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Measuring cross-border working in Austria with the EU-LFS

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1. Introduction

In the light of EU policies towards internationalisation of labour markets, cross-border mobility of workers within Europe is of particular interest. Due to the gradual opening of the labour market for the EU member states having accessed the EU since 2004, there is a special interest in the evolution of the number of EU nationals coming to Austria to work.

National statistical sources often refer to the resident population only and subsequently do not capture the complete migrant labour force. International statistics can be used to fill this gap as they offer the possibility to analyse the group of cross-border workers. For this purpose we use the international EU-LFS data. The objective of this paper is to provide an answer to the following question: Is the EU-LFS an appropriate source for analysing the group of cross-border workers? In particular we focus on individuals working in Austria and living in another country.

The paper is structured as follows: The next section gives the working definition of the term 'cross-border workers'. Section 3 shows the results of the EU-LFS data analysis. In section 4 the coherence of the EU-LFS data is evaluated by using register-based data. Finally, we discuss the advantages and disadvantages of using EU-LFS data for gaining information on cross-border workers.

2. Definition of 'cross-border workers' in the EU-LFS data

2.1. Working definition of 'cross-border workers'

For our analysis we use the following working definition of the term 'cross-border workers':

Cross-border workers are individuals with a place of usual residence in one country and a place of work in another country. Subsequently – as we use the international EU-LFS data – all respondents of the EU-LFS of other countries, who stated Austria as their place of work (COUNTRYW='AT'), are defined as in-coming cross-border workers.

There are several subgroups of cross-border workers. First, there are persons living near the Austrian border who commute daily between their place of residence and their place of work (frequent phenomenon in the Lake Constance area or between Bavaria and Upper Austria/Salzburg). Another subgroup of cross-border workers consists of weekly commuters – persons who work away from home during the week and return to the family home at the weekends. A further important subgroup of cross-border workers in Austria are so-called 'rotators'. Rotators typically work on a shift pattern of several weeks or months, followed by several weeks or months off. Their families usually remain in their home country. Rotators are often women who take care for elderly people in Austria. Other examples of cross-border workers are seasonal workers who work several months in another country or individuals who take temporary jobs abroad on an irregular basis.

With the international EU-LFS data we are able to analyse the group of cross-border workers as a whole. We can do a time series analysis on the development of in-coming cross-border workers, including structural characteristics like country of residence, sex, age, education, status of employment and economic sector. However, regarding the subgroups of cross-border workers mentioned above, the EU-LFS data does not provide any information on the frequency of commuting between place of usual residence and place of work.

2.2. Definition of residence in the EU-LFS data

The definition of residence used in the EU-LFS data is crucial for our definition of cross-border workers and obviously has an impact on the number of cross-border workers. Consider the following example: A worker lives in Hungary and works in Austria during the harvesting season for several months. Does he/she belong to the sampling frame of the Hungarian EU-LFS or to the Austrian sampling frame? The answer to this question clearly influences the number of cross-border workers.

The definition of the resident population in the EU-LFS, as stated in the EU-LFS explanatory notes since 2008, is in line with the census regulation for the 2011 round of census. The core of the definition of residence is the following statement: 'A person belongs to the resident population of a given country if she/he is staying, or intends to stay, on the economic territory of that country for a period of one year or more.'[1] If someone is staying, or intends to stay outside his/her country of residence for a period of less than one year, he/she has to be considered as a member of his/her country of residence. For example a seasonal worker who works every year for 6 months in one country and for 6 months in another country has to be surveyed in the country where he/she has his/her economic interests (the family dwelling). Referring to the example mentioned above, the Hungarian worker who works in Austria during the harvesting season has to be surveyed for the Hungarian LFS.

However, we are aware that countries currently refer to different definitions of residence. Within the scope of the IESS Framework Regulation, there is an ongoing process to harmonise the definition of residence across data sources for social statistics and across countries. Most of the countries (19 countries) currently use the usual residence concept with a 12-month reference period in the EU-LFS data. However, some countries use the registered population definition or apply different reference periods.[2] These differences lead to diverging numbers of cross-border workers.

For this paper we accept the differences in the definitions of residence. They should however not be of too much relevance, as most of Austria's neighbouring countries, where the majority of the in-coming cross-border workers live, use the usual residence definition with a 12-month reference period (i.e. CZ, HU, SI, SK).

