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BORDERS IN PERSPECTIVE

UniGR-CBS Thematic Issue 3/2020

BORDERS AND CROSS-BORDER LABOR MARKETS: Opportunities and Challenges

UNIVERSITY OF LORRAINE & UNIVERSITY OF LUXEMBOURG
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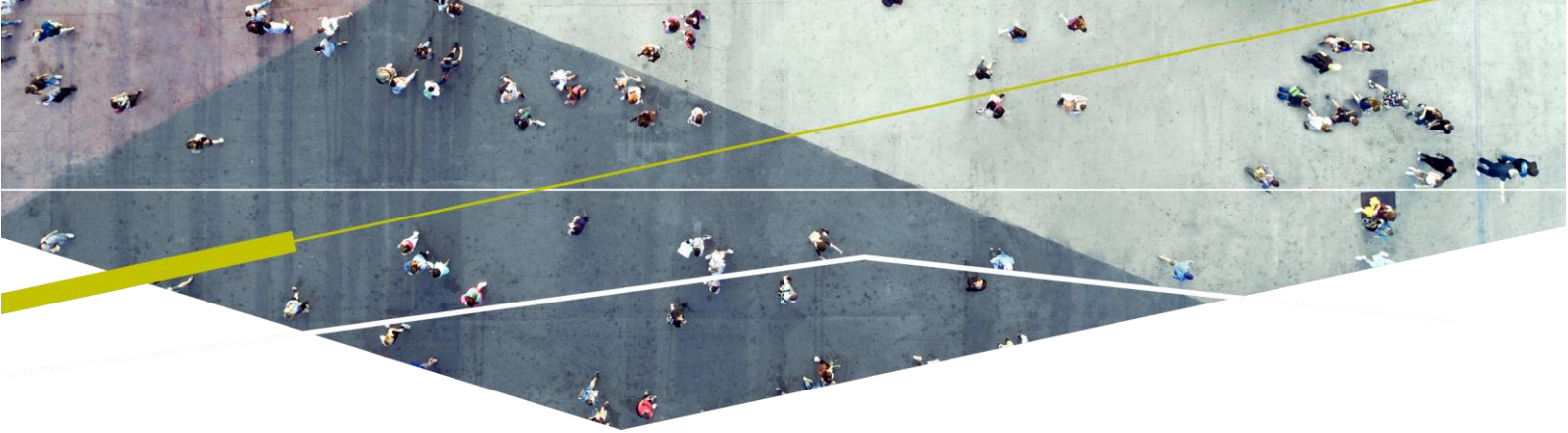
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FR L’UniGR-CBS est un réseau transfrontalier et thématique qui réunit environ 80 chercheuses et chercheurs des universités membres de l’Université de la Grande Région (UniGR) spécialistes des études sur les frontières, leurs significations et enjeux. Grâce à sa position géographique au « coeur de l’Europe », à sa capacité d’expertise et à la diversité des disciplines participantes, l’UniGR-CBS revêt tous les atouts d’un réseau d’excellence européen. L’UniGR-CBS bénéficie d’un financement d’environ 2 M € FEDER pendant trois ans dans le cadre du programme INTERREG VA Grande Région pour mettre en place le Centre européen de ressources et de compétences en études sur les frontières. Via ce projet transfrontalier, le réseau scientifique UniGR-CBS créera des outils de recherche harmonisés. Il oeuvre en outre à l’ancrage des Border Studies dans l’enseignement, développe le dialogue entre le monde scientifique et les acteurs institutionnels autour d’enjeux transfrontaliers et apporte son expertise à la stratégie de développement territorial de la Grande Région.

DE Das UniGR-CBS ist ein grenzüberschreitendes thematisches Netzwerk von rund 80 Wissenschaftlerinnen und Wissenschaftlern der Mitgliedsuniversitäten des Verbunds Universität der Großregion (UniGR), die über Grenzen und ihre Bedeutungen sowie Grenzraumfragen forschen. Dank seiner geographischen Lage „im Herzen Europas“, hoher Fachkompetenz und disziplinärer Vielfalt verfügt das UniGR-CBS über alle Voraussetzungen für ein europäisches Exzellenz-Netzwerk. Für den Aufbau des Europäischen Kompetenz- und Wissenszentrums für Grenzraumforschung wird das Netzwerk UniGR-CBS drei Jahre lang mit knapp 2 Mio. Euro EFRE-Mitteln im Rahmen des INTERREG VA Großregion Programms gefördert. Im Laufe des Projekts stellt das UniGR-Netzwerk abgestimmte Forschungswerkzeuge bereit, verankert die Border Studies in der Lehre, entwickelt den Dialog zu grenzüberschreitenden Themen zwischen wissenschaftlichen und institutionellen Akteuren und trägt mit seiner Expertise zur Raumentwicklungsstrategie der Großregion bei.



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PREFACE

JEAN PEYRONY

MOT (Mission Opérationnelle Transfrontalière/Transfrontier Operational Mission)

In Europe 2 Million people cross a border to get to work; for 20% of them the journey has its origin in France. In some border territories, the cross-border worker rate can reach 40%. These figures demonstrate the importance of research like the one collected by Isabelle Pigeron-Piroth and Rachid Belkacem in the Thematic Issue about Cross-Border Labor Markets.

The various articles illustrate all the issues underlying this theme.

In a context of open borders and free movement, which offers opportunities for both workers and businesses, it is important to understand the dynamics of cross-border labor markets. This is covered in Chapter 5 from the perspective of the Luxembourg financial sector.

The socio-economic profile of cross-border workers is explored in Chapter 1 for all French borders, showing both their common characteristics and the specificity of each border segment, depending on the employment pole attractor.

Labor markets are not markets like any other, they determine the well-being of workers. Quantitative approaches need to be complemented by qualitative approaches, such as in Chapter 4, which examines the daily life of cross-border workers in Luxembourg, and its often-heavy pace, which makes it difficult to reconcile work and home life.

In the functioning of labor markets, public policies play a decisive role, including those concerning training; In Chapter 2, the training policy carried out in Luxembourg, a small country that cooperates with its big neighbors, is characterized as an "institutional tinkering", showing how the cross-border context creates constraints

linked to weakly compatible national systems, but at the same time can be conducive to innovation.

Cross-border workers themselves must be able to influence economic and political dynamics. Chapter 3 examines the cooperation of trade unions inside the Greater Region, where, again, the diversity of the industrial relations systems of its components makes cooperation complex; a deep knowledge of these national contexts is a prerequisite.

Finally, acting on and with cross-border labor markets requires thinking simultaneously about national systems and the emerging cross-border system, which requires an interdisciplinary approach combining geography, economics, political science, and sociology.

The Thematic Issue is promising and shows the way, both in terms of research to be done, and public policies to develop through cooperation between neighboring countries. To spread cross-border labor markets for the benefit of all, cross-border territories still need to be developed through combining cross-border management of mobility areas, and joint management planning of jobs and skills, in order to have a cross-border co-development. This is potentially an enormous challenge in the context of demographic, technological and ecological transitions in the territories.

Let us salute the leading role of the Greater Region, an emblematic space for cross-border and European integration, and that of its researchers, especially those gathered by the Center for Border Studies of the University of the Greater Region!

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EDITORIAL: analyzing cross-border labor markets

RACHID BELKACEM and ISABELLE PIGERON-PIROTH

The previous volume (Number 2) of the UniGR-CBS Borders in Perspective Thematic Issue focused on cross-border commuters in Luxembourg and Switzerland (Pigeron-Piroth and Wille, 2019). It dealt with employment, daily life and perceptions of the cross-border commuters in order to point out similarities but also differences between these two countries employing many cross-border commuters.

The object of the current Thematic Issue is not to focus on the individuals (the cross-border commuters) but on the organization of the cross-border labor markets. We move from a micro perspective to a macro perspective in order to underline the diversity of the cross-border labor markets (at the French borders, for example) and shed light on the many aspects that impact cross-border supply or demand.

Above all, we have to define what a cross-border labor market means:

“A cross-border labor market can be said to exist if the labor market supply consists at least partly of workers coming from the neighboring country and/or if the labor market demand consists at least partly of firms demanding workers from abroad” (De Gijssel, 1999).

The contextual elements are actually quite important when it comes to explaining and understanding why supply and demand cross the borders. Geographical elements are obvious: the proximity of the border(s), the ease of crossing the border (roads, trains, no natural barriers such as mountains, etc.). There are also cultural elements (the languages, the cultural proximity, etc.) that can explain the development of cross-border commutes. Other contextual elements to be considered are historical: the same economic activities on the two sides of the border (steel industry, for example), historical cross-border cooperation or links, and so on. From a more

economic point of view, there are push and pull factors (De Gijssel et al., 1999; Knotter, 2014). The former (push factors) are linked to the residential area and push the workers abroad (high unemployment rate, low demand for highly qualified labor, low wages etc.). The pull factors are linked to the area situated abroad on the other side of the border (the attraction of a huge employment pole, labor shortages, high wages, etc.).

Trying to understand the whole system that goes beyond the cross-border flows, the question we address in this thematic issue is about the organization of the labor markets: is the system organized in a cross-border way? Or do the borders still prevent a genuinely integrated cross-border labor market?

The aspects presented in this thematic issue were discussed in two special sessions on this topic (“Cross-border workers and cross-border labor markets”) organized by Rachid Belkacem and Isabelle Pigeron-Piroth at the Association of Borderland Studies Conference in July 2018 in Vienna and Budapest.

The approach is multidisciplinary, using different tools and methods from the fields of geography, socioeconomics, political and intercultural science and also sociology. The overview is broad: from the socioeconomic characteristics of the workers to the impacts on formation, on trade unions, daily mobilities and cross-border activity cycles.

Most of the analyses focus on the Greater Region as one of the most important cross-border labor markets. The chapters were written by academics from the University of the Greater Region and from other European universities.

Rachid Belkacem and Isabelle Pigeron-Piroth first analyze all the French borders and draw up an overview of different cross-border labor mar-

kets. They present the diversity of the characteristics of cross-border commuters according to their place of work.

Focusing on the formation in Luxembourg, **Lukas Graf and Daniel Tröhler** show how the system is organized between use of neighboring models and cross-border vocational training.

Julia Frisch studies in detail the cross-border trade union cooperation within the Greater Region SaarLorLux through the Interregional Trade Union Councils created in the 1970s. She analyzes the feasibility and the power of a cross-border trade union.

Guillaume Drevon and Olivier Klein analyze daily mobilities of cross-border commuters, applying a spatiotemporal approach, in order to show the complexity and difficulty of commuters' daily lives.

Olivier Damette, Vincent Fromentin and Marc Salesina illustrate the synchronization between financial, economic and cross-border activity cycles in Luxembourg.

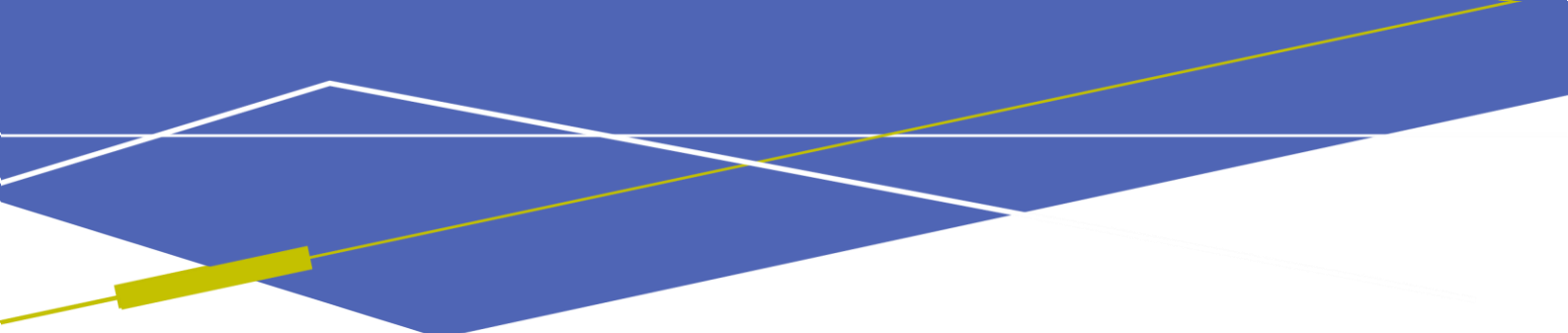
We would like to thank all the authors who contributed to this thematic issue and all the colleagues from the UniGR Center for Border Studies for their support.

