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SOCIOECONOMIC PROFILES OF CROSS-BORDER COMMUTERS AT THE FRENCH BORDERS: common features and territorial specificities

RACHID BELKACEM and ISABELLE PIGERON-PIROTH

This study proposes to shed light on the main aspects of the socio-professional profiles of cross-border commuters at the various French borders. Nearly 385,000 cross-border commuters were living in France in 2013. The destination countries of these cross-border commuters are very diverse (mainly Switzerland and Luxembourg). There is a relative territorial specificity of the socio-professional profiles according to the different areas of employment. Cross-border work is a regulatory factor in the different cross-border labor markets, allowing for a quantitative but also qualitative adjustment between reserves and manpower needs. This analysis will thus provide a better understanding of cross-border mobility and, above all, identify their different socioeconomic functions with regard to the countries of destination. For this purpose, we have made use of the 2013 INSEE population census data.

Cross-border work, France, borders, territorial specificities, profiles

LES PROFILS SOCIOÉCONOMIQUES DES TRAVAILLEURS FRONTALIERS AUX FRONTIÈRES DE LA FRANCE : entre caractéristiques communes et spécificités territoriales

Cette étude propose de mettre en lumière les principaux aspects des profils socioprofessionnels des travailleurs frontaliers aux différentes frontières françaises. Près de 385 000 frontaliers vivent en France en 2013. Les pays de destination de ces frontaliers sont très diversifiés (principalement la Suisse et le Luxembourg). Une relative spécificité territoriale des profils socioprofessionnels apparait en fonction des différents pôles d'emploi. Le travail frontalier est un facteur de régulation des différents marchés du travail transfrontaliers, en permettant un ajustement quantitatif mais aussi qualitatif entre réserves et besoins de main-d'œuvre. Cette analyse permettra ainsi de mieux comprendre la mobilité transfrontalière et, surtout, d'identifier ses différentes fonctions socio-économiques vis-à-vis des pays de destination. Dans cette perspective, nous avons exploité les données du recensement de la population de 2013 de l'INSEE.

Travail frontalier, France, frontières, spécificité territoriale, profils

DIE SOZIOÖKONOMISCHEN PROFILE DER GRENZGÄNGER AN DEN FRANZÖSISCHEN GRENZEN: zwischen gemeinsamen Merkmalen und territorialen Besonderheiten

In dieser Studie wollen wir die wichtigsten Aspekte des sozio-professionellen Profils von Grenzgängern an den verschiedenen französischen Grenzen herausstellen. Im Jahr 2013 lebten fast 385.000 Grenzgänger in Frankreich. Die Zielländer dieser Grenzgänger sind sehr vielfältig (hauptsächlich die Schweiz und Luxemburg). Eine relative territoriale Besonderheit der sozialen und beruflichen Profile ergibt sich aus den verschiedenen Beschäftigungszentren. Grenzarbeit ist ein Regulierungsfaktor der verschiedenen grenzüberschreitenden Arbeitsmärkte, der eine quantitative, aber auch eine qualitative Anpassung zwischen Reserven und Arbeitskräftebedarf ermöglicht. Diese Analyse wird es somit ermöglichen, die grenzüberschreitende Mobilität besser zu verstehen und vor allem ihre verschiedenen sozio-ökonomischen Funktionen hinsichtlich der Zielländer zu identifizieren. Zu diesem Zweck haben wir Daten aus der Volkszählung des INSEE von 2013 verwendet.

Grenzarbeit, Frankreich, Grenzen, territoriale Besonderheit, Profile

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Introduction

Cross-border mobility of workers has increased greatly in recent years. It is particularly prevalent in the vicinity of the borders. Living in one country and working in another concerns 2 million people across the European Union. This phenomenon has more than tripled since 1999 (CGET, 2017). France is the country of the European Union most affected by these cross-border work-related movements. To benefit from the status of cross-border worker, the worker must return at least once a week to his/her country of residence, according to the European regulation on the coordination of social security systems (European Regulation 1408/71 as amended by European Regulation 883/2004). The French border regions constitute a field of observation and analysis of the phenomenon because of their geographical proximity to several European countries and the many flows of cross-border commuters operating there. With a workforce of nearly 385,000 cross-border commuters identified in 2013, the destination countries of these cross-border commuters are very diverse. Switzerland and Luxembourg are by far the main destinations for these workers (Pigeron-Piroth and Wille, 2019). By making it possible to match the quantities of labor available on one side of the border with the volumes of production needs of companies located on the other side of the border, cross-border work is a regulatory factor of different cross-border labor markets (Belkacem and Pigeron-Piroth, 2016, 2015). Cross-border work also allows companies on the other side of the border to obtain skills and qualifications according to their needs.

Although flows of cross-border commuters between France and its neighboring countries are nowadays relatively well known, there are few studies about the socio-professional profiles of these mobile workers. This question becomes relevant in a context of shortage, not only of work force but also of qualifications, because of the demographic decline in several European countries, especially Germany, which does indeed have a need for skilled labor. The use of cross-border work is one way of dealing with these shortages.

This study proposes to shed light on the main aspects of the socio-professional profiles of cross-border commuters at the different French borders. Is this an unskilled workforce? Or is it a relatively skilled workforce with professional responsibilities (supervision, for example)? The answers to these questions will depend on the characteristics of the productive systems on the other side of the border. We assume a relative territorial specificity of the socio-professional profiles of these cross-border commuters according to the different areas of employment. This analysis will thus provide a better understanding of cross-border mobility and, above all, identify their different socioeconomic functions with regard to the countries of destination. To this end, we have utilized the 2013 INSEE population census data (see Methodology). To address this problem, this article will start with a general approach to highlight the importance of cross-border work at the French borders (point 1) and then we study the main socio-professional characteristics of cross-border commuters according to the different territories affected by this cross-border mobility (point 2).

Cross-border work at the French borders: overview and geographical features

Over a total length of 2,900 kilometers, France shares its land borders with eight European countries (Belgium, Luxembourg, Germany, Switzerland, Italy, Spain, and the principalities of Monaco and Andorra). This geographical proximity to other European countries has fostered cross-border exchange, including, of course, cross-border work.