[1] EU Labour Force Survey – Explanatory notes (2017Q1 onwards), p. 4
[2] According to Document 59 for item 3.1 of the agenda, LAMAS December 2016, p. 2

3. Development and structure of cross-border workers in Austria

3.1. In-coming workers vs. out-going workers

Cross-border workers consist of two different groups: out-going workers and in-coming workers. In the view of the Austrian LFS, **out-going workers** are individuals who live in Austria and work abroad. In 2015 there were approximately 62 800 out-going workers. This is about 1.5% of the Austrian employed (4 148.4 million). The total number of individuals living in Austria and working abroad has increased over the last years, e.g. there were 53 900 out-going workers in 2007. However, the share remained almost constant. The majority of the Austrian employed persons worked in Germany (2015: 28 800), Switzerland (2015: 11 900), and Liechtenstein (2015: 8 700).

On the opposite, there are **in-coming workers**, which we declare as individuals working in Austria and living abroad. In 2015 there were 163 600 persons working in Austria and living in another country. Data show that the amount of in-coming workers rose over the last eight years: in 2007 there were 76 200 in-coming workers. As we can see in total numbers, in-coming workers became more important than out-going workers. Therefore, we will focus on in-coming workers.

3.2. Historical developments with reference to in-coming workers

For Austria special interest lies in the evolution of in-coming workers after the opening of the labour market for new EU member states. Considering the transitional periods of seven years, citizens of member states having accessed the EU in 2004, have free access to the Austrian labour market since 2011[3]. EU citizens of member states since 2007 have free access since 2014[4]. Croatia joined the EU in 2013, getting free labour market access in 2020.

Two more events are worth mentioning, which affect the evolution of in-coming workers: First, the **financial crisis** in 2007/2008 with more or less direct influence on the labour market. The financial crisis affected the Austrian labour market primarily in 2009[5]. The second event is related to the legalization of the **24-hour-care** in 2007 in Austria. In the recent years home care became more and more important, very often performed by non-nationals and on an irregular basis (i.e. illegal employment), as citizens of neighbouring countries were not granted access to the Austrian labour market. With the legalization of the 24-hour-care in 2007, all citizens of EU and EFTA member states are permitted to work as care workers in Austria.

3.3. Development of in-coming workers

In the following, we present the structure of in-coming workers in a time series with focus on the above described events. As expected, most of the in-coming workers live in neighbouring countries[6], i.e. 90.9% of all in-coming workers in 2015. Hungary accounts for the main share of 32.2%, followed by Slovakia (25.7%), Germany (18.8%), Slovenia (7.3%) and Czech Republic (5.4%) respectively (see Table 1). In contrast, the neighbouring countries Switzerland and Italy represent a too small share to report due to the sampling error.

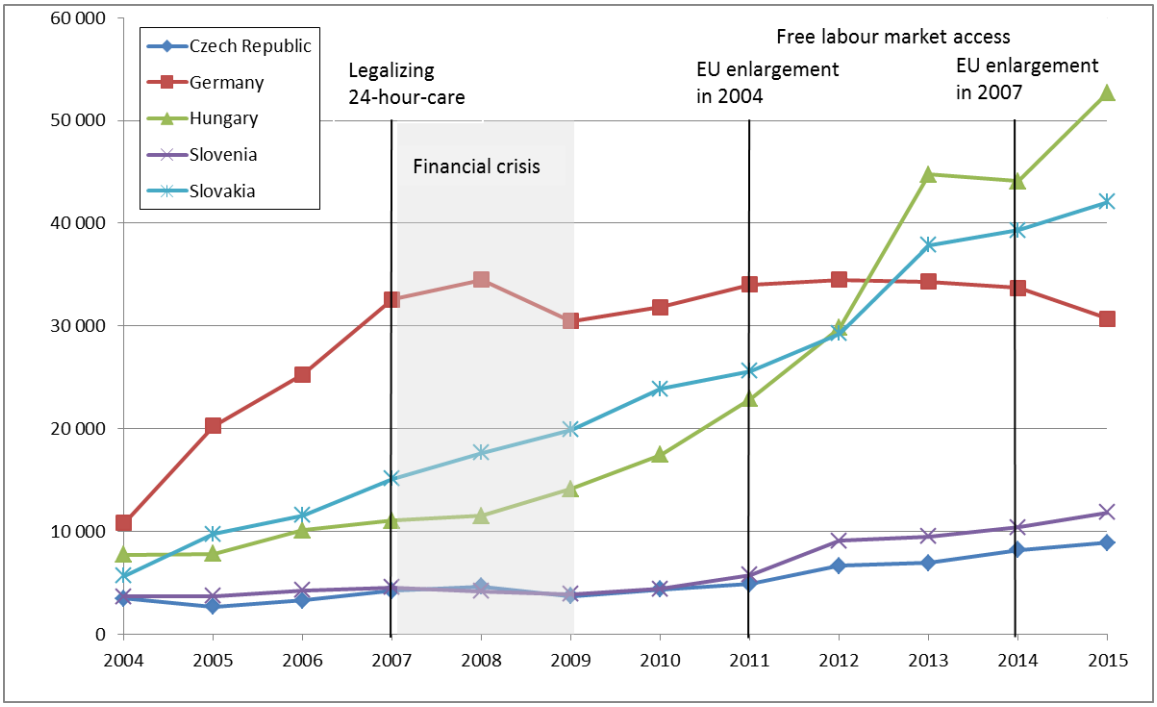
[3] These are Estonia, Latvia, Lithuania, Poland, Czech Republic, Slovakia, Hungary, Slovenia, Malta and Cyprus.
[4] These are Bulgaria and Romania.
[5] The unemployment rate escalated from 2008 (EU 27: 7.0%; AT: 4.1%) to 2009 (EU 27: 9.0% AT: 5.3%) all over the European Union. Even afterwards the unemployment rate continued to rise in EU 27 with a peak of 10.8% in 2013.
[6] These are Czech Republic, Slovakia, Hungary, Slovenia, Italy, Switzerland and Germany (without Liechtenstein).