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

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 ter- ritoriales

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 apparaît 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

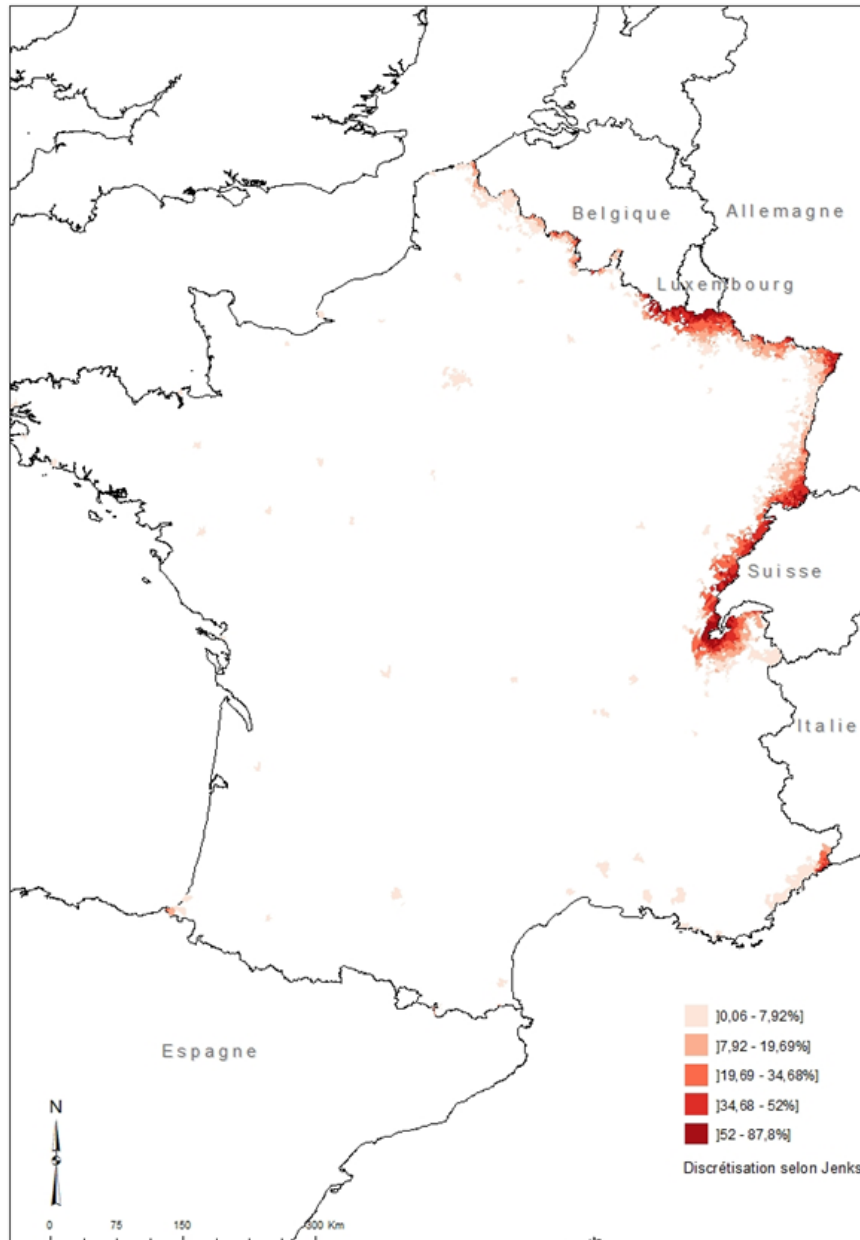
The data used for this analysis come from the French National Institute of Statistics, INSEE (2013 population census). Cross-border commuters are those who reside in France and have declared a country of work abroad. They may not completely match the other sources of data (e.g. administrative data) that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

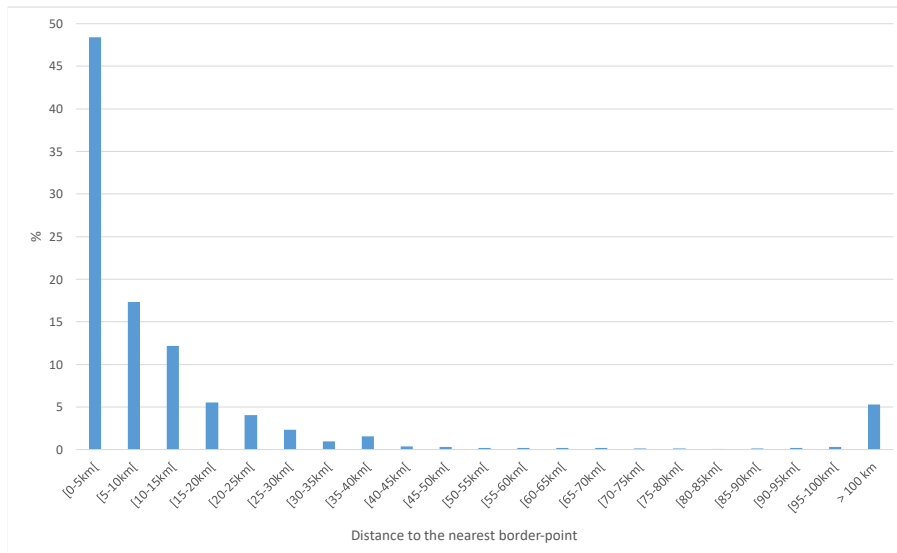
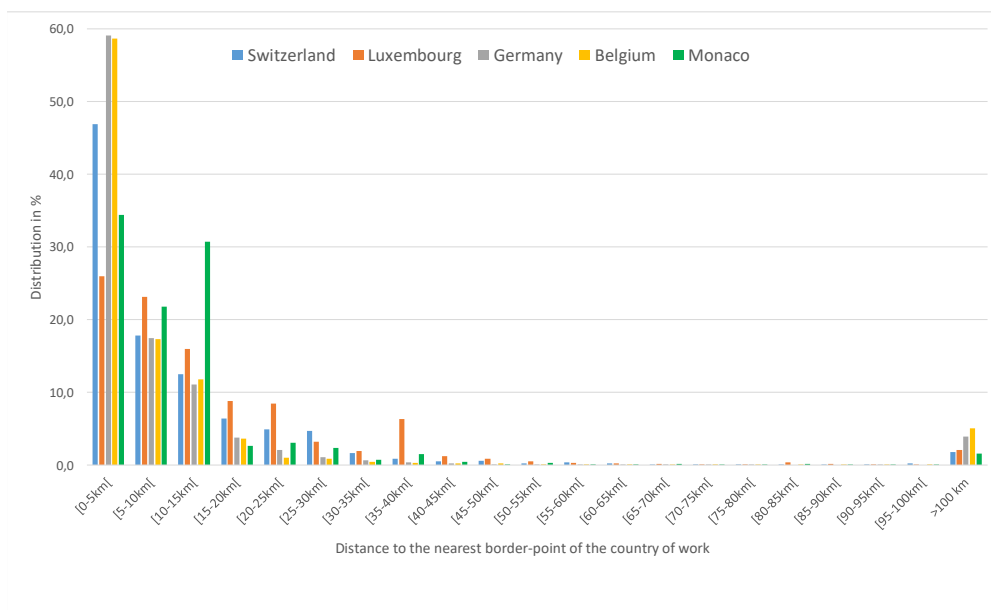


Fig. 1: Distribution of cross-border commuters living in France according to distance from the border
 Source: University of Luxembourg, data: INSEE (RP2013).
 Note: The distance is calculated between the center of the municipality of residence and the nearest border point.

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).



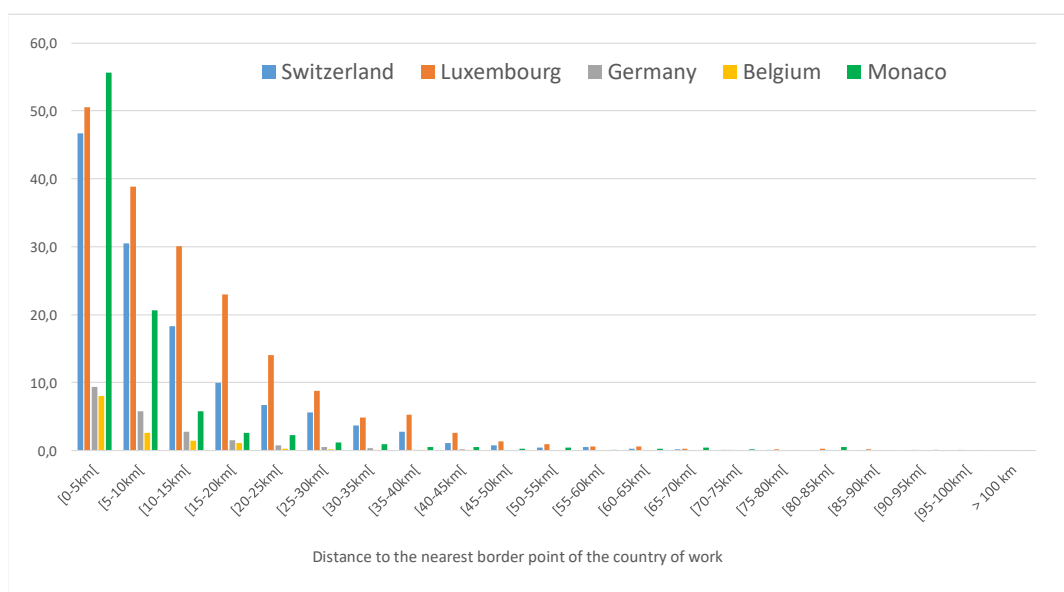
Cross-border commuters living in France and distance to the country of work Fig. 2

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

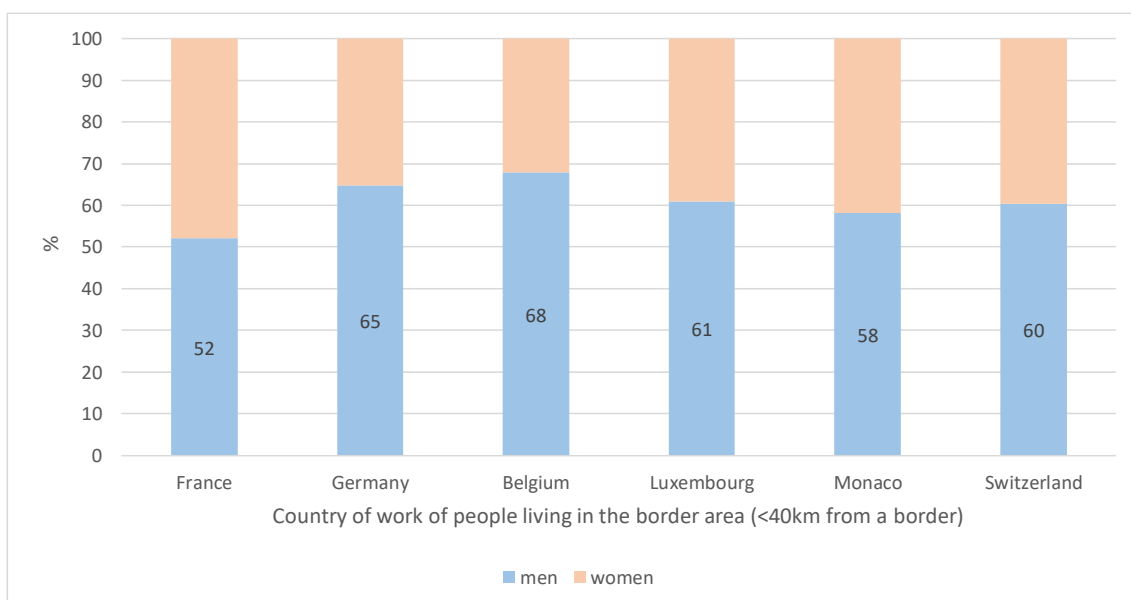
the characteristics of the different employment poles in the border countries.

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).

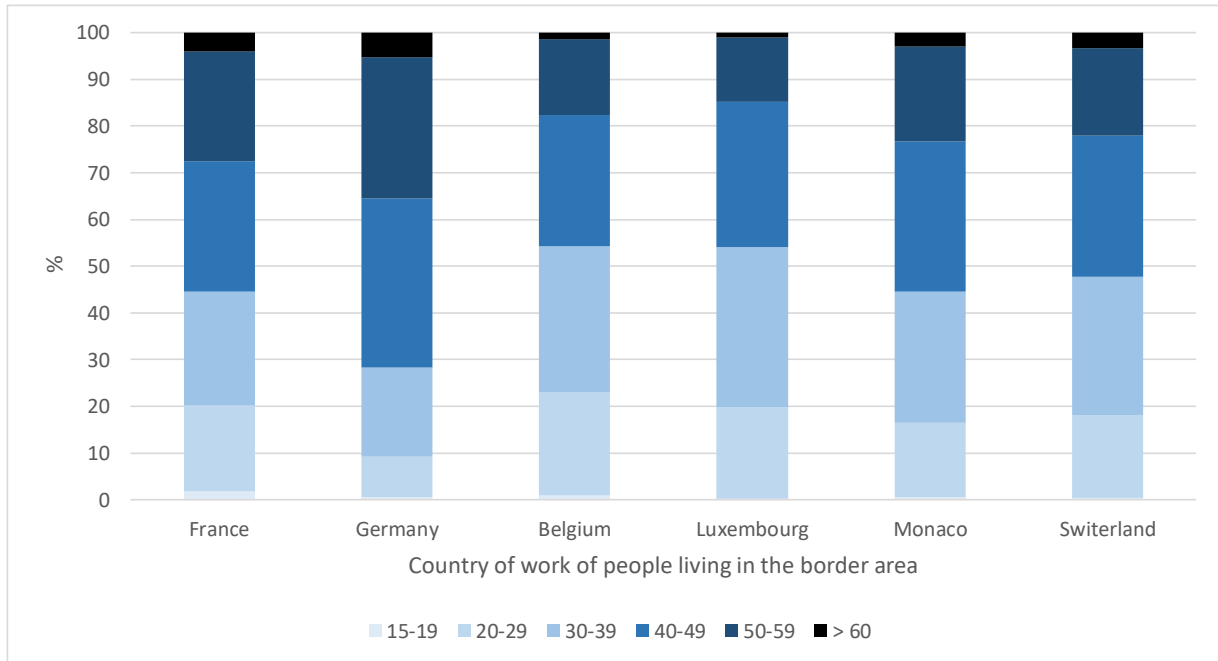
Scope: People living in France less than 40 kilometers from a border (distance between the center of the municipality of residence and the nearest border point).