A significant increase in cross-border work

Since 1999, the number of cross-border commuters in France has risen sharply, by around 50% (Coudène and Levy, 2016). The main countries of work are Switzerland (for 49% of cross-border commuters living in France) and Luxembourg (21%), then Germany (12%), Belgium (10%) and Monaco (7%). These cross-border mobilities have increased over time for all bordering countries, except for Germany. The most recent data from INSEE show us that the largest increases concerned cross-border commuters working in Luxembourg, Switzerland or Belgium.

The reasons for this significant growth are numerous. Geographic and cultural proximity is an important explanatory factor (Pigeron-Piroth and Belkacem, 2012, 2015). Historically, France was an important country of employment for many cross-border commuters from neighboring countries. In the 1880s, there were 26,000 cross-border commuters working in the north and

north-east of France. These workers were mainly resident in Belgium and Luxembourg (Union Française, 1949, p. 37). They worked mainly in textiles (17,000 cross-border commuters), metallurgy and metalworking (7,500), and in pottery (1,500). Today, flows have reversed. The crisis in historical economic activities (mining, iron and steel, textiles) has affected these territories of the north and east of France, even more strongly in border areas. For example, in the far north of the French "Grand Est" region, one of the largest iron and steel bastions in France, the Longwy employment basin lost 30,000 jobs after the steel crisis of the late 1970s. Today, the attractiveness of higher wages (in Switzerland or Luxembourg) also favors mobilities across borders. Another factor in the development of cross-border mobility is linked to the construction of the EU. Indeed, the definition of legal rules (European directives, European regulations) and the establishment of bilateral agreements between European countries provides a regulatory framework for these ancient practices of cross-border mobility. It ensures continuity of welfare rights and tax status for these workers and, ultimately, fosters the development of cross-border work.

Although cross-border work has intensified considerably, it nevertheless remains a very geographically located phenomenon.

Cross-border work, a proximity phenomenon

A detailed analysis of the available data from the 2013 population census underlines the spatial dimensions of cross-border work at the various borders of France (cf. Methodology).

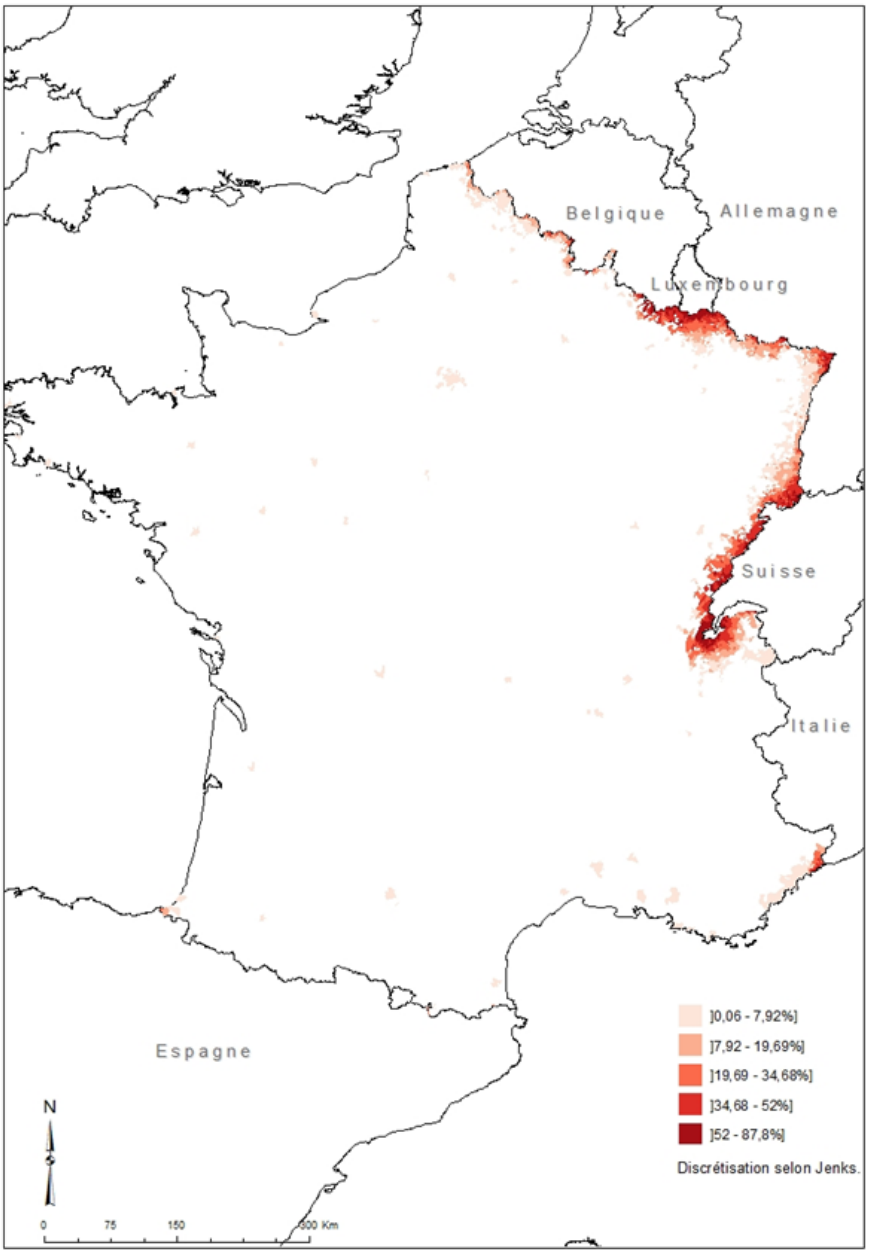
Methodology

The data used for this analysis come from the French National Institute of Statistics, INSEE (2013 population census). Cross-border commuters are those who reside in France and have declared a country of work abroad. They may not completely match the other sources of data (e.g. administrative data) that identify cross-border commuters for the purposes of tax administration or social security, for example.

