On the significant importance of migration for overtime changes in labour supply in selected European countries: Methodological insights and contemporary evidence

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1. Introduction

Slowdown in population growth and population ageing are relevant demographic developments challenging the European labour markets through pressures on labour supply in particular (IMF 2018; Hilgenstock and Kóczán 2019; Spielvogel and Meghnagi 2018b). Usually, there are two aspects of the labour supply which are mostly highlighted. The first is the total number of workers as reflected in the size of the labour force i.e. the number of employed and unemployed persons. The second is the propensity of persons of working age to participate in the labour market measured by the so-called participation rates i.e the ratio of employed and unemployed persons to the population. Both aspects are interrelated since the propensity to participate in the labour market is one of the components of the labour force, the second one is population. In addition, both aspects are affected by population ageing and demographic stagnation. Since the propensity to participate in the labour market is closely related to age, the age composition of the working age population affects the aggregate participation rates. As for the total labour force, it is also affected by demographic trends thought the shifts in the size of the total working age population as well as on the population size in every given working age. On the whole, given the increase in population ageing, which means a relative overrepresentation of higher ages where participation rates are relatively low, and the trend towards lower sizes of the working age population, the European demographic landscape implies a down-pulling effect on labour supply.

In the recent period, the above-mentioned demographic transformations take place in a context of increasing migration flows, which, along with current upward trends in the participation in the labour market of both native females and natives of higher ages (55-64 years), inevitably affect the overall labour supply. In particular for international migration, European countries have experienced an increase in foreign-born immigration flows in recent period and a subsequent growth in the resident foreign-born population. Thus, at EU-28 level, working age foreign-born population, i.e. persons aged between 15 and 64 years of age living in an EU Member State other than their country of birth, raised from 32.5 to 44.3 million between 2006 and 2018 (Eurostat 2019a). In addition, 33% of the 2018 foreign-born population of working age was born in another EU Member State (EU-born) and 67% outside EU-28 (Third Country-born or TC-born) respectively. Those developments, associated with the relatively younger age of migrants as compared to that of natives, can partly compensate for demographic ageing and demographic slowdown and the subsequent

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impact on labour supply (Bagavos 2019a). The role of migration for changes in labour supply in the host countries should also be seen through the different patterns of migrants and non-migrants as regards their participation in the labour market. Particularly in the EU context, there is often a contrast in terms of migrants' participation since EU-born generally have participation rates that are similar or even higher than that of natives, whereas TC-born may have less favourable labour market outcomes (Spielvogel and Meghnagi 2018b). Indeed, at the EU-28 level in 2018 (Eurostat 2019b), although country natives recorded participation rates extremely close to that of foreign-born persons (at around 73.7% and 73.8% respectively), natives' participation was higher than that of TC-born (71.1%), but lower than that of the EU-born (79.5%).

In this paper, we aim to investigate the contribution of foreign-born migration to shifts in the two main aspects of labour supply, namely the size of the labour force and the aggregate labour force participation rates. The study examines the cases of 9 European countries (7 EU-countries, Norway and Switzerland), selected on the basis of their experience as receiving counties as well as of the data availability without breaks in time series and of the EU-28 as a whole. We use a mixed standardization and decomposition method to determine to what extent over time trends in the total size of the labour force and in the aggregate participation rates are driven by changes in population or in participation rates of specific groups selected on the basis of age, gender, place of birth (native- vs. foreign-born) and migrant's origin (EU-born vs. Third Country-born). This allows exploring the separate contribution of each group to shifts in labour supply and therefore investigating migrant's contribution in a more comparative framework. The paper is prepared in the context of the Horizon-2020 SIRIUS (Skills and Integration of Migrants Refugees and Asylum Applicants in European Labour Markets) research project (SIRIUS 2019).

2. Data and methods

The analysis is based on annual LFS data provided by Eurostat for the 2006 onward period and extracted from the Eurostat Data Base (Eurostat 2019a). Data are broken down by sex, age groups (15-24, 25-54 and 55-64 years) within the working age bracket (15-64 years) and country of birth (native- vs. foreign-born). In particular for foreign-born leaving in an EU Member State we additionally distinguish those who were born in another EU Member State (EU-born) from those born outside the EU-28 e.g. Third Country-born (TC-born). Labour Force includes employed and unemployed persons. Participation rates by age groups and aggregate participation rates for the entire working age population are estimated as the ratio of employed and unemployed persons to the population.

