adjusted R2	0.282	0.295	0.300	0.283	0.293
F Statistic	42.107*** (df = 7; 465)	39.316*** (df = 8; 456)	40.240*** (df = 8; 456)	36.875*** (df = 8; 459)	39.008*** (df = 8; 459)

Note:

*p<0.1; **p<0.05; ***p<0.01

Note: Factor(time)4 respects to 2000, Factor(time)5 – 2005, and Factor(time)6 – 2010.

With taking into account time specific effects and other control variables, parameters at Internet and cell phones use remain positive and significant. Therefore, spread of cell phones and Internet penetration contribute in migration with coefficients 0.009 and 0.040, respectively. However, the results do not suggest explosive growth since elasticities for linear and non-linear terms are close. The results strongly advocate for decrease of migration costs due to widespread of the Internet and cell phone use and scale availability of information. In turn,

this suggests a possible eruption of migration flows, for which incomplete information was a restraining factor for decades and centuries.

Migration by source country. Results on emigration suggest that autocorrelation of the process is the main determinant, whereas neither economic growth nor political instability affect migration flows (Table 4). Similar to immigration models, time specific effects are significant and suggest growing trends over years. Expanded availability of information is found positive and significant in models with excluded lagged emigration term only. 1% of increase in Internet penetration contributes 0.014 percentage point (pp) in emigration. Cell phone use adds 0.006 pp.

Table 4. Estimates of emigration model

	dependent variable:						
	(1)	(2)	(3)	Emigration (4)	(5)	(6)	(7)
migr_origin_sh_5	0.387*** (0.027)	0.406*** (0.024)	0.407*** (0.024)	0.398*** (0.025)	0.399*** (0.025)		
war_conflicts	0.155 (0.412)	0.132 (0.371)	0.138 (0.372)	0.109 (0.375)	0.111 (0.375)	-0.011 (0.463)	-0.110 (0.463)
lag(ovr_ppp)	-0.534 (0.459)	-0.058 (0.418)	-0.027 (0.415)	-0.178 (0.444)	-0.154 (0.429)	-0.339 (0.523)	-0.570 (0.547)
LE_male	0.008 (0.049)	0.037 (0.047)	0.035 (0.047)	0.009 (0.045)	0.008 (0.045)	-0.136** (0.057)	-0.160*** (0.054)
Internet_usage		0.005 (0.007)					0.014* (0.008)
Internet_usage_exp			0.004 (0.007)				
mobile_usage				0.0005 (0.003)			0.006* (0.004)
mobile_usage_exp					-0.00002 (0.001)		
Factor(time)4	0.218 (0.197)	0.159 (0.193)	0.166 (0.192)	0.299 (0.185)	0.305* (0.180)	0.581** (0.240)	0.675*** (0.226)
Factor(time)5	0.587* (0.299)	0.304 (0.324)	0.320 (0.320)	0.532* (0.315)	0.558** (0.280)	1.185*** (0.401)	1.185*** (0.386)
Factor(time)6	1.021*** (0.380)	0.591 (0.426)	0.611 (0.423)	0.902** (0.400)	0.934*** (0.360)	1.691*** (0.527)	1.852*** (0.488)
observations	687	678	678	682	682	678	682
R2	0.364	0.446	0.446	0.429	0.429	0.132	0.128
adjusted R2	0.265	0.323	0.323	0.311	0.311	0.096	0.093
F Statistic	40.850*** (df = 7; 500)	49.393*** (df = 8; 491)	49.372*** (df = 8; 491)	46.378*** (df = 8; 494)	46.374*** (df = 8; 494)	10.675*** (df = 7; 492)	10.388*** (df = 7; 495)

Note:

*p<0.1; **p<0.05; ***p<0.01

Note: Factor(time)4 respects to 2000, Factor(time)5 – 2005, and Factor(time)6 – 2010.

Among other variables, longer male life expectancy is negatively related to emigration which is intuitively justified. The better the living conditions – the longer the life span, where living conditions are not necessarily expressed in gross national income, but in culture, social capital, etc. GNI PPP has not been found related to migration flows. Insignificant parameter at Gini coefficient does not support the hypothesis that poverty and income disparities are driving forces of out-migration.

Discussion and conclusions

The results confirm that access to more information shapes people's decision on migration. Internet penetration, as well as cell phones use, is found to play a remarkable role in migration decisions, decreasing the risks related to migration. Spread of communication tools in host countries is of more signifi-

cance than that in the source country. The hypothesis of explosive growth of migration connected to elimination of the information barrier cannot be rejected but requires further research. The estimates do not allow us to define exponential vs. linear growth model of response to greater availability of information.

The empirical results and statistics on migration have not shown that Europe is in the worst situation experiencing the migration crisis. There are countries in the world with greater in-flow of refugees and other migrants. The proximity by geographical distance and similarity by language and culture still matter in the choice of country of destination. It is appropriate to remind that costs of migration for host countries vary and strongly depend on the national migration policy. As Borjas wrote, immigrants who have high levels of productivity and who adapt rapidly to conditions in the host country's labour market can make a significant contribution to economic growth. Natives need not be concerned about the possibility that these immigrants will increase expenditures on social assistance programs [1994]. However, assimilation process of immigrants can be very costly for societies if immigrant skills are not demanded by employers and people have difficulties to adapt to new labour markets. Another important part of research could be analysis basing on approach used when assessing level of willingness to consociate, in that case migration, with assessing the level of willingness to accept the migrants in particular countries [Yitzhaki, 1979; Sandler, Hartley, 2001; Spolaore, 2013; Stark, 2013].

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EUROPEJSKI KRYZYS MIGRACYJNY JAKO WYNIK GLOBALIZACJI

Streszczenie: Niedawno Unia Europejska przyjęła dość dużą liczbę uchodźców. Celem artykułu jest zbadanie, czy globalizacja mogła przyczynić się do tak dramatycznego wzrostu przepływu migrantów (albo czy to jedyny powód?). Najmocniejsza bariera migracji – niekompletne informacje – została przezwyciężona przez swobodny dostęp do Internetu i komunikacji mobilnej. W niniejszym artykule omówiono migrację w 195 krajach w okresie od 2000 do 2015 r. Stwierdzono, że wskaźniki wysokiego poziomu życia w krajach przyjmujących lub ekstremalne warunki życia w krajach pochodzenia nie wpływają na przepływ migrantów. Wyniki potwierdzają hipotezę, że lepszy dostęp do informacji ma pozytywną korelację ze wzrostem migracji na całym świecie.

Słowa kluczowe: imigracja, przyływ i odpływ migrantów, sieć społeczna, Internet, analiza danych panelowych.