In the section dealing with cross-border profiles, we used the socio-demographic variables as well as those relating to the activity carried out (sector of activity, occupation, working time, type of contract, etc.).

Our analyses present the situation at a given moment (stock data), which does not reflect the movements that took place in the past (flow). This is a snapshot produced by INSEE of the cross-border work flows at the various borders of metropolitan France. There are indeed many residential mobilities at the borders. Some cross-border commuters have come closer, others have moved away from the borders. In addition, there has been cross-border residential mobility (Carpentier, 2010; Pigeron-Piroth, 2008). These border movements are indeed accentuated by the presence of differentials generated by the border.

Although cross-border work involves only a small part (1.5%) of the whole working population from metropolitan France (INSEE census, 2013), these proportions are much higher near the borders. Moreover, they vary according to the territories and countries of employment. If we use the data at the municipality level, the map showing the percentage of cross-border commuters (Map 1) underlines the importance of the phenomenon in the direct vicinity of the borders, in particular in the north and east of France. (Pigeron-Piroth et al., 2018). The closer a place is to the border, the more it is impacted by cross-border work. A recent cartographic analysis of the north of Lorraine has studied the proportions of cross-border commuters and their evolution over time (Pigeron-Piroth and Helfer, 2019).



Map 1: Percentage of cross-border commuters among the working population by municipality of residence (data: INSEE 2013)
Source: cartography I. Pigeron-Piroth, INSEE 2013 (Pigeron-Piroth et al., 2018)

Map 1 shows that cross-border work is a geographically concentrated phenomenon. Indeed, the highest percentages of cross-border commuters are concentrated on a thin area close to the borders. Beyond 50 kilometers from a border (if we exclude the aggregation effect beyond 100 km, which often includes large cities) (see Figure 1), these border mobilities become rare. In 2013, 48% of cross-border commuters living in France lived within 5 kilometers of a border. That figure is 66% for those living within 10 kilometers. These results show that cross-border work is above all a phenomenon of proximity.

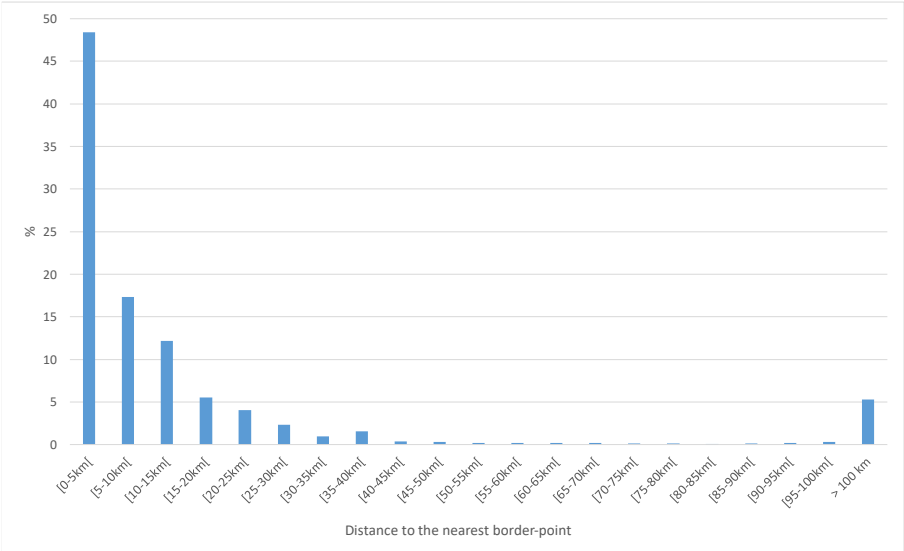
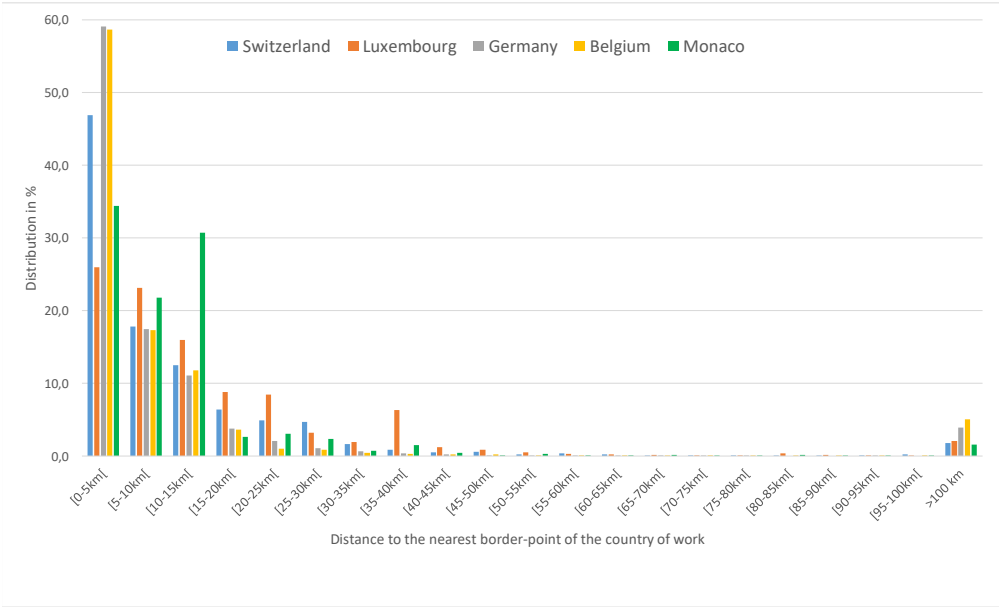


Fig. 1: Distribution of cross-border commuters living in France according to distance from the border
Source: University of Luxembourg, data: INSEE (RP2013).
Note: The distance is calculated between the center of the municipality of residence and the nearest border point.

Spatial anchoring of cross-border work according to the country of employment

There are differences in polarizations and areas of influence of the various foreign employment poles. Thus, it appears that nearly 60% of cross-border commuters working in Germany and Belgium live less than 5 kilometers from the border with their country of work. The percentage is 47% for those who work in Switzerland, while the area of attraction of Luxembourg is much less concentrated directly near the border (26%) (see Figure 2).