By using a mixed decomposition and standardization method we highlight the components of changes in the total size of the labour force and in the aggregate participation rates separately. Those components reflect the effects of changing size and age composition of working age population ("population effect") and of

participation rates ("participation effect") on the two aspects of labour supply. We also estimate the (limited) "interaction effect" which results from the interactions between components. Changes in both the total labour force and the aggregate participation rate are estimated by the sum of changes in population or in participation rates of specific groups selected on the basis of age, gender, place of birth (native- vs. foreign-born) and migrant's origin (EU-born vs. Third Country-born). The results are fully additive, summing to the total change in the overall labour force and in the aggregate participation rates between two particular years (using original data). The method is based on that suggested by Bagavos (2019b) in the context of assessing the contribution of migration in shifts in the total number of births of receiving counties, by Hotchkiss (2009) and Cully (2011) aiming to decompose changes in the aggregate labour force participation and by Fuchs (2015) who provides a decomposition of the projected change in the overall labour force.

3. Results

In order to better describe the role of migration for changes in the overall labour force and in the aggregate participation rates we first compare real changes in the total figures with that which would have been occurred by the sole changes due to natives (Figure 1 and Figure 2 respectively). With the noticeable exception of the Netherlands and to a much lesser extent of France, we notice that the foreign-born persons play a very significant role for shifts in both, the overall labour force and the aggregate participation rates. For example, in Switzerland, the total labour force has increased by around 14% between 2011 and 2018 (Figure 1). Given that the sole contribution of natives to this variation was almost 2%, the remaining 12% is attributable to foreign-born persons. At the same time, the aggregate participation rate in Switzerland has increased by 8.8%, as a results of a negative contribution of natives (-1.5%) and a positive contribution of foreign-born persons (10.3%). It is also worth noting that, generally, the migration effect on overtime changes in labour supply is more significant as regards changes in the aggregate participation rates than in the size of the labour force.

Tables 1 and 2 summarise the results, not presented here in details by gender and age group, of the decomposition analysis relative to changes in the total labour force and the aggregate participation rates respectively. We notice some strong findings. First, it is confirmed that in EU-28 and in the various countries as well, with the noticeable exception of the Netherlands and to a much lesser extent of France, the increase in the size of the labour force and of the aggregate participation rates is driven by migration. Second, in the large majority of cases, the upward trend in participation rates of natives is largely mitigated or even off set by the shrinkage in their working age population leading to a limited impact on shifts in the overall labour force and the aggregate participation. Third, the effect of migration on both aspects of labour supply is attributed to a population than to a participation effect; the increase in the size and the shifts in the age composition of migrants' working age population

boost the overall labour force and the aggregate participation rates. At the same time, the participation effect is limited, and in some cases it is negative which indicates a decreasing propensity of migrants to participate in the labour market. Fourth, there is a great diversity among countries in the migration effect on both aspects of labour supply related to migrants' origin. Indeed, although at EU-28 level, in Italy, Spain, France and Sweden the migration effect on labour supply relies more on Third Country- than EU-born, in the majority of countries the opposite holds true.

Figure 1. Changes in the labour force between 2006 and 2018* (as % of the total labour force in the initial year)

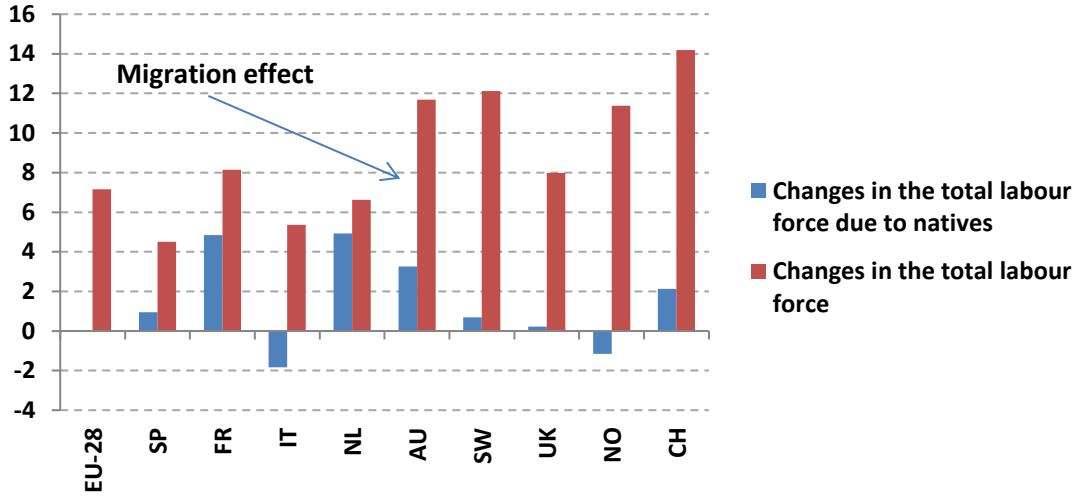
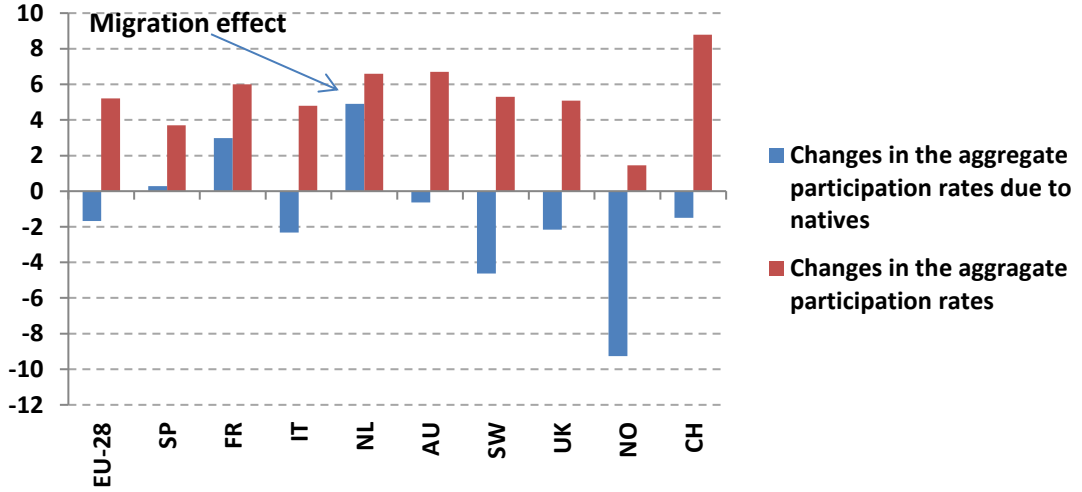