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)

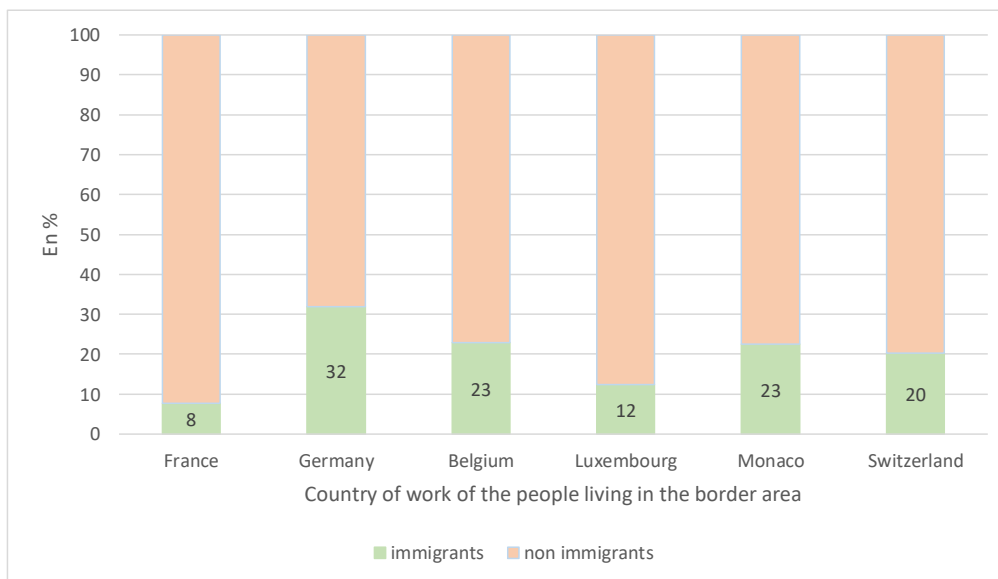
Scope: People living in France less than 40 kilometers from a border (distance between the center of the municipality of residence and the nearest border point).

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 populationⁱ 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).

(% in columns)	Country/canton of work											
	France	Germany	Belgium	Luxembourg			Monaco	Switzerland				
				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.

(% in columns)	Country/canton of work											
	France	Germany	Belgium	Luxembourg			Monaco	Switzerland				
				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.

(% in columns)	Country/canton of work											
	France	Germany	Belgium	Luxembourg			Monaco	Switzerland				
				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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CROSS-BORDER SKILL FORMATION AND INSTITUTIONAL BRICOLAGE: the case of Luxembourg and its neighbors

LUKAS GRAF and DANIEL TRÖHLER

The core argument of this paper is that Luxembourg's location between the larger European nations of France and Germany is constitutive of skill development in this small state. On the one hand, Luxembourg continuously borrows educational models and principles from its two large(r) neighbors – which both represent major European models of skill formation. Thus, in Luxembourg's skill formation system, elements from these two 'big' states get 'mixed,' although they are not necessarily complementary. On the other hand, Luxembourg compensates for its small size through impressive levels of cross-border activity with neighboring subnational regions in France, Germany, and Belgium – including in the cross-border provision of training. It does this through institutional bricolage and direct cooperation with neighboring countries – in this way significantly enlarging the scope and capacities of its national education system.

Education and training, Cross-border regions, Institutional bricolage, Luxembourg, Greater Region

Formation professionnelle transfrontalière et bricolage institutionnel: le cas du Luxembourg et de ses voisins

L'argument central de ce chapitre est que la position du Luxembourg entre les plus grands pays européens que sont la France et l'Allemagne est constitutive du développement des compétences dans ce petit État. D'une part, le Luxembourg emprunte continuellement des modèles et des principes éducatifs à ses deux grands voisins - qui représentent tous deux de grands modèles européens de formation des compétences. Ainsi, dans le système de formation professionnelle luxembourgeois, les éléments de ces deux «grands» États sont «mélangés», bien qu'ils ne soient pas nécessairement complémentaires. D'autre part, le Luxembourg compense sa petite taille par des niveaux impressionnants d'activités transfrontalières avec les régions voisines en France, en Allemagne et en Belgique - y compris par l'offre de formations transfrontalières. Ainsi, nous constatons que le Luxembourg compense partiellement sa petite taille par le bricolage institutionnel et la coopération directe avec les pays voisins, élargissant ainsi de manière significative la portée et les capacités de son système éducatif national.

Education et formation, régions transfrontalières, bricolage institutionnel, Luxembourg, Grande Région

Grenzüberschreitende Berufsausbildung und institutionelle Bricolage: Der Fall Luxemburgs und seiner Nachbarn

Das zentrale Argument dieses Artikels ist, dass die Lage Luxemburgs zwischen den größeren europäischen Ländern Frankreich und Deutschland konstitutiv für die Entwicklung von Kompetenzen in diesem kleinen Land ist. Einerseits greift Luxemburg fortwährend auf die Bildungsmodelle und Prinzipien seiner beiden größeren Nachbarn zurück, deren Ausbildungssysteme jeweils als bedeutsame europäische Modelle gelten. So werden im Ausbildungssystem Luxemburgs Elemente aus diesen beiden großen Staaten auf vielfältige Weise integriert, auch wenn einige dieser Elemente nur bedingt komplementär sind. Andererseits kompensiert Luxemburg seine geringe Größe durch eindrucksvolle grenzüberschreitende Aktivitäten mit den benachbarten Regionen in Frankreich, Deutschland und Belgien – einschließlich grenzüberschreitender Ausbildungsangebote. So stellen wir fest, dass Luxemburg seine Größennachteile durch institutionelle „Bricolage“ wie auch durch direkte Zusammenarbeit mit den Nachbarländern ausgleicht und so die Reichweite und Kapazitäten seines nationalen Bildungssystems erheblich erweitert.

Bildung und Berufsausbildung, grenzüberschreitende Regionen, institutionelle Bricolage, Luxemburg, Großregion

SUGGESTED CITATION

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Recent research on small (and micro) states points out that these “cannot insulate themselves from global economic pressures individually” (Jules, 2015, p. 202), a situation which “calls for greater flexibility in the approach of small states to the development and utilization of their own human resources” (Bacchus, 2008, p. 127), with people being “the greatest resource of many small states” (Crossley, 2008, p. 251)ⁱ. Although Luxembourg – as a very small country – is often ignored in comparative education and political economy research, it is of substantive conceptual interest as a multilingual and multicultural country located centrally in western Europe and a founding member of the European Union. Luxembourg’s three official languages are German, French and Luxembourgish, whereby the latter is the *national* and the middle the *political-administrative* language. Luxembourg City is seat of important European institutions and considered one of the capitals of the European Union. Luxembourg, with a population of just under 613,900 (and a foreign population of 47.5%) (STATEC, 2019), is the economic hub of the Greater Region, which besides Luxembourg comprises the neighboring regions of Belgium, France, and Germany. Despite its comparatively modest size, Luxembourg is nonetheless in possession of a highly differentiated and extremely complex national vocational education and training (VET) system. We describe this system and its current development, especially in the wake of the major vocational training reform of 2008 that was initiated in the context of a thorough reform of the whole educational system, following the OECD emphasis on competences (Ananiadou and Claro, 2009). This VET reform aimed at modernizing Luxembourg’s skill formation system and addressed the question of what specific challenges Luxembourg’s VET system faces and what opportunities it has, given the country’s size and its strongly pronounced international elements and influences. Given its deep confidence in (large-scale) evidence-based education policy and the consistent emphasis on a particular national identity and cultural otherness, expressed in its trilingualism, Luxembourg administers a constant balancing act between the global and the local, translating global (EU, OECD) policy recommendations into the particular national idiosyncrasy. Against this backdrop, we address the question of how Luxembourg’s vocational education and training system is configured in view of these specific characteristics. The paper primarily deals with the upper secondary level of the school system, firstly because it addresses the core of basic vocational education, and secondly because at this level, a specific model of vocational training (partly)

exists, namely the so-called dual apprenticeship training. This corporatist dual model combines vocational schooling (mainly state-based) with training in the workplace. Dual apprenticeship training is also common in a few other European countries (in particular Switzerland, Germany and Austria) and is once again being praised in the current educational debate on the low levels of youth unemployment that have become associated with it (Busemeyer, 2015). Since there is very little research on this subject in Luxembourg (Milmeister and Willems, 2008, p. 202)ⁱⁱ, the paper will first describe the VET system and then analyze education policy sources and expert interviews. The interviews were conducted with experts or key stakeholders in the context of Luxembourg’s vocational training systemⁱⁱⁱ.

The core argument is that Luxembourg’s location between the larger European nations of France and Germany is constitutive of skill development in this small state. On the one hand, Luxembourg continuously borrows educational models and principles from its two large(r) neighbors – which both represent major European models of skill formation (Bernhard, 2017). Thus, in Luxembourg’s skill formation system, elements from these two ‘big’ states get ‘mixed,’ although they are not necessarily complementary. On the other hand, Luxembourg compensates for its small size through impressive levels of cross-border activity with neighboring subnational regions in France, Germany, and Belgium – including the cross-border provision of training (Graf and Gardin, 2018). It achieves this through institutional bricolage (see Campbell, 2004), i.e. by integrating and combining strong features from the national educational models of their neighbors as needed, and through direct cooperation with neighboring countries, thereby enlarging the scope and capacities of its educational system far beyond its national borders.

The first section describes Luxembourg’s VET system, with a focus on the political and administrative governance of the system and the VET reform of 2008. Subsequently, key international elements and influences are discussed, and in the last section we present some conclusions on skill development in a small European state at the political, economic and cultural crossroads of two larger ones, namely France and Germany.

VOCATIONAL TRAINING IN LUXEMBOURG

Like many other countries, Luxembourg has a binary or twin-track system at the secondary level, which consists of two areas that are insti-

tutionally separate in many respects: the university-oriented general secondary schools (*secondaire générale*) and the more practically VET-oriented schools (*secondaire technique*). In the school year 2016/2017, 11,950 students were enrolled in a more prestigious *secondaire générale* (30.5%) and 27,221 were enrolled in a *secondaire technique* (69.5%) (MEN, 2018, p. 14). Eighty percent of the students at the more prestigious classical secondary school have Luxembourgish nationality and only 20% have a foreign nationality, while in the less prestigious technical secondary schools, foreign students make up almost 46% of an age cohort, with Portuguese representing the main foreign nationality in the VET system (MEN, 2018, p. 18). Accordingly, the social, cultural and political relevance of VET is secondary, somewhere between the relevance in France (low) and in Germany (high). In particular, Luxembourg's VET system is composed of four different types of regimes: the lower level technical secondary education (46.9%), the technical regime (25.9%), the technician's regime (12.9%), and the vocational regime (14.4%) (see MEN, 2018, p. 33 for details). A high proportion of students who graduate from a vocational or technical program successfully transition into employment – in 2007/2008 the proportion was 85% three years after program completion (CEDEFOP, 2015, p. 56). More generally, upper-secondary level certificates significantly reduce the risk of unemployment, which is related to Luxembourg's strong labor market and the public sector acting as a major employer. That is, a VET certificate combined with relevant language skills provides a good starting position for entering Luxembourg's labor market (Hartung et al., 2018, p. 109).

The political and administrative governance of VET

The drafting of bills for vocational training is the task of the *Ministère de l'Éducation nationale, de l'Enfance et de la Jeunesse*, which has general responsibility for financing the school-based portion of vocational training. In Luxembourg's education system, in addition to the tasks for which the national education ministry is responsible, there are some issues regulated at the local level (Pull, 2004). However, this does not mean that Luxembourg is a case of educational federalism. The state covers the employer's share of social costs for apprentices and additionally reimburses a portion of salary costs for apprentices educated in the dual system (between 27% and 40%) (Biré and Cardoso, 2012, p. 38), which is the point where the cooperative

approach to governing Luxembourg's vocational training system by the government, social partners and economic interest groups becomes particularly evident (Koenig, 2007, p. 476). The latter group is organized in the different *Chambres*, the employers' chambers (Chamber of Commerce, Chamber of Crafts and Chamber of Agriculture) as well as the Chamber of Workers; these chambers contribute their part to designing the various training programs (Milmeister and Willems, 2008, pp. 184-185). The VET reform of 2008 further strengthened the influence of the chambers (Biré and Cardoso, 2012, p. 11). The chambers are hence involved in the relevant VET governance processes; they are regularly consulted on matters of vocational training and they are, for example, represented in the *Conseil économique et social du Grand-Duché* of Luxembourg and the *Comité de coordination tripartite*, which brings together the government and the social partners (Cedefop, 2014).