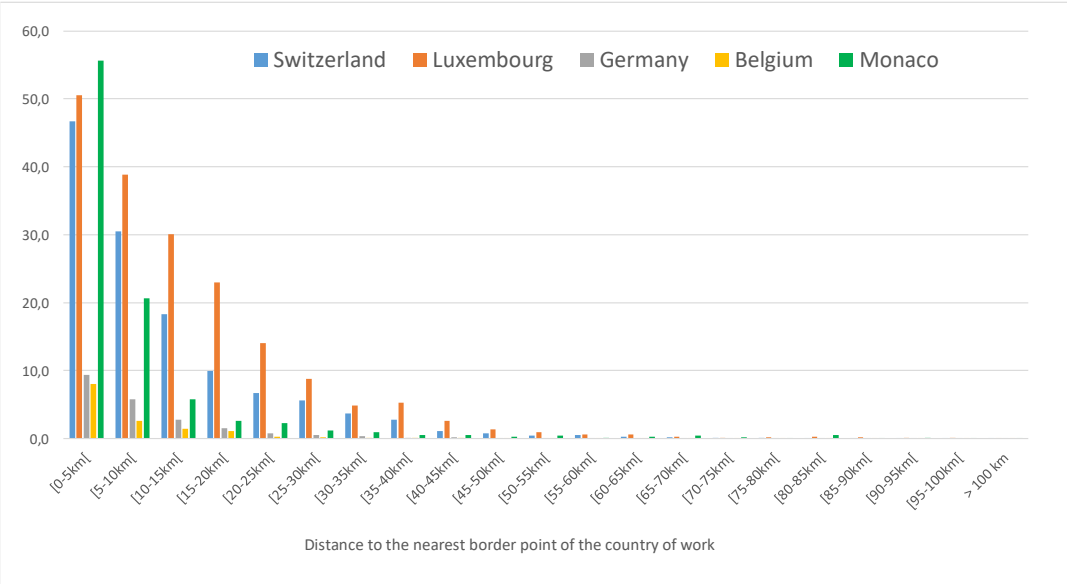


Cross-border commuters living in France and distance to the country of work Fig. 2

Source: University of Luxembourg, data: INSEE (RP2013).
Note: The distance is calculated between the center of the municipality of residence and the nearest border point of the country of work.
Note for the reader: In 2013, 47% of the cross-border commuters living in France and working in Switzerland lived less than 5 kilometers from the Swiss border. Twenty-six percent of the cross-border commuters living in France and working in Luxembourg lived less than 5 kilometers from the Luxembourgish border.

The distribution of cross-border commuters by municipality of residence is not solely related to the proximity to the border. Other territorial elements such as the size of municipalities can explain this spatial distribution. For example, large cities (such as Metz, located 35-40 km from the Luxembourgish border) provide many cross-border commuters, despite their distance from the border. Indeed, infrastructure (roads, highways, trains and buses) facilitates cross-border mobility. Near the Luxembourgish border, highways (A31 and A30) but also cross-border buses and trains enable the mobility of cross-border commuters. Nevertheless, the high and increasing number of cross-border commuters generates traffic jams and lack of space in trains that, on the other hand, impede mobility (and will be a problem to solve in the coming years). By contrast, features of the natural environment (like mountains) hinder the geographical mobility of workers. Indeed, the Pyrenees and the Alps (between France and Spain, and between France and Italy respectively) constitute natural barriers that limit the points of passage from France to these two countries. There are few flows of cross-border commuters to Italy and Spain (INSEE, 2019), due to the lack of dynamic and attractive employment poles, but also because of low wages compared to those in France. Although only a few hundred cross-border commuters are employed in Italy (MOT, 2011, p. 43), there are still a few thousand who work in Spain. According to INSEE (2018, p. 1), in 2014, about 3000 lived in the Pyrenees Atlantiques and 70% were located in the town of Hendaye in France. Cross-border work to Italy is even more geographically concentrated. Most of these workers reside in the Alpes Maritimes. They live mainly in the municipalities of Nice and Menton (MOT, 2016).

In addition to Map 1, Figure 3 shows the proportion of cross-border commuters among the working population according to the distance from the border. It erases the effects related to the size of the city. Switzerland, Luxembourg and Monaco thus show very high proportions (between 46% and 56%) of cross-border commuters in the municipalities located within 5 km of the borders. This underlines the strong attraction of the employment poles situated on the other side of the border, reinforced by the limited length of the border or the ease of its crossing (highways, roads and rail connections). The proportions are smaller in the immediate vicinity of Germany and Belgium, where a very large majority of commuters are not cross-border commuters. In the case of Germany, this is mainly due to the decline in the number of cross-border commuters since the 2000s, but also the presence of large French employment centers close to the borders (such as Strasbourg). For cross-border work in Belgium, much more limited in numbers, cross-border commuters are very poorly represented even in the direct vicinity of the border, precisely because of a lack of a real attractive employment pole in the other side of the borders (or also language issues in the Flemish part).



Proportion of cross-border commuters within the working population according to the distance from the borders of the 5 main countries of work Fig. 3

Source: University of Luxembourg, data: INSEE (RP2013).

Note: The distance is calculated between the center of the municipality of residence and the nearest border point of the country of work.

Note to the reader: In 2013, in the municipalities located less than 5 kilometers from the Luxembourgish borders, cross-border commuters working in Luxembourg constituted more than the half of the working population (50.5%).

These figures and graphs related to territorial elements shed light on the differences in cross-border work at the French borders. Indeed, the numbers of cross-border commuters vary greatly, but so do their geographical distribution and their importance across the municipalities of residence. This highlights the attraction or 'dependence' on jobs offered on the other side of the border.
It therefore seems necessary to clarify the various socioeconomic dimensions of cross-border work at the French borders depending on the destinations. In Switzerland, we will distinguish between the main employment poles: Geneva, Basel and the cantons of Vaud and Neuchatel. For Luxembourg, we will focus on the two main employment poles: Luxembourg city, and the south of the country (mainly in the canton of Esch-sur-Alzette).