Table 1: In-coming cross-border workers (in 1 000) in Austria, countries of origin

In-coming cross-border workers: countries of origin							
Year	Total	Thereof: neighbouring countries	Hungary	Slovakia	Germany	Slovenia	Czech Republic
2007	76.2	68.7	11.1	15.1	32.6	4.5	4.2
2008	84.8	74.9	11.5	17.7	34.5	4.2	4.6
2009	83.3	73.3	14.1	19.9	30.5	(3.9)	3.7
2010	93.6	83.8	17.5	23.9	31.8	4.4	4.4
2011	103.4	95.2	22.9	25.6	34.0	5.7	4.9
2012	120.0	111.3	29.8	29.3	34.5	9.1	6.6
2013	148.2	135.3	44.8	37.9	34.3	9.5	6.9
2014	153.1	138.1	44.1	39.3	33.7	10.4	8.2
2015	163.6	148.7	52.7	42.1	30.7	11.9	8.9

Source: EUROSTAT, LFS data on the EU (without EL, EE, LT, CY) and CH

Figure 1: In-coming workers in Austria from 2004 to 2015, countries of origin



Source: EUROSTAT, LFS data on the EU (without EL, EE, LT, CY) and CH

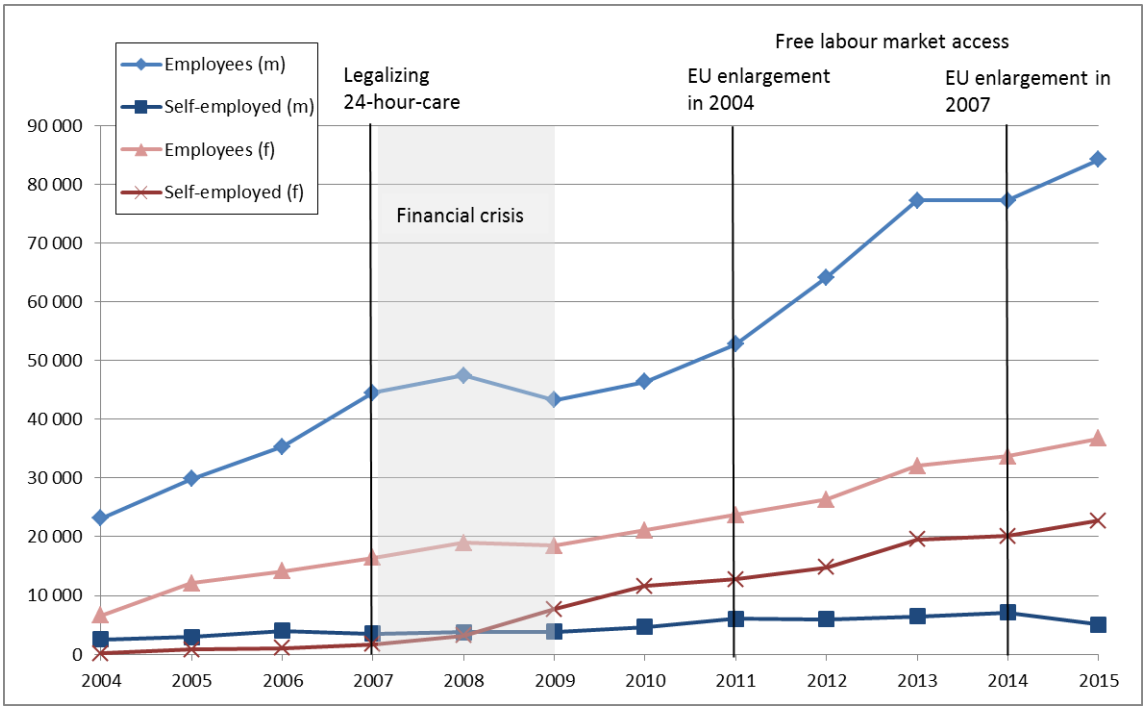
The developments described above, like legalizing the 24-hour-care, affect the growing number of in-coming workers from Eastern Europe. While the number of workers from Germany didn't change significantly, the number of in-coming workers from Slovakia and Hungary increased. Especially free labour market access from 2011 for the EU member states since 2004 increased the influx of workers from Slovakia and Hungary, and to a lesser extent Slovenia and the Czech Republic. Focusing on the last years, in-coming workers from Hungary and Slovakia outnumbered those from Germany from 2013 onwards (see Figure 1). Since then, the number of in-coming workers from Hungary, Slovakia, Slovenia and the Czech Republic has been still increasing, whereas the number of German in-coming workers slightly decreased until 2015.

3.4. Structure of in-coming workers

When looking at in-coming workers from neighbouring countries, the share of female workers increased over the last years: in 2004 21.5% of in-coming workers were female; in 2015 the share almost doubled (40.0%), and was therefore nearly as high as the share of female employed persons living in Austria (2015: 47.1%).

Taking a closer look at the age of in-coming workers from neighbouring countries[7], we can see that more than 50% of in-coming workers are younger than 40 years (54.0%). The share is higher than among employed persons younger than 40 years living in Austria (45.8%). Unfortunately we have no exact information on the age of in-coming workers, hence we can only differentiate between individuals younger than 40 years and individuals older than 40 years.