The VET reform of 2008

In Luxembourg, the political sphere promotes high standards regarding the quality of vocational training for the graduates of the less prestigious technical track of secondary education, with its disproportionate share of immigrants: "Vocational training is not the last choice if nothing else works out. For this it is simply too demanding" (Claude Meisch, Minister of Education, Children and Youth in D'Lëtzebuurger Land, 2014; authors' translation). This statement reflects the orientation towards the value of practice-oriented education in Germany and other countries with dual training systems (Mayer and Solga, 2008). However, there are differing opinions among the Luxembourgish actors, which include, for instance, social partners, state agencies and civil society, regarding the worth and perceived value of the different training programs in the *secondaire technique* (Graf and Tröhler, 2015). In general, the requirements for most courses at upper secondary level are high to very high, which should prevent a "*Nivellement vers le bas*" (race to the bottom), but which in many cases leads to a higher dropout rate and prolonged training periods. The VET reform from 2008 aimed to counteract this problem without lowering the high standards for VET. Interestingly, the drivers of these reforms are rather similar to those in other countries with dual VET systems (Graf, 2013). However, one key difference is that Luxembourg relies heavily on the expertise of VET experts from Germany but also Switzerland in developing these VET reforms (Euler and Frank, 2011), that in Luxembourg do not enjoy

the same social, cultural and political relevance, or only for a particular stratum of young people. The three key elements of the 2008 reform of vocational training were (a) a competence-oriented and work process-oriented approach (rather than one based on subjects and disciplines), (b) a modular design based on building blocks and partial qualifications and (c) the systematic connection of company and school-based learning phases – and generally the increased integration of the required operational knowledge into the training regulations (MEN, 2011). The reform was originally planned to implement the changes successively in the period from 2010 to 2015 (MEN, 2014). But in practice, some problems have emerged that need to be corrected by adjusting the reform concept; these also relate to the efficient organization of the modularized structure to avoid a fragmentation of the system (Tröhler, 2014, p. 6; SEW, 2014, see also discussion below). The proportions of students who drop out of training (about 30%) or do not complete it in the standard time (also about 30%) have remained almost unchanged despite the reform (MEN, 2014, pp. 118-120), which is the reason for the need for a reform of the reform. The ministry has taken up this challenge. Hence, for example, the evaluation criteria were lowered to some extent to make it easier to pass the modules. Even before the reform, students had the option to make up for modules in a fourth training year (Meisch in D'Lëtzebuurger Land, 2014). The theme of VET reform will be taken up again in the final section.

INTERNATIONAL ELEMENTS AND INFLUENCES IN VET: CHALLENGES AND OPPORTUNITIES

The emergence of the Luxembourg vocational training system at the interface between the German and French models

The emergence of Luxembourg's vocational training system goes back to two different developments: in the craft field, the vocational training system originated from the guilds, while it emerged in the industrial technical field in the context of industrialization since the early 20th century (Huck, 1995, p. 28). The first Apprentices Act was proposed in 1927 by the Chamber of Crafts and was adopted by the parliament in

1929. The system was reformed directly after the Second World War, and attending a vocational school was made a compulsory part of the process. Another important step was the Act on Technical Secondary Education from 1979, which for the first time unified the various existing forms of training within one system. This history, the presence of the dual training principle and the important role the various chambers play in the political and administrative governance of the apprenticeship system suggest similarities to developments in German-speaking countries (Busemeyer and Trampusch, 2012), as the European Centre for the Development of Vocational Training (Cedefop) has also highlighted (Cedefop, 2014, p. 4).

However, there are some elements of Luxembourg's VET system that are clearly more similar to the French system, particularly given that, in both models, VET programs are to a significant extent organized by the state. In both countries – France and Luxembourg – central government exerts a significant influence on educational policy (which is reinforced in Luxembourg by the relative smallness of the country). An expression of this is the fact that since 1994, all newly established secondary schools in Luxembourg are required to offer both the classical upper-secondary education as well as the range of vocational training programs of the *secondaire technique*, to mitigate negative effects of social selectivity where possible by spatially merging the different school types (Koenig, 2007, p. 480). The related idea of the "Lycée for all" and the relatively high proportion of students who receive school-leaving certificates that allow them to attend university point to parallels with the French educational system. The *Brevet de technicien supérieur* (Higher Technician Certificate) represents another similarity to the French model (Interview LU 3). This model of vocationally oriented short courses at tertiary level originated in France (Powell et al., 2012). The proximity to the French system is also seen in the strong internship orientation of the full-time vocational training programs (see also the Discussion and Outlook section).

The problem of critical mass: cross-border education as a solution

The high degree of differentiation of the VET system – in Luxembourg there are training programs for around 120 occupations – is often talked about as a good way of dealing with the very diverse student body (Koenig, 2007; D'Lëtzebuurger Land, 2014). Simultaneously, this strong differentiation can be considered prob-

lematic, not least because of the small number of students and the associated difficulties in obtaining adequate class sizes for specialized training programs – a challenge that Luxembourg shares with other small nations. In addition, there have also been discussions on whether the high number of specific job designations should be bundled together into broader occupational profiles in light of the increasing flexibility of the labor market and the resulting frequent job changes (D’Lëtzebuurger Land 2014).

The size of the country also necessitates close cooperation with neighboring countries and regions, since due to the small number of students, not all highly specialized occupations can be taught in Luxembourg (Koenig, 2007; Biré and Cardoso, 2012, p. 9). In line with this, there are a variety of cross-border dual apprenticeships, in which the theory-based part of the program is carried out in neighboring countries and the company-based part in Luxembourg (interviews LU2, LU3). Accordingly, there is close exchange between the responsible authorities in Luxembourg (in particular employers’ chambers and the Ministry of Education) and the relevant institutions in neighboring countries (Huck, 1995, p. 50). In this context, cross-border cooperation can be considered an example of the more general inclination and capacity of small states to rely on regional networks in their effort to find solutions to policy challenges (Jules, 2012, p. 8). Cross-border skill formation, coupled with the different language skills of the workforce, have been beneficial for the diversification and adaptability of Luxembourg’s employment system and internationally oriented global economy. It represents one of the key factors in the country’s competitiveness strategy, by allowing employers to gain access to, and then capture and maximize the very different national skill sets available (Graf and Gardin, 2018).

Pupils from immigrant backgrounds and the German-speaking vocational education system

Looking at the relatively early separation between technical and classical academic education at the age of 12, the Luxembourgish education system can be described as highly selective (Koenig, 2007, p. 474). This early selectivity is particularly problematic in the context of Luxembourg’s diverse social structure, since it offers children from an immigrant background fewer opportunities to adapt to the very specific and multilingual education system. Hence, the proportion of learners without Luxembourgish citi-

zenship is much higher in the *secondaire technique* (44.2%) than in the *secondaire générale* (20%) (MEN, 2014, p. 30). A specific example of this is the proportion of students with Portuguese citizenship: it is about 28% in the *secondaire technique*, but only 7% in the *secondaire générale*. By contrast, young Luxembourgers with Luxembourgish citizenship make up 80% of students in the *secondaire générale* and 55.8% of students in the *secondaire technique* (MEN, 2014, p. 16). An additional barrier is that most programs in Luxembourg’s VET system are taught in German, but the majority of less socio-economically advantaged migrants come from families speaking Romance languages. This reduces their chances of successfully completing a vocational training program compared to native Luxembourgish students (interview LU3). For this reason, students from families where parents speak Romance languages sometimes complete training in France or Wallonia (i.e. the French-speaking part of Belgium) (Milmeister and Willems, 2008, p. 181) – although the vocational training in these countries focuses more on full-time schooling.

DISCUSSION AND OUTLOOK

When considering the specifics of vocational education in Luxembourg, one is almost inevitably struck by the multiple links between the national system and the international context. An example of this is the ongoing ideological influence of the dominant training systems of the neighboring countries – in particular the state-centered model in France and the social partnership model in Germany (Greiner, 2005). We have shown that a certain institutional bricolage (“mix and match”) of different elements and educational ideals can be found in Luxembourg’s vocational training system (interviews LU2, LU3), contributing to the strong differentiation in diverse educational paths at secondary level. Moreover, strong international connections (and dependencies) also emerge as a result of the relatively small number of individuals in the highly-differentiated education system, which means that in Luxembourg some training programs can only be offered in cooperation with actors and institutions from neighboring countries. At the same time, the very international and heterogeneous student body in Luxembourg’s multilingual education system is an enormous challenge, especially in the field of vocational training, absorbing a large percentage of foremost socially underprivileged, often immigrant youth. Hence, for Luxembourg’s vocational training system, a worthy aspiration may be to ensure

that the apprenticeship system neither becomes a dead end for academically talented but socially and/or linguistically disadvantaged students with an immigrant background, nor an educational option that is unattractive for practically gifted and talented Luxembourgers for reasons of prestige. This, in turn, would require a policy-booster change in the cultural self-perception of a more and a less prestigious secondary school track, closer and more efficient collaboration between the partners in VET, preferential treatment of companies offering vocational training in government contracts, and the end of the circumstance that the state and the municipalities offer no vocational apprenticeships at all. Additionally, to develop appropriate solutions in light of these cultural policy-related and inequality-related issues, more international comparative research seems essential.

An additional area meriting more in-depth analyses involves assessing the impact of the vocational educational reform of 2008. At present, it is unclear what the reasons are for a number of potentially problematic developments in the system. It should be discussed, for example, whether the move towards modularization has led to an unintended fragmentation of the already small-scale vocational training system, which would go against the occupational principle and the coherence of the occupations in question. In this context, the question also emerges of how the number of occupations and training modules could be adjusted to the context of a small country with a limited number of potential participants. This is also the reason why borrowing policy from larger nations can sometimes turn out to be detrimental, given that smaller nations may lack the critical mass of people to support a highly fragmented system. It should also be discussed whether existing integration projects – in which the connections between the modules are to be established – must be further developed (SEW, 2014). Another relevant factor may be the “evaluation compulsion” or “evaluation inflation” promoted by international organizations such as the OECD (Euler et al., 2011, p. 58). In this context, the sharp focus on controlling outputs is a point to be criticized, as under certain circumstances, it can lead to an underestimation of the importance of instruments of input control, such as curriculum development or teacher training (Tröhler 2014, p. 11). Problem-oriented basic research would be able to investigate such factors in detail and could formulate concrete recommendations for action.

However, the key here is that such research should bear in mind the specifics of Luxembourg’s small size and its location between the

larger European nations of France and Germany – which has resulted in a bricolage of elements of the educational models from both countries. While it is beyond the scope of this paper to explore the mechanisms of educational policy diffusion in detail (on these, see Dobbin, Simmons and Garrett, 2007; Rohstock and Lenz, 2012; Gardin, 2015), more generally, such borrowing is considered to be legitimate due to the geographic, socioeconomic and historical proximity of Luxembourg to France and Germany as two of the most influential educational models in continental western Europe (Greinert, 2005). This, in conjunction with Luxembourg’s small size, means that the country is unlikely to develop an “autonomous” national educational model – but is more likely to keep drawing extensively on external reference frames, resulting in a range of hybrid characteristics within its skill formation system. As such, research into small states seems to be naturally drawn to conceptualizations that go beyond the study of education within the still common “methodological nationalism” (Robertson and Dale, 2008, p. 21). This then draws attention to the complex institutional configuration of education in small states and calls for a critical examination of the patterns of interaction between such different institutional components.

At a conceptual level, the case of Luxembourg, located at the nexus of the French and the German models, points to the tendency of small states to orient themselves towards the educational systems of dominant nations within their vicinity (if available). At the same time, it is important to note that the institutional elements that are mixed may not always be complementary – especially in the case of small states that offer fewer regional niches for policy innovation (Graf and Gardin, 2018). On a more positive note, small states are in a position to compensate for their small size through direct cooperation with neighboring countries – in this way enlarging the scope and capacities of their educational system far beyond their national borders. This, in turn, can be seen as a case of “educational geostrategic leveraging” (Jules and Ressler, 2016, p. 32) or, in this context, small states’ “strategic capacity to act rather big in certain areas” (ibid.). In the Luxembourgish case, a key instance of this is cross-border educational provision. This cross-border provision may also cater specific migrant groups within the country, who sometimes find it easier to advance their educational careers in those neighboring regions in which they face fewer cultural and language barriers. More generally, in Luxembourg it is the norm rather than the exception that the employee has not been educated within the country – to which

cross-border skill formation (Graf and Gardin, 2018) as well as a vast number of daily cross-border commuters (around 177,000 on a work day in 2016 (Le Gouvernement, 2019)) are key contributing factors. Whereas in many other countries such a high degree of transnationality would be considered highly problematic, for instance, regarding the risk of rising populism, the case of Luxembourg rather suggests that the country continues to strategically apply significant elements of transnationalization to its skills regime (Graf and Gardin, 2018). For instance, today, the different language skills of the workforce coupled with fundamentally different educational backgrounds have been hugely beneficial for the diversification, functioning and adaptability of Luxembourg's highly stratified skills regime and labor market (Graf and Gardin,

2018). At the same time, to reduce inequalities and ensure long-term social cohesion, educational policy needs to address the long-term negative implications of a segregation of immigrants with language disadvantages into more vocationally-oriented programs.