Socio-professional profiles of cross-border commuters

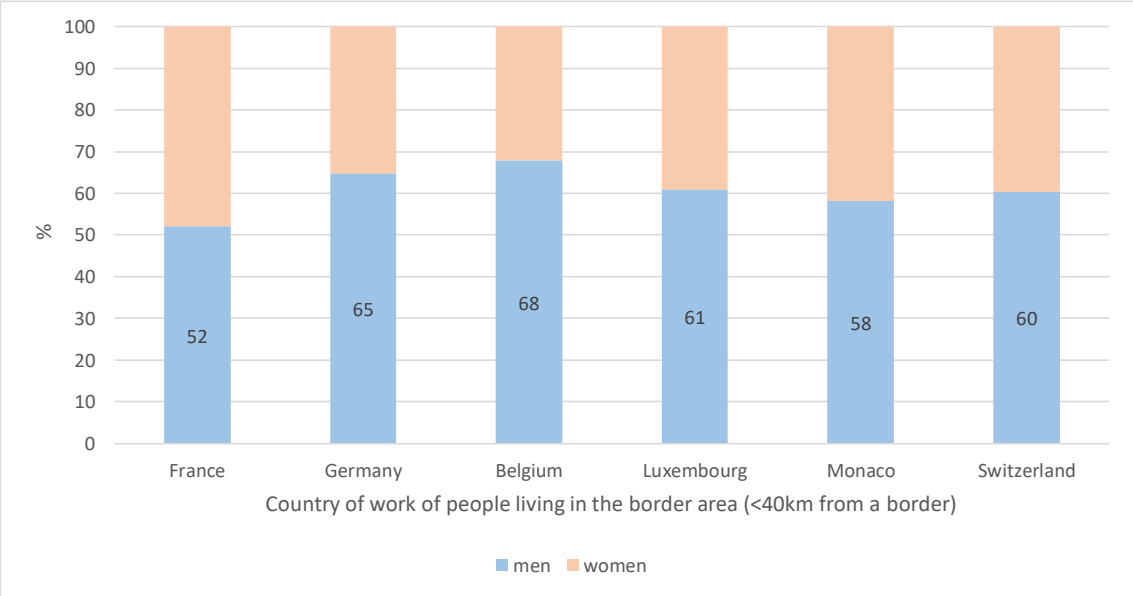
Analysis of the characteristics of cross-border commuters enables a better understanding of this population and reflection on the socioeconomic functions of cross-border work. From the 2013 census data, we can identify both common characteristics of French cross-border commuters as well as territorial specificities related to the characteristics of the different employment poles in the border countries.

Common characteristics of cross-border commuters living in France

We can note several common characteristics of cross-border commuters living in France, whatever their country of work. Given the elements presented in the first part, and more particularly because a very large majority (92.5%) of cross-border commuters live in a rather narrow border area (40 kilometers from the borders), we conducted the analyses on this population. This enabled us to make a distinction between the population of cross-border commuters compared to the population living AND working in France.

AN OVERREPRESENTATION OF MEN AMONG CROSS-BORDER COMMUTERS

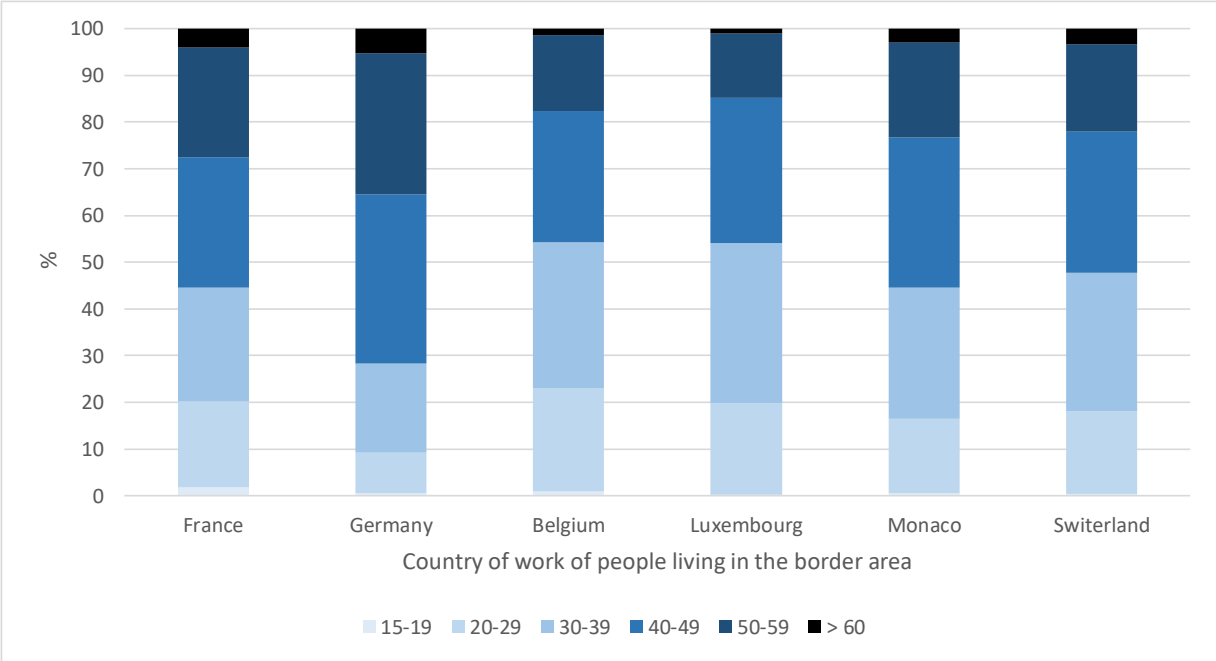
Cross-border work concerns more men than women, whatever the country of work. Men are systematically overrepresented in comparison to the proportion they represent in the population working in France (see Figure 4). In fact, women still carry family life, which is complicated in the case of cross-border shuttles, often longer in terms of distance and time.