Figure 2: Professional status and sex of in-coming workers from neighbouring countries



Source: EUROSTAT, LFS data on CZ, SK, HU, SI, IT, DE, CH. Until 2010 without SK (unknown cases).

Professional status is also an important structural parameter of in-coming workers. Although the share of self-employed workers (including family workers) increased from 7.6% in 2007 to 18.7% in 2015, most of the in-coming workers are employees. The share of self-employed among the resident population didn't change during this time (around 13%). One possible reason for the increasing share of self-employed workers may be the rise of female self-employed in-coming workers from 2008 to 2010, which coincided with the legalization of the 24-hour-care. Data shows that the financial crisis affected in-coming male employees more likely than women after 2008.

The in-coming workers focus on a few particular economic activities. In 2015 the major branches of business for in-coming workers were human health and social work activities (19.6%), accommodation and food service activities (18.7%), manufacturing (17.4%), and construction (14.9%), while 'manufacturing' was most important for workers living in Austria. Apparently there are gender-

[7] Except Switzerland as there is no information on AGE available.

specific differences: 24.7% of in-coming men in 2015 worked in 'manufacturing' (men living in Austria: 22.1%). 'Human health and social work activities' is the most significant branch of business for women with nearly half of in-coming women working (women living in Austria: 16.6%).

In summary, there is a growing amount of in-coming workers in Austria, influenced by structural events like the financial crisis, enlargement of the EU and legalization of the 24-hour-care. The majority of in-coming workers in Austria originate from a neighbouring country, mainly Hungary and Slovakia. Regarding gender-specific differences, the share of female in-coming workers increased over the last years. The share of in-coming self-employed women exceeded the share of in-coming self-employed men in 2009. Furthermore, regarding economic activities, men work more likely in 'manufacturing', women work more likely in 'human health and social work activities'. Overall it will be interesting to keep track of the further development as the labour market is recovering from the financial crisis and with Croatia another member state will be given full access to the labour market in 2020.