Figure 2. Changes in the aggregate participation rates between 2006 and 2018* (as % of the aggregate participation rates in the initial year)



* SP (Spain 2006-2018), FR (France 2006-2013), (Italy 2006-2018), NL (Netherlands 2006-2018), AU (Austria 2008-2018), SW (Sweden 2006-2018), UK (United Kingdom 2009-2018), NO (Norway 2007-2018), CH (Switzerland 2011-2018.
Source: Own estimations based on LFS data provided by Eurostat (2019a)

Table 1. Changes (1,000) in the total labour force between 2006 and 2018* due to shifts in:

	Native-born				Foreign-born (EU-born)				Foreign-born (Third Country-born)				Foreign-born	All
	Population	Participation	Interactions	Total	Population	Participation	Interactions	Total	Population	Participation	Interactions	Total	Total	Total
EU-28	-12190	11238	966	15	5675	371	415	6461	9177	111	327	9615	16076	16091
SP	-832	884	153	204	215	7	28	251	613	-91	-1	521	772	976
FR	-242	1425	135	1318	-7	44	4	41	495	279	81	856	897	2215
IT	-1847	1280	128	-439	544	13	35	593	1166	-41	11	1136	1729	1290
NL	-210	573	43	405	92	12	1	105	-14	41	7	34	139	544
AU	-166	260	37	130	163	30	11	204	88	32	12	133	337	467
SW	-136	182	-14	32	47	21	0	68	364	53	51	468	535	568
UK	-580	607	37	64	705	371	258	1334	421	473	106	1000	2335	2399
NO	-61	33	0	-27	120	14	25	159	129	6	5	140	299	272
CH	2	81	5	88	125	183	35	343	31	99	23	154	496	584

Source: Own estimations based on LFS data provided by Eurostat (2019a)

Table 2. Changes (percentage points) in the aggregate participation rates between 2006 and 2018 due to shifts in:

	Native-born				Foreign-born (EU-born)				Foreign-born (Third Country-born)				Foreign-born	All
	Population	Participation	Interactions	Total	Population	Participation	Interactions	Total	Population	Participation	Interactions	Total	Total	Total
EU-28	-4.90	3.50	0.23	-1.17	1.71	0.12	0.12	1.95	2.74	0.03	0.10	2.88	4.82	3.65
SP	-3.18	2.90	0.48	0.20	0.68	0.02	0.09	0.79	1.94	-0.30	0.00	1.64	2.43	2.63
FR	-1.84	3.65	0.27	2.07	-0.06	0.11	0.01	0.06	1.14	0.71	0.19	2.05	2.10	4.18
IT	-5.10	3.33	0.31	-1.45	1.40	0.04	0.09	1.53	3.00	-0.11	0.03	2.92	4.45	3.00
NL	-1.95	5.25	0.39	3.70	0.84	0.11	0.01	0.96	-0.13	0.37	0.06	0.31	1.27	4.97
AU	-5.56	4.68	0.42	-0.46	2.62	0.53	0.16	3.32	1.20	0.58	0.19	1.96	5.28	4.82
SW	-6.29	3.06	-0.41	-3.64	0.51	0.35	-0.02	0.84	5.32	0.88	0.76	6.97	7.81	4.17
UK	-3.16	1.50	0.05	-1.61	1.62	0.92	0.59	3.14	0.85	1.17	0.22	2.24	5.38	3.77
NO	-8.12	1.08	-0.09	-7.13	3.34	0.44	0.71	4.48	3.45	0.19	0.13	3.77	8.25	1.12
CH	-2.70	1.52	0.02	-1.16	1.72	3.43	0.47	5.62	0.16	1.87	0.32	2.35	7.96	6.81