Distribution of the working population living in the border area in France according to gender and country of work (2013) Fig. 4
Source: University of Luxembourg, data: INSEE (RP2013).
Scope: People living in France less than 40 kilometers from a border (distance between the center of the municipality of residence and the nearest border point).
Note to the reader: In 2013, 52% of the reference workers in France (less than 40 km from a border) were men. For the people of the border area working in Germany, 65% were men.

CROSS-BORDER COMMUTERS ARE YOUNGER

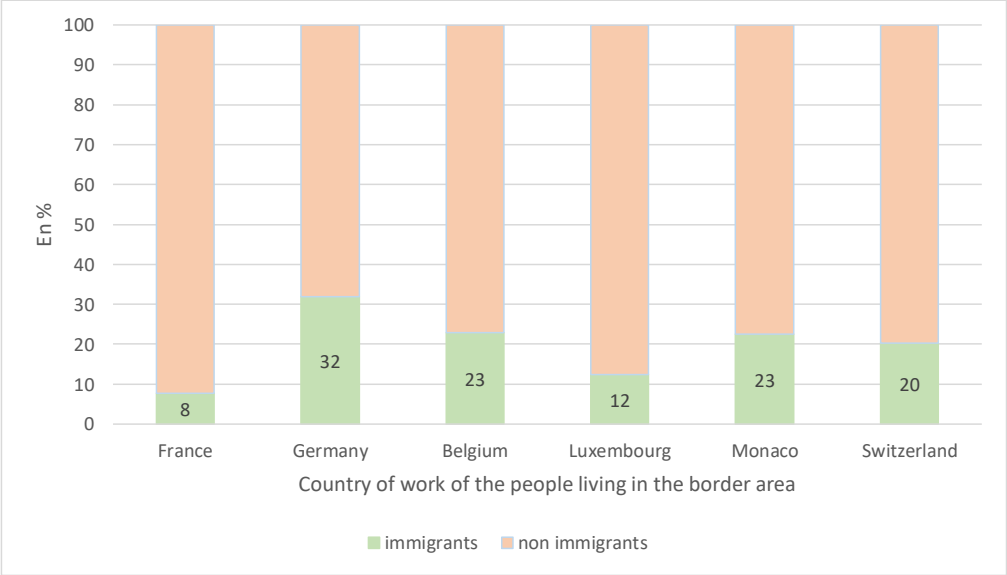
Cross-border commuters are generally younger than those working in France, except the cross-border commuters working in Germany, where 35% of workers are more than 50 years old (see Figure 5). Indeed, this aging population is not experiencing any real renewal with young workers (mainly because of language difficulties among the youngest). For cross-border commuters working in other countries, the people aged under 40 are overrepresented compared to those who work in France.



Distribution of the working population living in the border area in France according to age and country of work (2013) Fig. 5
Source: University of Luxembourg, data: INSEE (RP2013)
Scope: People living in France less than 40 kilometers from a border (distance between the center of the municipality of residence and the nearest border point).
Note to the reader: in 2013, 24% of the reference workers in France (less than 40 km from a border) were aged 30 to 39. Thirty-one percent of people working in Belgium were 30 to 39 years old.

AN OVERREPRESENTATION OF THE IMMIGRANT POPULATION

There is an overrepresentation of immigrant population[i] among cross-border commuters (see Figure 6). Thus, 32% of the cross-border commuters who commute to Germany are immigrants, whereas they constitute 8% of the population working in France. This situation reveals the many residential mobilities taking place at the borders, encouraged by the differences in prices or real estate offers. Thus, in Moselle-East, many Germans have chosen to settle on the French side and continue to work in Germany, thus becoming cross-border commuters. This happens at other borders, but with varying importance. On the border between France and Spain, 70% of cross-border commuters have the nationality of their country of employment (INSEE, 2018). Nevertheless, it is not always identifiable in the figures, for example at the French-Swiss border (in the “Genevois français” for example), where many Swiss have settled. They often do not indicate their Swiss nationality in the census (if they have dual nationality). Authors such as Van Houtum and Gielis (2006) call these workers "elastic migrants" because despite their move across the borders, they continue to do their paid work but also their leisure activities and shopping in their former country of residence (Bolzman and Vial, 2007). In Luxembourg, only 12% of the cross-border commuters are immigrants. This is the lowest percentage we found.



Distribution of the working population living in the border area in France according to immigration and country of work (2013) Fig. 6
Source: University of Luxembourg, data: INSEE (RP2013).
Scope: People living in France less than 40 kilometers from a border (distance between the center of the municipality of residence and the nearest border point).
Note to the reader: In 2013, 8% of the reference workers in France (less than 40 km from the border) were immigrants.

A LOW REPRESENTATION OF AGRICULTURAL, NON-SALARIED AND PUBLIC SECTOR OCCUPATIONS

Very few cross-border commuters are farmers or self-employed (artisans, tradesmen, business owners), compared to the population working in France. These activities are more difficult to practice on the other side of the border, complicated by differences in legislation, recognition of diplomas, social security coverage, etc. For salaried activities, sectors such as public administration / education and health attract very few cross-border commuters, especially in Germany (9.4%) and in Luxembourg (8.8%). These are sectors sometimes referred to as "protected" (in Luxembourg for example), in which it is often necessary to use the language(s) of the country or even to have that nationality, which limits the access of non-residents and non-nationals to these positions (Pigeron-Piroth, 2009).

LONG-TERM AND FULL-TIME JOBS ARE MORE COMMON FOR CROSS-BORDER COMMUTERS

A very large majority of cross-border commuters (and much more than active employees in France) are in full-time work. This can be related to the low proportion of women among cross-border commuters (women most often being part-time workers). It is also likely that the length / duration of cross-border shuttles is less compatible with part-time work.