In sum, the specific relationship of a small state to the greater region in which it is embedded is both a potential problem – for instance, when incompatible institutional elements get mixed within a narrow policy space or language skills become a segregating factor – and an opportunity – when this situation can be exploited to draw on the comparative strength of the nearby educational models and, thus, helps to create institutional innovation.

NOTES

ⁱ We thank Matias Gardin and Justin Powell for very valuable input on this paper. All remaining shortcomings are the authors' responsibility.

ⁱⁱ A possible reason for this is that due to the country's exceptionally strong economic performance, some of the structural problems in Luxembourg's VET system

received very little attention until recent years (see Milmeister and Willems, 2008).

ⁱⁱⁱ All interviews took place in Luxembourg. Interview LU1: 9 May 2014; interview LU2: 2 June 2014; interview LU3: 11 June 2014.

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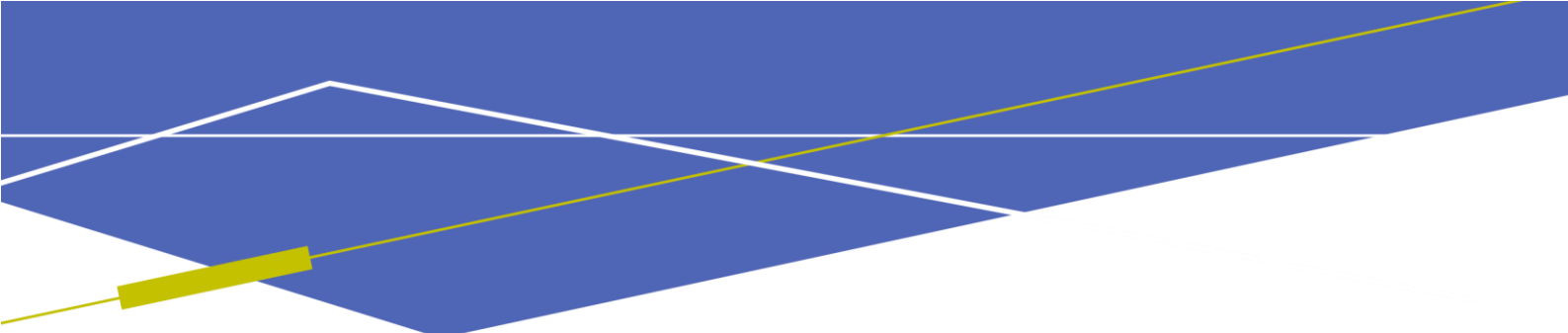
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CROSS-BORDER TRADE UNION COOPERATION WITHIN THE GREATER REGION: joint workforce or separated by structures?

JULIA FRISCH

Interregional trade union councils (IRTUC) are a relatively unknown form of transnational trade union cooperation. Based on the oldest representative of these bodies, the IRTUC SaarLorLux-Trier/West Palatinate, the structural framework conditions of such cooperation are identified. The highly divergent systems of industrial relations in the member regions represent a particular challenge for transnational cooperation of trade unions.

Trade unions, organizations, transnational cooperation, structural challenges, cross-border commuters

Coopération syndicale transfrontalière au sein de la Grande Région : Effectifs conjoints ou séparés par les structures ?

Les conseils syndicaux interrégionaux (IRTUC) sont une forme relativement inconnue de la coopération syndicale transnationale. Sur la base du plus ancien représentant de ces organismes, l'IRTUC SaarLorLux-Trêves/Palatinat de l'ouest, les conditions cadres structurelles de cette coopération sont identifiées. Les systèmes de relations industrielles très divergents dans les régions membres représentent un défi particulier pour la coopération transnationale des syndicats.

Syndicats, organisations, coopération transnationale, défis structurels, travailleurs frontaliers

Grenzüberschreitende Zusammenarbeit von Gewerkschaften in der Großregion: In der Arbeit vereint oder durch Strukturen getrennt?

Interregionale Gewerkschaftsräte (IRTUC) sind eine relativ unbekannt Form der transnationalen gewerkschaftlichen Zusammenarbeit. Ausgehend vom ältesten Vertreter dieser Gremien, dem IRTUC Saar-LorLux-Trier/Westpfalz, werden die strukturellen Rahmenbedingungen einer solchen Zusammenarbeit herausgearbeitet. Die sehr unterschiedlichen Systeme der Arbeitsbeziehungen in den Mitgliedsregionen stellen dabei eine besondere Herausforderung für die transnationale Zusammenarbeit der Gewerkschaften dar.

Gewerkschaften, Organisationen, transnationale Zusammenarbeit, strukturelle Herausforderungen, Grenzgänger*innen

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Introduction

Transnational cooperation between trade unions in the form of organizations such as the Interregional Trade Union Councils (IRTUC) is a branch of industrial relations that has so far received little attention. IRTUCs have been established in European border regions since 1976 by national trade unions and their regional branches with the support of the European Trade Union Confederation, as required, to coordinate and intensify their cross-border cooperation. Some are integrated into overarching regional network structures, others exist for formal reasons, for example to form the basis for administrative or cooperation structures based on them. What they all have in common, however, is that they have trade union representatives from different countries as members. This often means that different languages and different notions of trade union work meet within the bodies, as the framework conditions for trade unions vary widely across Europe. In addition to these so-called hard factors, there are the cultural differences between the actors, which show themselves in behavior, in expectations, in written communication, in the culture of discussion or also in self- and external images. This paper aims to illustrate the differences in the structural conditions that form the framework for transnational cooperation in the SaarLorLux region¹. As the cooperation between the IRTUC SaarLorLux-Trier/West Palatinate and the IRTUC Trois Frontières with the participation of Belgium, France and Luxembourg has only recently been established, the Belgian part of the Greater Region and this second IRTUC may not be the subject of this paper due to a still existing lack of research.

For various reasons, the SaarLorLux region offers an interesting starting point for considering transnational cooperation between trade unions.

Firstly, there is the oldest IRTUC of all, so that it can be assumed that cooperation has been established there and that certain working cultures like practices of meetings, common topics and communication cultures have been developed and that cooperation has been functional to date.

Secondly, the SaarLorLux border area is located in the core region of the Greater Region, consisting of Saarland, Lorraine, Luxembourg, Rhineland-Palatinate, Wallonia and the German-speaking community of Belgium, and thus in that EU region which has the highest daily cross-border commuting figures: in 2018, an average of 220,000 people commuted across one of the intraregional national borders to get from their homes to their places of work and back (Haus der Grossregion, 2018) – a considerable number, which has also risen by 40,000 over the past ten years (Wille and Ohnesorg, 2005, p. 12). Due to the high number of cross-border commuters and the associated very practical questions arising from a cross-border employment relationship, there are many topics for trade unions on which it is important to reach interregional agreement. In addition to advice on job choice, the labor market in neighboring countries and labor law, this certainly includes issues such as pension and social security schemes, commuter allowances or the creation or implementation of cross-border standards in pay or workers' rights. Accordingly, it can be assumed that there is an interest on the part of the trade unions to work together across national borders, so that there is material such as documents that can be analyzed accordingly, and there are opportunities to attend committee meetings and conduct interviews with stakeholders.

Thirdly, trade union cooperation in the IRTUC here includes not only representatives from three different countries, but also from a total of eight different national trade union federations (as of 2019). This provides a good opportunity to take a closer look at the interaction between representatives of different trade unions in the context of different industrial relations systems. And fourthly, a study has shown that the members of this IRTUC are on the one hand proud of being part of the oldest IRTUC in Europe, existing as a cooperation between regions that, only two generations ago, had been enemies at war. On the other hand, they are not satisfied overall with the outcome of their committee's work: besides regular meetings and a well-established system of rotating leadership and responsibilities, most of the work is focused on having exchanges or staying informed on recent developments of the labor market without bringing up real joint activities. Rallies,

demonstrations or information events happen rarely, and as there is no joint bargaining, nor common goals to work towards, the role of the IRTUC seems to be a committee of getting together and meeting unionists from other parts of the border region without any clearer purpose than exchanging experiences and ideas (Frisch, 2017).

The following chapter will examine the diverging systems of industrial relations in the three countries and thus the basis of transnational cooperation in this border region, to see if the organizational structures may explain the lack of a deeper, joint trade union work within the IRTUC.

Industrial relations in Germany, France and Luxembourg

Germany

In Germany, the history of trade unions began anew after the Second World War: once in the Federal Republic with the founding of the German Trade Union Confederation (*Deutscher Gewerkschaftsbund*, DGB) in 1949, and in parallel with the Free German Trade Union Confederation (FDGB) from 1945, which later functioned as a unified trade union with compulsory membership, in the German Democratic Republic (Müller-Jentsch, 2011, p. 50).

Today, with a population of just under 82 million, Germany has an level of union membershipⁱⁱ of around 18%, with coverage varying greatly between sectors (European Trade Union Institute, 2013a). Of the approx. 7.4 million trade union members, the majority, namely approx. 6.1 million, belong to one of the eight DGB member unions, of which IG Metall and the united services union ver.di are the largest, with around 2 million members each (European Trade Union Institute, 2013a; Schroeder and Wessels, 2003). As an umbrella organization, the DGB comprises trade unions from various industries and sectors, and even between the trade unions, the professional demarcation is not always clear. For example, ver.di has a department for “Education, Research and Science” and thus effectively recruits the same target group as the DGB trade union *GEW - Gewerkschaft Erziehung und Wissenschaft* [trade union for education and science]. Müller-Jentsch states that the time of industrial associations within the DGB has passed since a structural reorganization with several trade union mergers in the 1990s. During

this period, the number of DGB unions decreased from 16 to 8, while the diversity of professions represented within the newly merged unions increased (Müller-Jentsch 2011, p. 162). As a reaction, smaller sectoral trade unions formed or reorganized in the public sector, whose members did not feel sufficiently represented by ver.di, IG Metall and other large trade unions, for example due to a very special occupational field with correspondingly challenging regulatory needs. Among other things, they feared a neglect of special professional requirements in wage development at the expense of their members (ibid., p. 164f). The examples are the *Pilotenvereinigung Cockpit* [for pilots], the *Gewerkschaft der Lokomotivführer* [for train drivers] or the *Unabhängige Flugbegleiter Organisation UFO e.V.* (UFO Independent Flight Attendant Organization) (Schroeder, 2003; Schroeder et al., 2011). In recent years, these sectoral and, in some cases, professional trade unions have attracted more attention through intensive collective bargaining with media-effective strikes and long negotiation phases, thus broadening the trade union spectrum in Germany. Media and political attention also grew to the extent that the 2015 Act on Collective Bargaining Units sought political ways to limit their influence. A constitutional complaint is currently being lodged against this law, which is intended to restrict the plurality of collective bargaining agreements in companies, with reference to the freedom of association laid down in the Basic Law to safeguard economic and labor law interests (Basic Law of the Federal Republic of Germany, Art. 9, Para. 3). The dispute over the collective bargaining unit in companies clearly shows that the small autonomous trade unions are very powerful and, despite their small size and concentration on a few occupations, are serious players in the German trade union landscape.

The DGB is not the only umbrella organization in the German trade union landscape: there is also the *Deutscher Beamtenbund* (dbb beamtenbund and tarifunion [German civil service federation]), founded in 1950, 72% of whose members are civil servants and are otherwise mainly recruited from public service employees and former state-owned enterprises (Schroeder and Wessels, 2003), and the *Christliche Gewerkschaftsbund Deutschlands* [Christian trade union association of Germany] CGB. The latter comprises 14 trade unions with a total of around 280,000 members, while the dbb is the second largest German association with around 1.2 million members in 43 trade unions (Filsinger, 2015, p. 34).

In terms of political orientation, the DGB and its trade unions are historically closer to the SPD

than to other parties, even though this is not an inviolable credo and there are also officials who are members of another party. In general, it is possible and not uncommon in Germany for trade union officials to become involved in political parties. This attitude also results from the fact that, despite occasional major disagreements between trade unions and politicians, such as on the labor market reforms of the 2000s, there is generally no ideological competition and proximity to politics is seen as more conducive to asserting one's own interests. Müller-Jentsch speaks of a "conflict partnership" that is cultivated both between politics and trade unions and between trade unions and employers (Müller-Jentsch, 1997, 1991). Criteria for this are a high willingness to talk and the simultaneous use of strike and protest opportunities in the event of failed negotiations (Dribbusch and Birke, 2012, p. 12).