4. Validity of the findings for Austria

In order to evaluate the coherence of the number of in-coming cross-border workers in Austria derived from the EU-LFS data, we compare our findings with the data of national register-based statistics. Some information on cross-border workers is available in two other national data sources:

a) Wage tax statistics[8]: Wage tax statistics are based on pay slips issued to employees and pensioners. This data is collected by the Austrian tax authorities. Wage tax is a special form of income tax and is collected via deductions from the taxpayer's wage or pension.

b) Census on local units of employment[9]: Since the reference year 2012 the census on local units of employment is conducted in the course of the register-based labour market statistics. All local units of enterprises located in Austria are determined per reference date 31 October. All local units of the profit-oriented sector, those of non-profit organisations and those of the public authorities are counted.

The following definition of cross-border workers is used for these register-based statistics: In-coming cross-border workers are individuals whose main residence (according to registers) is abroad, but who are insured under Austrian social security and who are employed or self-employed in Austria.[10]

Table 2 shows a comparison of the numbers of in-coming cross-border workers in Austria using different data sources. In the time series we observe a rising number of cross-border workers in Austria. This development can be seen in the data coming from all the three sources. The wage tax statistics counts all persons that were employed anytime during the reference year – independent of the duration of their employment. Consequently the number of cross-border workers is higher than the number derived from the EU-LFS data or from the census on local units of employment. The number of cross-border workers differs only slightly between the EU-LFS and the census on local units of em-

[8] For more information see:
http://www.statistik.at/web_en/statistics/Economy/Public_finance_taxes/tax_statistics/wage_tax_statistics/index.html
[9] For more information see:
http://www.statistik.at/web_en/statistics/Economy/enterprises/local_units_of_employment_from_census_2011/index.html
[10] Statistics Austria (September 2016): Abgestimmte Erwerbsstatistik und Arbeitsstättenzählung 2014, p. 104

ployment. The census on local units of employment uses a definition of self-employment different from the EU-LFS. Hence for employees only the differences are slightly greater than for the whole group of cross-border workers.

Table 2: In-coming cross-border workers (in 1 000) in Austria, comparison of different data sources

In-coming cross-border workers in Austria: comparison of different data sources

	Total		Employees		
Year	EU-LFS[1]	Census on local units of employment[2]	EU-LFS[1]	Census on local units of employment[2]	Wage tax statistics[3]
2007	76.2		67.7		86.4
2008	84.8		75.5		93.2
2009	83.3		70.5		90.2
2010	93.6		76.2		84.5
2011	103.4	105.4	84.3	79.8	115.0
2012	120.0	119.0	98.6	92.9	128.3
2013	148.2	147.8	120.6	110.0	136.7
2014	153.1	156.2	124.9	114.2	140.2
2015	163.6	n.a.	135.1	n.a.	154.1

[1] Source: EUROSTAT, LFS data on the EU (without EL, EE, LT, CY) and CH, [2] Source: Statistics Austria, Census on local units of employment, [3] Source: Statistics Austria, Wage tax statistics

Summing up, we state that the numbers of in-coming cross-border workers in Austria from the EU-LFS and from the register-based census on local units of employment show very similar dimensions. This result validates our approach of measuring cross-border workers in Austria by using EU-LFS data.

5. Conclusion and outlook

Our analysis shows that in general the EU-LFS can be an appropriate source for analysing the group of cross-border workers. The EU-LFS provides numbers of in-coming cross-border workers that are very similar to the register-based statistics. Unlike the register-based statistics, the EU-LFS uses internationally harmonised concepts of employment. Furthermore an analysis of time series is possible with the EU-LFS data, whereas the Austrian administrative data is available for a couple of years only (mostly since 2011). Another advantage of the LFS data is the timeliness of the data. The register-based statistics are published only at least one year after the reference year.

However, at the same time we face several problems associated with using the LFS data for analysing cross-border working. As the LFS is a sample survey it is not possible to analyse small groups of individuals due to the sampling error. Furthermore, with the LFS data we cannot distinguish between the different subgroups of cross-border workers (e.g. daily commuters, rotators, seasonal workers). Currently different concepts of residence are used for the respective national LFS; hence cross-border workers cannot be counted in the same way for each country.

As a further step it would make sense to look at regions instead of countries. Regional statistics are getting more and more important. Maybe in the future it is possible to explore commuting between neighbouring regions of different countries in more detail.