Whatever their destination, cross-border commuters are overwhelmingly (and much more than the people working in France) engaged on permanent contracts (CDI): 90.2% of them in Luxembourg and 88.8% in Switzerland (75% for those who work in France). This relative stability of employment contracts promotes a certain sustainability of these cross-border jobs and thus allows long careers in the professional activity on the other side of the border. This is also a way of retaining labor force in a context of significant economic development in Luxembourg or the emergence of shortages of labor in activity sectors like construction, manufacturing industry etc. But the indefinite duration of a contract does not have the same meaning in different countries, given the differences in legislation. On the other hand, despite the high percentage of permanent contracts, temporary workers represent a higher percentage when they work abroad, especially in Belgium and Monaco. In Luxembourg too, cross-border work diversified with cross-border temporary work (Belkacem and Pigeron-Piroth, 2016). Cross-border temporary work is an opportunity for businesses to manage rapidly cyclical employment developments, but is also increasingly a means of recruitment (the temporary employment contract is a sort of test for companies) (Belkacem et al., 2016). Nevertheless, for cross-border temporary work, there is an overlapping of the laws that

apply, especially in the specific case of "detached cross-border temporary work". In this case, the worker, the temporary work agency (his / her employer) and the enterprise (where the assignment is performed) are separated by one or more borders (Belkacem and Pigeron-Piroth, 2016).

Specificities of the different employment poles

We can note territorial specificities related to the singularity of labor needs according to the cross-border employment poles. It is therefore important to identify the different characteristics of the local production systems that define these border employment poles. Thus, not all the French cross-border commuters employed in Switzerland have the same profile, and the employment poles like Geneva or Basel are indeed very different. We have therefore distinguished the main working cantons in Switzerland as well as in Luxembourg (Luxembourg city and the canton of Esch-sur-Alzette).

DIFFERENT STATUS OF THE CROSS-BORDER COMMUTERS

Cross-border commuters are mainly workers, especially in Germany (48%) and Belgium (53%) (24% for people working in France) (Mironova and Villaume, 2019) (Figure 7). In Luxembourg, the south of the country still has many industrial activities (related to the iron and steel industry past of the region), which explains why nearly 39% of cross-border commuters who work in the municipality of Esch-sur-Alzette have a worker status. In Switzerland, the canton of Neuchatel includes the cities of Le Locle and La Chaux de Fonds, which host a large number of cross-border commuters working in the watch industry: 55.5% of French border workers in the canton of Neuchatel are workers, compared with 19% in the canton of Geneva.

The differences are also striking in relation to managers and intellectual professions. In Monaco, Luxembourg city, Geneva and Basel, this status has a significant presence among cross-border commuters (20.3%, 16.8%, 23.6% and 21.2% respectively, and 13.7% for people working in France). These cross-border employment poles have specific needs for highly qualified people. According to INSEE (2018) and MOT (2016), cross-border commuters in Spain also hold positions of responsibility in this country. INSEE (2018) points out that two professions are particularly well represented among cross-border commuters to Spain: middle management and commercial employees. The main sector employing these cross-border commuters is car repair and trade (INSEE, 2018).

	Country/canton of work											
	France	Germany	Belgium	Luxembourg			Monaco	Switzerland				
(% in columns)				Esch-sur-Alzette	Luxembourg	Total		Basel	Geneva	Neuchatel	Vaud	Total
farmers	1,2	0,1	0,1	0,0	0,0	0,0	0,0	0,0	0,1	0,0	0,1	0,1
craftsmen, traders, business leaders	6,6	2,5	2,0	2,2	1,3	1,6	2,2	1,6	2,7	1,2	1,4	2,1
white collars, highly qualified	13,7	11,4	8,9	11,1	16,8	14,8	20,3	21,2	23,6	10,0	19,0	20,3
intermediate professions	25,7	19,0	21,1	23,4	24,0	23,5	26,1	25,0	30,9	22,7	28,3	28,0
employees	29,4	18,3	14,7	24,4	34,8	30,1	31,8	20,4	23,7	10,6	15,5	19,9
workers	23,4	48,7	53,1	38,9	23,0	30,0	19,6	31,8	19,1	55,5	35,7	29,6
Total	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**

Distribution of the working population living in the border area in France according to the socio-professional categories and the country/canton of work (2013) Fig. 7
Source: University of Luxembourg, data: INSEE (RP2013).
Scope: People living in France less than 40 kilometers from a border (distance between the center of the municipality of residence and the nearest border point).
Note to the reader: In 2013, 23.4% of the inhabitants of the border area (less than 40 km from the border) and working in France were workers.

SIGNIFICANT HETEROGENEITY OF CROSS-BORDER ACTIVITY SECTORS ACCORDING TO WORKPLACES

Activity sectors of cross-border commuters are different depending on the countries of work. Cross-border commuters can indeed meet the labor needs of labor markets on the other side of the border. These needs are not the same depending on the country and the employment centers.

Cross-border commuters working in Germany, Belgium and in the Swiss cantons of Neuchatel, Basel, Vaud and also the canton of Esch-sur-Alzette are very active in the industrial sector (see Figure 8). These sectors (iron and steel

industry, watchmaking, pharmaceuticals, etc.) have indeed used cross-border work to meet their needs. Some of these activities are historic and anchored in the territories. Cross-border commuters have provided a labor input with the desired profiles, either because the same type of activity has developed in their country of residence (e.g. the steel industry in Lorraine, Germany and Luxembourg), or because know-how is linked to the territory (for example watchmaking in the Jura, French and Swiss). The contextual elements, particularly the historical ones, make it possible to explain some of these mobilities.

More than half of cross-border commuters in Monaco, Luxembourg city and Geneva work in the huge sector including trade / transport / services. This meets the needs of these cross-border employment poles.

Cross-border work allows both quantitative adjustments (in quantity) but also qualitative adjustments (because of having the necessary qualifications / profiles). Cross-border work is a regulatory factor for cross-border labor markets across the borders of France. The variety of profiles of cross-border commuters reflects the need for skills, which are also increasingly varied and lacking "locally". Development of traditional economic sectors like building activities, but also new service sectors linked to the international status of Luxembourg (headquarters of major international groups, European institutions) and the significant growth of its financial center explain the variety of the requirements made of the working population. The qualification needs are explained by more structural reasons for Germany. Due to the demographic decline, this country is suffering from shortages of qualified work force necessary for the renewal of employees. According to a survey carried out by Rhineland-Palatinate's Ministry of Labor among companies in that state (Otto, 2019), one in three companies in 2017 (compared to one in four in 2010) ranked the lack of qualified candidates as the main problem they encounter. This phenomenon of labor shortage has therefore increased and the list of occupations concerned is widening, including for example the health and social sector, manufacturing production, or even building. Moreover, the vacancy period is increasing in Germany. It now stands at 99 days nationally but 112 days in its border regions, such as in Trier in Rhineland-Palatinate (Arnold, 2019). This obviously increases tensions in the cross-border work market. All experts agree that this labor shortage is likely to hamper Germany's economic momentum. The latest data published in Germany seem to confirm this. The heterogeneity of the profiles is also huge within the same country or employment pole.