The employers' side in Germany is organized in associations which are structurally very similar to the trade unions. They were created in response to the activities of trade unions so that employers no longer had to face the now unionized workers individually (Schroeder, 2010, p. 26). The national umbrella organization, the *Bundesvereinigung der deutschen Arbeitgeberverbände* (BDA) [confederation of German employers' associations], comprises regional and supra-regional associations as well as industry associations and umbrella associations, and is thus similarly unique in its scope to the DGB. Seventy percent of all employees work for companies belonging to the confederation. Accordingly, it is involved in many German collective bargaining agreements.

Tariff coverage in Germany is somewhat weaker than in other European countries. Currently, approximately 59% of all employees have employment relationships regulated by collective agreements. It should be noted, however, that, 25 years after reunification, the collective bargaining agreements for East and West Germany still differ, in some cases very significantly, particularly with regard to the level of wages, as the European Trade Union Institute (European Trade Union Institute, 2013a) notes.

Industrial relations in Germany are governed by the principle of collective bargaining autonomy, which excludes the state from all collective bargaining. Trade unions negotiate collective agreements with employers, both company and regional. Examples of this distinction are the 2015 collective bargaining conflict between the Cockpit pilots' union and Lufthansa over a new company collective agreement, and the conflict between ver.di and the local authorities, which also took place in 2015, over a new regional

collective agreement for educators. Both disputes received a great deal of media attention, above all due to the persistent strikes of the affected workers, since long strikes in Germany are rather the exception, not least due to the rather restrictive right to strike. In fact, the Austrian Federal Economic Chamber reports between zero and nine strike days per 1,000 employees, per year for Germany for the years 1998 to 2008, which is only undercut by Austria, Luxembourg and to some extent by the Baltic states (Austrian Federal Economic Chamber, 2009)ⁱⁱⁱ. For the period between 2005 and 2012, the Hans Böckler Foundation's Institute of Economics and Social Sciences has slightly increased the number of strikes, with an average of 16 strike days per 1,000 employees per year, which puts Germany in the bottom third of the European rankings (WSI, 2015, p. 1). Striking is regarded as the last resort in collective bargaining and is therefore only used – and is only legally permitted – if previous negotiations have failed and no valid collective agreement exists (Müller-Jentsch, 2011, p. 112f.). Only then can the unions involved in collective bargaining call a strike (the employers' side can resort to lockouts in response). Since strikes are tolerated and can only be used in certain strictly regulated cases, trade unions are heavily dependent on their bargaining power and their position in regard to employers.

In addition to the collective bargaining policy of the trade unions, elected works councils in Germany are responsible for negotiating concrete working conditions with the respective company managements, and have a monitoring function as to whether collective bargaining agreements are observed (Hirsch-Kreinsen, 2009, p. 133). In German industrial relations, research therefore speaks of a "dual system" of collective bargaining autonomy and co-determination (Müller-Jentsch, 1997).

Works councils are elected by the employees of a company on the basis of the Works Constitution Act and do not necessarily consist only of trade union members. Employees at management level are both passively and actively excluded from the elections. The powers of works councils extend to co-determination rights with regard to labor law issues such as transfers, overtime, workplace design or remuneration regulations. In addition, there are rights of objection and veto with regard to recruitment, collective bargaining classifications and dismissals as well as information rights, including in economic matters such as production changes or even the closure of a company or parts of a company (Müller-Jentsch, 1997; Artus, 2008; Kotthoff, 1994). However,

there are two clear limits to the influence that works councils can exert: they may neither actively intervene in the economic decisions of the management level nor actively participate in collective bargaining disputes. Instead, they are regarded as intermediary bodies that are subject to a duty of peace and are intended to safeguard the interests of employees while taking the economic wellbeing of the company into account (Hirsch-Kreinsen, 2009; Kotthoff, 2004). Works councils are therefore necessarily dialogue-oriented and thus reflect the discussion-oriented culture at company level, which is also cultivated or is to be cultivated at inter-company level between trade unions, employers and politicians. The fact that this dialogue orientation is not always sufficient to represent the interests of employees in times of economic crises or in view of the increasing internationalization of companies and the associated outsourcing of employment relationships or even entire company locations abroad is also taken into account by research (Trinczek, 2010). It should be noted that this dual system of company and inter-company representation of interests is closely coordinated and that in Germany both levels are needed to represent and enforce workers' rights:

"Although industrial relations in Germany are characterized by a complex network of legal and collective bargaining norms which are also negotiated in arenas other than the workplace and which are, as it were, prescribed for the regulation of labor in the workplace, all these norms can be modified and sometimes even completely negated in the everyday practice of industrial relations in the workplace." (Trinczek, 2010, p. 841).

Only the interaction of all levels enables the necessary assertiveness of employee representation and is characteristic of the German system of industrial relations.

When it comes to cross-border cooperation, the DGB accepts a regional approach and lets its regional bureaus decide mostly for themselves whether and how they engage in transnational projects or committees. For Saarland and West Palatinate, this means that the national level of the DGB wants to be informed of the activities of the IRTUC and fosters them, while the regional bureaus may decide independently whether they want, for example, to spend part of their budget on a cross-border rally or a transnational workshop day for regional members of European work councils, as long as national trade union policies are not harmed by such activities (Frisch, 2017).

France

Although France, with its 64 million inhabitants, is popularly known as a "strike-happy nation" with strong and militant trade unions, it has the lowest degree of trade union membership in Europe, of only 8% (European Trade Union Institute, 2013b). Moreover, this figure is controversial, as not all trade unions and federations maintain a reliable membership register. Furthermore, the degree of unionization between the public service and the private sector differs widely, so that most statistics often give an unspecified mean or benchmark. For example, some authors assume that the 8% is more likely to apply to the public sector alone, which accounts for around 60% of all trade union members (Lüsebrink, 2011, p. 67), and that the more realistic degree of trade union membership in the other sectors is around 4%. Due to the low membership figures, which have also fallen in recent decades, as in almost all European countries, trade unions have few financial resources and relatively few staff. Nevertheless, France recorded an average of 139 strike days per 1,000 employees between 2005 and 2012, the highest average in Europe^{iv}. An apparent contradiction, about which Lüsebrink writes:

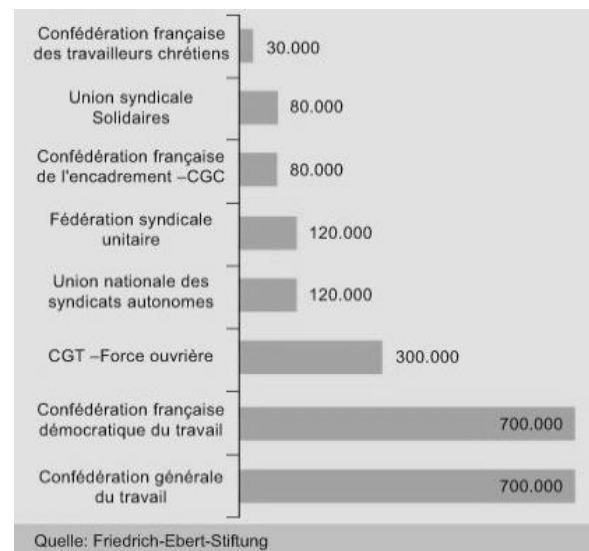
"The social influence of the French trade unions is therefore based neither on a broad membership base nor on well-filled strike coffers or extensive institutional apparatuses, but rather on targeted strategies for mobilizing both their own members and the wider population, which generally pursue protest and strike actions with far greater support than in Germany." (Lüsebrink, 2011, p. 67).

As a result of this broad support, forms of strikes and demonstrations often mix as soon as it is no longer just a question of collective bargaining but, for example, of legislative changes in the areas of pensions, labor market policy or social insurance. The protests against the 2010 pension reform, for example, have acquired an almost legendary status in the younger collective consciousness. Due to the high number of participants, of up to 3 million people throughout the country, several times these protests even made it into the reporting of leading German media such as the *Tagesschau* news program, as did the resistance against a new labor law for young employees in 2006, and again in 2016, who would be affected by a change in protection against dismissal^v. In both cases, the major trade union federations called for and organized the demonstrations, both centrally in Paris and in other major cities in the country, and linked them to other forms of protest such as the call to block motorways. This behavior seems extreme from a German perspective, but is completely

within the framework of socially tolerated forms of expression, as Filsinger and Lüsebrink write (Filsinger, 2015; Lüsebrink, 2011). However, it must be noted that social protests, as well as unofficial strikes or solidarity strikes, and resistance to economic, social or cultural policy issues, regularly develop even without the trade unions as initiators.

Industrial relations in France are dominated on the employee side by several large associations, some of which differ greatly in their political and ideological orientation. Since there are hardly any sectoral boundaries between the associations, and since both their influence and their financial situation depend to a large extent on good results, for example in company elections, they are in strong competition with each other, and are in a kind of permanent election campaign. Accordingly, there is hardly any cooperation between them, and between very differently oriented associations there is sometimes not even regular communication, which must definitely influence joint work such as in the IRTUC SaarLorLux. The reasons for these conflicting relations lie in the historical development of the current trade union landscape: the oldest trade union confederation still in existence today is the *Confédération générale du travail*, or CGT for short. Founded in 1895 in close association with the Socialist International and the labor movement, it set the political direction the organization followed in setting its goals, namely the expropriation of factory owners and their takeover by workers (Andolfatto, 2004, p. 16). The Socialist Party was then much more Marxist in orientation than it is today, and in 1920 the *Parti Communiste Français* split from it – the orientation of today's CGT is not comparable and the signal effect of the political connection of the workers' movement to the Socialist Party must therefore be evaluated in the historical context. This radical orientation at the time initially attracted a large number of people, especially since the founding organizations of the CGT included around 100 previously independent small trade unions, which now wanted to act together under one roof for the first time and were thus able to bring the majority of their original members and sympathizers into the new structure. However, this founding history, to which the existing *Bourses du Travail* and many professional associations contributed in terms of personnel and structure, is also one of the causes of the current fragmentation of the trade union landscape (Andolfatto, 2004; Mouriaux, 1994): from the outset it was very difficult to harmonize and bundle the differing currents within the CGT that existed, due to the sheer mass of groups

represented. As early as 1922, the foundation of CGT-U^{vi} was the first major spin-off due to a dispute over the direction of the company. This was the beginning of a change-rich development of spin-offs, reunions, new formations and dissolutions, the temporary end of which was the current trade union landscape in France. At the same time, the split marked a break in the self-conception of the CGT, and thus of the workers' movement, whose only legitimate organ it regarded itself as: in 1906, it had stipulated in its famous Charter of Amiens that the workers' movement should act united against the patronage and not be distracted by political or religious ideologies (*Confédération Générale du Travail (CGT) 1906*). Today there are numerous directional associations, of which the following eight are among the most influential:



French trade unions by number of members. Fig. 1
Source : Friedrich-Ebert-Stiftung, IWKöln, 2013

While the CGT is still closer to the Communist Party in terms of content, with slight leanings towards the *Parti socialiste*, the *Confédération française démocratique du travail* (CFDT, founded in 1964), which is similar in size but has fewer members than CGT, is oriented to the political center and ready to cooperate with politics on some issues. This union does not generally speak out in favor of any party, even before elections. The *Force ouvrière* (FO or CGT-FO) held the same position for a long time, until it took an open stand for the *Parti socialiste* in the recent presidential elections. The rather conservative spectrum includes the *Confédération française des cadres* (CGC-CFE), which is to be regarded as a trade union federation for managers and civil servants, and the *Confédération française des travailleurs chrétiens* (CFTC), which is also the only one with a Christian orientation (Andolfatto, 2004, p. 66).

The latter is openly criticized by the other federations, which is mainly due to France's generally strongly secular attitude, a legacy of the revolution in the tradition of which the trade unions still see themselves today in their struggle for wage earners.

Significantly younger associations are the *Union nationale des syndicats autonomes* (UNSA), the *Fédération syndicale unitaire* (FSU) and the *Union syndicale Solidaires* (Solidaires), which have *de facto* only been able to play a greater role on the French trade union stage since 2008, when a new law on the representativeness of trade unions was adopted^{vii}. While the CGT, FO, CFTC, CFDT and CFE-CGC were previously considered representative unions by law, with the authority to bargain collectively and to stand in elections for various bodies relevant to the company, other associations have also had a chance since the reform, since a central criterion for achieving representativeness is election results:

"The new law stipulates that a union must have at least 10% of the votes in the workplace elections to be recognized as a representative union at that level; for representativeness at industry level this is 8%, and a nationally representative union must have 8% of the votes in the national elections." (European Trade Union Institute, 2013b).

On the one hand, this reform opens up the possibility for associations such as the aforementioned UNSA, FSU and Solidaires to become representative trade unions and thus supports the pluralization of the trade union spectrum; on the other hand, it intensifies competition between the associations. Representativeness is always only valid until the next parliamentary term, and in addition to the influence of power politics, the results also determine the financial contributions made by the state to the trade unions, so that the competition-oriented permanent election campaign becomes a survival strategy. In addition, there is the almost unmanageable four-digit number of trade unions, which only appears to be structured as a result of the merger within the associations described here (Andolfatto and Labbé, 2000). Trade unions are thus more likely to act as associations at local or company level and form functional work units there. At industry or even national level, however, it is only the associations that have the weight of votes and the necessary financial and human resources to represent their interests (Artus, 2008, p. 159).