Source: Own estimations based on LFS data provided by Eurostat (2019a)

* SP (Spain 2006-2018), FR (France 2006-2013), (Italy 2006-2018), NL (Netherlands 2006-2018), AU (Austria 2008-2018), SW (Sweden 2006-2018), UK (United Kingdom 2009-2018), NO (Norway 2007-2018), CH (Switzerland 2011-2018).

4. Conclusions

The paper points out that foreign-born migration has played a very significant role for changes in the overall labour supply in the European countries under study in the recent past; either because migration accelerates labour supply growth or leads to increasing trends in the overall labour supply in a context of shrinking number of native workers. This finding holds true for both aspects of labour supply, i.e. the size of the labour force and the aggregate participation rates. Findings also suggest that, the migration effect on changes in the aggregate participation rates seems to be greater than that on shift in the size of the labour force. Additionally, migration effect on overall labour supply is mainly driven by shifts in migrant population than in migrant participation in the labour market. In practice, the population component of migration alleviates the pressures of slowing working age population growth and population ageing on the size of the labour force and on the level of the aggregate participation rates.

Since further population ageing and shrinking working age population are expected to be two of the main features of future demographic developments, migration might be even more significant component of labour supply than it used to be in the past. In this context, since migration can hardly fully compensate for this gloomy demographic landscape, increasing migrants' participation in the labour market might mitigate pressures on European labour markets. Or this would require further implementation of policies that support migrant integration, such as recognition and development of educational and skill qualifications, language and professional training as well as provision of employment services.

References

Bagavos (2019a). *Immigration and trends in the labour force of the 7 European SIRIUS countries (2010-2017).* Paper presented at the SIRIUS conference on "Integrating migrants, refugees and asylum seekers into European labour markets: enablers and barriers", Glasgow 29-30 August.

Bagavos (2019b). On the multifaceted impact of migration on the fertility of receiving countries: Methodological insights and contemporary evidence for Europe, the United States, and Australia. *Demographic Research*, 41(1): 1.36

Eurostat (2019a). Eurostat Database. *LFS series – detailed annual survey results (lfsa)*. https://ec.europa.eu/eurostat/data/database

Eurostat (2019b). Eurostat Database. *Activity rates by sex, age and country of birth (%) [lfsa_argacob]* https://ec.europa.eu/eurostat/data/database

Cully, M. (2011). "How much do migrants account for the unexpected rise in the labour force participation rate in Australia over the past decade?" Paper presented at the Australian Conference of Economists. https://www.homeaffairs.gov.au/research-and-stats/files/migrants-account-unexpected-rise-labour-force-rate-aus-2000-2010.pdf

Fuchs, J. (2015). Decomposing the effects of population ageing on labour supply. *Athens Journal of Social Science*, 2(2): 109-126.

Hilgenstock, B. and Kóczán, Z. (2018). *Storm Clouds Ahead? Migration and Labor Force Participation Rates in Europe*. IMF Working Paper WP/18/148. https://www.imf.org/en/Publications/WP/Issues/2018/06/22/Storm-Clouds-Ahead-Migration-and-Labor-Force-Participation-Rates-in-Europe-46013

Hotchkiss, J.L. (2009). *Decomposing Changes in the Aggregate Labor Force Participation Rate*. Federal Reserve Bank of Atlanta Working Paper 2009-6. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1433124

IMF (2018) *World Economic Outlook 2018-April 2018*. Chapter 2: Labor force participation in advanced economies: drivers and prospects. https://www.imf.org/en/Publications/WEO/Issues/2018/03/20/world-economic-outlook-april-2018#Chapter%202

Spielvogel, G. and Meghnagi, M. (2018a). Assessing the role of migration in European labour force growth by 2030. OECD Social, Employment and Migration Working Papers No. 204. https://www.oecd-ilibrary.org/employment/assessing-the-role-of-migration-in-european-labour-force-growth-by-2030_6953a8ba-en

Spielvogel, G. and Meghnagi, M. (2018a). *The contribution of migration to the dynamics of the labour force in OECD countries: 2005-2015*. OECD Social, Employment and Migration Working Papers No. 203 https://www.oecd-ilibrary.org/employment/the-contribution-of-migration-to-the-dynamics-of-the-labour-force-in-oecd-countries_a301bef8-en

SIRIUS (2019). Skills and Integration of Migrants Refugees and Asylum Applicants in European Labour Markets. Horizon 2020 Research Project.

https://www.sirius-project.eu/