	Country/canton of work											
	France	Germany	Belgium	Luxembourg			Monaco	Switzerland				
(% in columns)				Esch-sur-Alzette	Luxembourg	total		Basel	Geneva	Neuchatel	Vaud	Total
agriculture	1,9	0,2	0,6	0,1	0,1	0,1	0,0	0,1	0,3	0,2	0,6	0,3
industry	14,8	45,6	36,9	23,8	8,3	15,0	7,9	35,6	14,0	67,1	33,8	27,8
building	7,0	6,8	7,5	13,5	7,7	10,0	9,6	7,8	6,3	4,1	6,8	6,5
trade, transports et services	43,7	38,0	38,9	52,6	75,2	66,1	66,7	47,3	60,8	19,1	42,9	50,5
public administration , education, health and social action	32,6	9,4	16,0	10,0	8,7	8,8	15,8	9,2	18,6	9,5	15,9	14,9
Total	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**

Distribution of the working population living in the border area in France according to the activity sectors and the country/canton of work (2013)
Fig. 8
Source: University of Luxembourg, data: INSEE (RP2013).
Scope: People living in France less than 40 kilometers from a border (distance between the center of the municipality of residence and the nearest border point).
Note to the reader: In 2013, 32.6% of the people living in the border area (less than 40 km from a border) and working in France worked in public administration / education and health.

DIFFERENCES IN EDUCATIONAL QUALIFICATION LEVELS OF CROSS-BORDER COMMUTERS

The educational qualifications of cross-border commuters also vary greatly from one country or employment pole to the other. Luxembourg, Monaco, Geneva, and to a lesser extent Basel show a very clear overrepresentation of cross-border commuters with higher education, which is linked to metropolitan activities in these cross-border employment poles. A study by INSEE (2018) also confirms this phenomenon at the French-Spanish border, where 1 in 2 cross-border employees has graduated from higher education. Conversely, at other employment poles such as Neuchatel, Basel, Esch-sur-Alzette, Germany or Belgium, those with the professional diplomas (CAP / BEP) (probably related to specific skills in the industrial field) are more numerous than for other workplaces.

	Country/canton of work											
	France	Germany	Belgium	Luxembourg			Monaco	Switzerland				
(% in columns)				Esch-sur-Alzette	Luxembourg	Total		Basel	Geneva	Neuchatel	Vaud	Total
No diploma	17,8	20,9	20,8	15,4	11,5	13,1	17,8	11,8	10,1	15,9	11,1	11,5
CAP/BEP	27,3	41,6	30,1	32,4	23,2	27,1	19,7	35,0	21,9	34,5	28,2	27,8
Baccalauréat	20,2	16,7	22,3	19,0	18,0	18,5	20,2	16,2	18,7	21,4	19,1	18,5
Post-secondary education	34,7	20,7	26,8	33,1	47,3	41,3	42,2	37,1	49,3	28,2	41,6	42,2
Total	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**

Source : University of Luxembourg, data INSEE (RP2013)
Scope: people living in France less than 40 kilometers from a border (distance between the centroid of the commune of residence and the nearest border point).

Note to the reader : in 2013, 17,8% of the people living in the border area (less than 40 km from a border) and working in France have no diploma.

Distribution of the working population living in the border area in France according to educational qualifications and the country/canton of work (2013) Fig. 9

Conclusion

Metropolitan France is the European Union country most affected by cross-border work. In France, the growth of cross-border work has been very important (+ 50% between 1999 and 2013), particularly that involving workers commuting to Luxembourg and Switzerland. The importance of cross-border mobility is obviously due to the geographical position of the country, in the heart of western Europe, in direct proximity to eight European countries.

Cross-border work nevertheless remains a phenomenon very geographically located. In the border territories of the north and east, it has even become a structural pillar of local labor markets, strongly affecting local economic dynamics.

Analysis of available data from the 2013 census highlighted salient points in the socio-professional profiles of cross-border commuters. These can be both common to the different border territories, but also specific to certain cross-border employment poles.

The common characteristics of these socio-professional profiles are the male and immigrant overrepresentation of cross-border commuters compared to the people working in France. It is also a relatively younger population, except for those who work in Germany. Most of the jobs are in the private non-farm sector. They are relatively more stable and full-time. Cross-border commuters have various statuses, from workers to managers and higher intellectual professions. The work that these people do can then cover various tasks of execution, qualification, design or supervision. Cross-border work is still dominated by the worker-status jobs, even more so in Germany and Belgium. Cross-border commuters working in these countries as well as those operating in the Swiss cantons of Neuchâtel, Basel, Vaud and the Luxembourgish canton of Esch-sur-Alzette are numerous in the industrial sector. Some of the activities are historical and rooted locally, like the watchmaking industry in the Jura. On the other hand, in large cross-border cities such as Monaco, Luxembourg city, Geneva and Basel, the service sector (finance, insurance, business services, etc.) and high-tech industries such as the chemical, electronic and pharmaceutical industries (in Switzerland) are well represented and employ a large number of cross-border commuters. Indeed, more than half of the cross-border commuters working in Monaco, Luxembourg city and Geneva work in the large sector of trade / transport / services.

Depending on the employment poles where they work, the main characteristics of cross-border commuters coming from France are not the same. This result underlines the regulatory role played by cross-border work, both quantitatively and qualitatively.

NOTES

[i] *Immigrant population is the population living in France, born abroad with a foreign nationality (not French).*

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