On the employer side, the organizational landscape is as fragmented as on the trade union side. There are a large number of associations which differ mainly in terms of their target groups and the sectors concerned. The associations with the highest membership

numbers are the following: the *Mouvement des entreprises* (Medef), the *Confédération Générale du Patronat des Petites et Moyennes Entreprises* (CGPME), the *Mouvement des entreprises de taille intermédiaire* (METI), the *Fédération nationale des syndicats d'exploitants agricoles* (FNSEA) and the *Union nationale des professions libérales* (UNAPL). There is also a large number of smaller sectoral, inter- and professional organizations such as the *Union professionnelle Artisanale* (UPA). In principle, employer representation is also characterized by competition, since the boundaries between different sectoral affiliations are not always clear, so to speak mirroring employee representatives. In addition, there is the attempt by individual large associations such as Medef and CGPME to assume supremacy in the media discourse as "the" overarching association, which is not necessarily given in the perception of smaller associations (Funk, 2006, p. 30).

In France, relations between employers, trade unions and the state can be described as conflict-ridden. Moreover, the individual right to strike of all French citizens, enshrined in the constitution, means that industrial disputes are much more frequent than the frequency of collective bargaining would suggest (Artus, 2008). The state generally plays an important role in shaping industrial relations. First, there is a statutory minimum wage, the so-called *Salaire minimum interprofessionnel de croissance* (SMIC), which is currently around €10 per hour. Secondly, the political influence in many larger companies should not be underestimated; for example, the French state holds around 14% of the capital shares in the PSA Peugeot-Citroën group and is entitled to vote on the supervisory board (Hanke, 2012). Not an isolated case, but quite common in a country that started privatizing state-owned enterprises relatively late, and has not always completed them (Lüsebrink, 2011, p. 35f.)^{viii}. Thirdly, the state often intervenes directly in collective bargaining. The reasons may include open conflicts that do not allow an amicable solution between trade unions and employers' representatives, or that a sectoral collective agreement that has been concluded is declared universally valid by the state (Dufresne and Maggi-Germain, 2012, p. 535). This interventionism, especially in the context of the declaration of general applicability, is assessed positively by the employers' associations. They see this as an opportunity to avoid distortions of competition due to unequal labor costs within individual sectors (ibid., p. 537). In addition, it can be concluded that collective disputes avoided by a declaration of general validity are also seen as

a beneficial factor for employees. In contrast to the employers, the trade unions have a right of veto, with which they can block plans by the state to make individual collective agreements generally applicable. Accordingly, they take a very positive view of state interventionism of this kind, as it allows them to have compromises that have been negotiated once written down (ibid.). Fourthly, since 1980 there has been a legal basis requiring employees to bargain with trade unions annually. This is to ensure that every company has the opportunity to adjust working conditions and wages.

Generally speaking, the French state makes a major contribution to the functioning of industrial relations by acting openly as moderator, mediator and actor. Actual autonomy in collective bargaining is therefore not a given (Artus, 2007, p. 215).

The regulations on employee representation are fundamentally different in France from those in Germany. For example, there is no works council in the German sense, with corresponding co-determination and consultation rights. The concept of co-determination or '*cogestion*' must definitely not be regarded as neutral. Due to the historical heritage and the long, and in some cases still dominant, anarcho-syndicalist orientation of the French trade unions, co-determination in companies was not an objective of trade union work for a long time. On the contrary, in many more traditional circles this term is still considered to be disreputable, since its implementation would require close cooperation with employers. As described in the Amiens Charter, trade unions were in favor of taking over the means of production; they wanted (and want) direct management of the company rather than just being involved:

"...it [trade unionism, JF] prepares the way for full emancipation, which can only be achieved through capitalist expropriation; it advocates the general strike as a means of action and considers that the trade union, now a resistance group, will in the future be the production and distribution group, the basis for social reorganization." (Confédération Générale du Travail (CGT), 1906, translated by the author).

At the same time, employers also accepted the class struggle and are still trying to prevent employees from exerting greater influence on company management. The ideological battle lines have a direct influence on the implementation of industrial relations in companies:

In addition to the *délégués du personnel*, the elected personnel representatives, who must be represented in every company that has ten or more employees, there is a *comité d'entreprise* in private companies with 50 or more employees^{ix}.

This works committee is chaired by a member of the company management, which means that it is not purely an employee committee. The other members are candidates elected for four years and representatives of the trade unions, who are released by law for 20 hours a month for committee work. Depending on the size of the company, one to two meetings per month are required, at which changes in working conditions or dismissals must be communicated. In addition, the *comité d'entreprise* can call on external experts to provide expert opinions or give lectures on specific issues, and it has a cultural and social budget from which financial benefits can be financed for employees, for example for purchases in certain shops, for stays in holiday camps or for cultural events. However, there is no specific right to require management to adopt or implement a *comité* decision.

At first glance, therefore, it appears that trade unions within companies are very weak. However, Artus considers this to be a fallacy, as the trade unions have *de facto* statutory representation possibilities: the respective representative unions have the right to propose the *délégués du personnel* and the candidates for the *comité d'entreprise*, and they appoint the *délégués syndicaux*, who act as official contacts for the trade unions for the employees in the companies (Artus, 2008, p. 128). It is therefore impossible for there to be companies (with ten or more employees) without union representation. The trade union representatives also deal with relevant issues such as occupational health and safety in the company, and are the contact persons for any problems or suggestions from employees. They also play an important coordinating role when it comes to mobilizing the workforce for protest actions or strikes. Together with the trade union company sections, the *délégués syndicaux* have had the right to bargain in collective bargaining matters since the corresponding law of 27.12.1968, and are therefore an essential component of employee representation (Artus, 2007, p. 229). Nevertheless, their direct influence on corporate management and goals is very small, so that the pronounced and in some cases violent protest culture is also explained by a lack of alternative design options.

The industrial relations system in France is relatively complex, with its various institutions and bodies, some overlapping and some loosely co-existing. This is consistent with the structure of the trade union landscape itself, which is characterized by local or departmental trade union sections and associations.

When it comes to cross-border cooperation, the segmentation of trade unions does not work in favor of clear transnational strategies or engagement. In addition, like most organizations in France, trade unions depend on political decisions from the headquarters. As they are mainly involved in day-to-day business such as the political representation of interests, industrial action and positioning in national economic issues, their interest in regional issues such as cross-border commuters does not always seem to be great. This leads to a more or less chronic lack of financing for regional trade union offices, and to the fact that these *unions départementales* mostly fulfil representative functions in cross-border committees like IRTUC SaarLorLux. Furthermore, unlike the German DGB, the unions cannot find a way to cooperate in a consensus-oriented way when the political divides are too deep, leading to lack of a joint French voice in transnational trade union cooperation (Frisch, 2017).

Luxembourg

Luxembourg is the smallest of the countries considered here, both in terms of area and population. Of the approx. 550,000 inhabitants (as of 2015), around 150,000 are members of a trade union. In Luxembourg, 41% of all employees are members of a trade union, by far the highest value within the SaarLorLux region (Ries, 2010, p. 1). This figure is also influenced by the fact that the Luxembourg labor market has a very high proportion of foreign workers who are not usually members of a Luxembourg trade union (European Trade Union Institute, 2013c). Due to the high number of commuters and the relatively high number of female workers in Luxembourg, both labor market policy and trade unions face different challenges from those in the other regions surveyed. Although France and Germany are also familiar with the challenges of integrating foreigners into the labor market and the structures of industrial relations, the relations in Luxembourg are clearly different: at just under 46%, of which Portuguese form the largest group, the Grand Duchy has the highest proportion of foreigners of the five countries, which has almost doubled since the beginning of the 1990s (STATEC Luxembourg, 2015). The background is, on the one hand, strong economic growth over recent decades, with a corresponding attractiveness as a country of work and relatively high wages. In addition, the Portuguese community has steadily expanded as a result of moving out of Portugal, a country shaken by economic crises, which is

directly and indirectly supported by existing structures such as Portuguese language consultancy, its own radio stations and specialized employment agencies. In the meantime, the trade union confederations also offer services in Portuguese tailored to the needs of Portuguese workers, including contact persons and their own consultation hours (see, for example, the contact sections of the LCGB and OGB-L websites). As the economy in Luxembourg has long since moved away from the steel and coal industries towards a focus on the service sector, the influx of female employees and shuttle services have also shifted to other sectors. According to the national statistics institute STATEC, in 2014 almost 50,000 people were working in commerce and logistics, 43,500 in finance and insurance, 40,000 in health and social services and 37,000 in scientific, professional and technical services. With a total workforce of 395,000 in Luxembourg, these figures clearly show the importance of these sectors for employment, especially as employment figures have risen significantly in all these sectors since 2000 (STATEC Luxembourg, 2015). This increase is also accompanied by a very low unemployment rate of 5.9% by European standards (ibid., p. 15).

There are two major trade union confederations in Luxembourg that compete with each other: the *Lëtzebuurger Chrëschtliche Gewerkschaftsbond* (LCGB) with around 40,000 members and the *Onofhängege Gewerkschaftsbond Lëtzebuerg* (OGB-L) with currently around 65,000 members (European Trade Union Institute, 2013c). They differ fundamentally in their political and ideological orientation, since the LCGB is Christian in character and tends to hold conservative positions, while the OGB-L presents itself as religiously neutral and rather social democratic. The LCGB is also close to the Christian Social Party in terms of personnel, while the OGB-L is close to the socialist-oriented Workers' Party, but demands and implements a strict separation of offices in its program (Filsinger, 2015, p. 37). Parallel to the two large associations, there are other smaller associations, such as the *Association Luxembourgeoise des Employés de Banque et Assurance* (ALEBA) with around 11,000 members in the banking and insurance sector, which is so important for Luxembourg, as well as several sector-specific individual trade unions (European Trade Union Institute, 2013c). The latter are usually affiliated to a larger association or at least form corresponding networks.

Collective bargaining takes place in Luxembourg against the background of the existence of a statutory minimum wage, which is subject to a mandatory review every two years and, if necessary, adjustment in the context of inflation. In addition, there is an enhanced minimum wage for more highly qualified employees, which is about 20% higher and also applies across all sectors. A similar regulation also exists to increase collectively agreed wages, which are also automatically adjusted to the rate of inflation. Salary adjustments can therefore only be negotiated by the tariff partners outside these automatic wage increases.

Another interesting aspect is that Luxembourg has officially abolished the distinction between workers and other employees, which has also led to a restructuring of the system of chambers and trade union representation. Now there is only general talk of *salariés*, i.e. wage earners or employees, so that there is only one chamber for all employees in the private sector, the *chambre de salariés* (ibid.).

In Luxembourg, a distinction is made between representative and non-representative trade unions according to similar criteria to those currently applied in France: in order to be considered representative at national level and to take part in collective bargaining, a trade union (or federation) must have obtained at least 20% of the votes in the elections for the composition of the Chamber of Labor and be active in the majority of economic sectors. In addition, there is also the system of industry-wide representation, the attainment of which requires the organization to hold 50% of the seats representing this sector within the Chamber of Employees (ibid.). The elections for the Chamber of Labor are therefore of central importance for the trade union federations and are therefore characterized by strong competition, especially between the OGB-L, LCGB and, in some cases, other groups, depending on the sector.

Despite all the differences between the various parties involved in industrial relations, the Luxembourg system is strongly geared to discussion and consensus-building. For example, there is a conciliation body and a conciliation committee to mediate in the event of differences of opinion or blockades between the two sides in an industrial disagreement. Only when regular negotiations and external mediation attempts fail can industrial disputes arise. The model seems to work very well at first glance, as the Austrian Federal Economic Chamber, for example, shows in its European comparison for the years 2000 to 2008 in Luxembourg that there were zero to a maximum

of five strike days per year (Wirtschaftskammer Österreich, 2009). Despite the generally positive economic development and the low unemployment rate, the principle of social dialogue, known as the “Luxembourg model” of industrial relations, has been put to the test by the social partners in recent years. Founded in the mid-1970s in the wake of the steel crisis, the so-called *Tripartite* is an important, legally introduced embodiment of this model. This body brings together equal representation of the state, trade unions and employers, and serves for mutual exchange of points of view or, as Thill and Thomas write, “...*la tripartite s'établira comme un espace de recherche de solutions consensuelles aux problèmes économiques et sociaux*” (Thill and Thomas, 2009, p. 2)^x. Other sectoral offshoots of the tripartite model were also created as further components of the model, in order to be able to shape industrial relations, social and economic policy together in a consensual spirit. For example, in 2006 the national *Tripartite* adopted a decision to promote economic growth by decoupling social benefits from the cost of living and other control elements, which union representatives had joined after negotiations (ibid., p. 4). However, since the beginning of the economic crisis in 2008, which was accompanied by a high unemployment rate of up to 5.9% by regional standards (which corresponds to a 100% increase within 13 years), tripartite bodies have lost their importance. This is primarily due to the fact that the negotiating partners there could not agree on a joint approach to crisis management and thus more or less renounced the desire for consensus (ibid., p. 5). The following national tripartite conferences initially failed for these reasons, a unique case as the positions of employee and employer representatives differed too widely. As a result of the economic crisis, there is also a “crisis of the Luxembourg model”, as Thill and Thomas write, whose future has yet to be clarified:

“The future will undoubtedly also show to what extent the pacification of social relations is due to the institutional structures of social dialogue and to what extent it is due to the relative economic prosperity that Luxembourg has experienced in recent decades.” (Thill and Thomas, 2009, p. 4, translation by the author).

The example of the *Tripartite* (and their difficulties in times of crisis) shows the great influence of the state on labor relations in Luxembourg. This observation fits into the overall structure, since the minimum wage and the legal regulations on inflation compensation are also legal and thus state control elements, just as the regulations on trade union

representativeness are *de facto*. Nevertheless, collective bargaining is usually conducted at company or industry level. The main difference is that company agreements apply only to the company in which they were negotiated, while inter-branch agreements are often declared universally binding by the state, even if not all employers' organizations were involved in the negotiations. The majority of all collective agreements, however, are company agreements (European Trade Union Institute, 2013c). In the private sector, both variants cover about 50% of all employment relationships under collective agreements.

Two bodies play an important role in the representation of employee interests: firstly, the personnel delegation, which must be elected in companies with at least 15 employees; secondly, the joint company committee, which is mandatory for companies with 150 employees or more and whose employee representatives must be elected by the personnel delegation. However, there is no legal right for trade unions to be represented in these bodies. They campaign for direct election in the respective possibilities of representation, but people without a trade union background can also be elected to the existing positions. However, the reality is that most elected delegates belong to a trade union, not least because of the relatively high level of unionization. In addition, the trade unions have extended rights, including in election campaigns, which also gives them greater influence in employee representation (European Trade Union Institute, 2013c).

The rights of the personnel delegation and of the company committee extend to consultation rights, co-determination opportunities in working conditions and protection, dismissals and working time models, in training, and a broad right to information (ibid.).

The labor market in Luxembourg is clearly characterized by the large number of cross-border commuters. Every day, around 190,000 workers from neighboring regions come to Luxembourg to earn a living. With a total number of 432,400 employees in Luxembourg, cross-border workers account for around 44% of all employees - a uniquely high percentage in a regional comparison of this work (STATEC, 2018). This situation poses special challenges for the trade unions, as they could also recruit their members from the ranks of cross-border commuters and therefore need appropriate offers. On the other hand, recent studies have shown that many commuters do not identify themselves with the region of their workplace or think of themselves as citizens of the Greater Region, and are thus not open to engaging

themselves in trade union work or non-work-related activities in their spare time in the region in which they work (Schönwald, 2015; Wille, 2014). For example, the OGB-L and the LCGB offer their own website sections and even entire websites especially for this target group and maintain offices in Saarland, Rhineland-Palatinate, Lorraine and Wallonia in order to be able to provide targeted advice. Furthermore, the Luxembourg trade unions regularly call on cross-border workers to take part in the social elections and address this target group directly with PDFs, e-mails, leaflets and the like, emphasizing their democratic rights. From this point of view, the associations are already thinking "across borders" or in terms of the Greater Region, in more practical terms than their neighbors, although the neighboring regions are likely to be seen primarily as a source of new labor and trade union support: corresponding service offers for Luxembourg residents who would like to work in neighboring regions are not advertised. This is probably due to the relatively small number of cases of about 11,600 people commuting in this direction. This perception, in which incoming employees play a greater role than outgoing ones, could possibly be an indicator of Luxembourg's self-perception, and its perception of its role within the SaarLorLux labor market.

Besides these highly differing systems of industrial relations within the Greater Region, working examples of transnational trade union practice exist and are consequently developing.

Cross-border trade union initiatives

The Saar-Lor-Lux / Trier-Western Palatinate Inter-regional Trade Union Council is an innovative structure, and the first cross-border collaborative trade union structure in Europe.

Another interesting initiative following this model in 1987 was the creation of a second Inter-regional Trade Union Council in the Greater Region, representing the three frontiers around the European Development Pole (PED) in the Athus (B), Longwy (F) and Rodange (L) regions. During the 1990s, the creation of the Greater Region Summit and the Economic and Social Committee of the Greater Region (CESGR) and other institutional cooperation bodies followed, having long been key demands of the intensified trade union collaboration. The trade unions represented in the IRTUCs strongly recommended the creation of a transnational institution dealing especially with economic and

social questions emerging from cross-border commuting and the ongoing structural change in every part of the Greater Region border landscape.

Cross-border trade union work must, however, adapt to the highly evolving socioeconomic context of the Greater Region and, above all, it must know how to integrate the expectations of employees.

This is why the trade union structures of the trade union confederations that are members of the European Trade Union Confederation (ETUC) active in the Greater Region have recently created (on 11 October 2016) the Greater Region Trade Union Council (CSIGR) in respect of the principles, program and statutes of the ETUC. The CSIGR replaced the Saar-Lor-Lux-Trier / West-Palatinate Interregional Trade Union Council as well as the IRTUC Three Borders/*Trois Frontières*. This new joint structure aims to defend the interests of cross-border employees in the Greater Region in relation to European and interregional policies. It became the union interlocutor for the institutions of the Greater Region in coordinating and supporting the activities of trade union representatives in the institutions of the Greater Region. The member unions in this organization are CFTD, CFTC and CGT for Lorraine; the OGB-L and the LCGB for Luxembourg; CSC Wallonia for Belgium; and the DGB Regions Saar and Trier/Western Palatinate for Germany. These different unions perform essential functions within the governance structures of the Greater Region, particularly within the Economic Council of the Greater Region (CESGR). In the Greater Region, cross-border inter-union cooperation has even been accentuated thanks to concrete actions such as the setting up of a cross-border inter-union collective. Within the regional components of the Greater Region, forums or congresses are organized where the partner unions of the other territories are invited. This was for example the case with an information forum organized by the OGB-L on February 26, 2019 on Luxembourg's public services, where the CGT Lorraine was present. These cross-border trade union initiatives also exist in other border regions, such as between France and Switzerland, with the UNIA union which has created cross-border sections: Geneva, Vaud, Valais, Neuchâtel, Transjurance, Friborg and Basel.

Conclusion

The industrial relations structures in the sub-regions of the SaarLorLux region differ funda-

mentally from one to another. The most serious differences are in three areas, in addition to the widely differing degrees of unionization, namely in trade union relations, in the basic organizational structure and in attitudes towards employers and policy.

Firstly, there is no such diversity of political orientations amongst trade unions in Germany as it exists in France, and in Luxembourg there are competing worldviews between the two large associations, but these do not, due to the system, lead to such open competition as is the case in France. Due to the high dependence of French organizations on election results, which determine their direct influence on collective bargaining issues and the extent of their funding, a strong demarcation between them and a hard-fought permanent election campaign are *de facto* vital for the political and financial survival of trade union federations. Cooperation between them is therefore only possible in exceptional cases, for example when it is against a common opponent, as in the case of the 2010 pension reform cited above. At that time, some associations even called for joint demonstrations and protest actions. A real exception, as it is customary even on Labor Day for each association to call separately for its own rally, instead of organizing a joint supra-union rally. In Germany, on the other hand, joint events of the DGB trade unions are not at all uncommon, but rather normal for cross-industry topics. However, Germany does not have the same wide range of umbrella organizations as France, so it is difficult to make a direct comparison here. Nevertheless, examples such as the dbb 2015's financial strike support for the train drivers' union show that cooperation between German trade unions across association boundaries is quite possible.

Secondly, the administrative structures and levels of workers' organizations also vary widely. In France, for example, the levels of the *unions départementales* and *sections syndicales* operate very autonomously from the association headquarters. The objectives and procedures of the lower levels do not necessarily have to correspond to the "big lines" of the Paris headquarters, while at the same time the headquarters keep the financial means and can decide which projects of the lower levels they want to support. This centralism somewhat thwarts the decentralized regional structures. In Luxembourg, there is no real separation between national and regional structures, which of course also has to do with the size of the country and therefore ensures that party headquarters are directly involved in all actions. In Germany, on the other hand, the large trade unions and the

DGB maintain state and regional offices which, although they have to coordinate strategically with the federal headquarters, have their own financial resources and therefore also have greater room for maneuver, for example when it comes to planning and implementing a transnational project such as working in an IRTUC. This affects only a few national associations directly, and they also decide on the personnel resources etc. that they would like to contribute there.

Thirdly, the fundamental culture of discussion is very different when it comes to relations with employers or politics. While these relations in Luxembourg are very consensus-oriented and the trade unions decide on the *Tripartite* – formerly more, today somewhat less – with politicians and employers on the basic features of wage relationships and changes to labor law, collective bargaining autonomy in Germany prescribes a clear separation of collective bargaining from political influence. The latter is done through legal regulations and the creation of framework conditions such as the Works Constitution Act, but collective bargaining remains unaffected by this. Nevertheless, the trade unions are just as keen to reach a consensus as are the negotiators on the employers' side, even in relation to politics, and there are rarely open conflicts such as strikes or even large-scale demonstrations. The situation is quite different in France, where there is no culture of consensus in industrial relations, but rather an open culture of conflict, historically marked by the struggle of the workers against the employers and which is often expressed in this very class struggle-related choice of words. Even in more moderate trade union federations, German principles such as co-determination are little respected, and even if there is a social dialogue organized at irregular intervals by politicians and in which the trade unions are involved, it serves more as a

forum for debate and criticism of draft legislation than as a body for reaching consensus. Trade unions, employers and politicians are somewhat provocatively described as opponents who, despite everything, occasionally reach agreement in the form of collective agreements. The state often finds itself in the role of conciliator when the fronts at company or industry level are too entrenched. In addition, the state is a very active part of industrial relations, for example when it declares collective agreements universally valid or enacts specific laws on wage regulations or notice periods for individual employee groups such as young people.

The transnational cooperation of trade unions in the SaarLorLux area therefore faces major challenges, the coping possibilities of which depend on the respective actors' attitudes towards the importance of cooperation in the IRTUC and the issues to be dealt with. In the case of the SaarLorLux region, a rather restrained form of cooperation, focused on establishing contacts and avoiding conflicts based on differences, is evident in practice, and the discussion about common thoughts is more important than actual commonly achieved goals (Frisch, 2017, Chapter 5.4). In other border regions of the EU, such as the Öresund, a greater degree of homogeneity between the systems of industrial relations is leading to intensified and generally more productive cooperation in favor of cross-border commuters (Frisch, 2017, pp. 302-307). The prerequisites for trade union cooperation in the SaarLorLux border region are therefore not easy and require profound knowledge of industrial relations in order to ultimately create room for transnational solidarity. Nevertheless, the transnational trade union practices within the region are vital and in constant evolution, as the creation of the CSIGR platform and their activities show.

NOTES

ⁱ The further intercultural elements of transnational cooperation between trade unions are discussed in detail in Frisch, 2017.

ⁱⁱ It describes the percentage of employees who are members of a trade union.

ⁱⁱⁱ The Austrian Federal Economic Chamber is used here as a source because it has published detailed strike figures and can be regarded as a neutral source for figures on Germany.

^{iv} Note: In the phase from 2013 to 2015, the number of strike days fell significantly across the country due to the lack of major social or economic conflicts. In 2016, however, the willingness to protest increased again somewhat, among other things in the context of the planned labor market reform of the Parti Socialiste ("Loi Travail"), for which a lively debate and protest movement was established at the beginning of the year. In regional terms, however, strike movements could also be observed in the calmer interim period, for example in the conflict over the closure of the

ArcelorMittal steelworks in Florange (Lorraine) or in the context of the HR savings at Continental.

^v See for example the 8.00 p.m. issues of the Tagesschau broadcasts on 02.10.2010, 16.10.2010 and 18.10.2010, <http://www.tagesschau.de/suche2.html?query=rentenreform+frankreich> (last visited 03.02.2019)

^{vi} The U stands for unitaire

^{vii} Loi n° 2008-789 of 20 August 2008.

^{viii} Other examples of large state-owned companies are Renault, EADS, Air France KLM, Areva, GdF Suez

and Aéroports de Paris <http://www.nzz.ch/frankreich-will-staatsbeteiligungen-verringern-1.18064846>.

^{ix} The translation "comité d'entreprise" for a "Betriebsrat"/works council is often found. Although this is correct in lexical terms, its content is misleading, since structures, tasks, rights and possibilities are in no way congruent with those of a German Betriebsrat.

^x "...the tripartite will establish itself as a space for seeking consensual solutions to economic and social problems." Translation by the author.

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CROSSING THE BORDER EVERY DAY: a rhythmic perspective

GUILLAUME DREVON and OLIVIER KLEIN

With the job growth dynamics in Luxembourg, more and more workers are crossing the border each day to get to their place of work. This article studies the daily lives of these cross-border workers by analyzing their daily activity schedules, using a spatiotemporal approach. The analysis identifies and describes different types of cross-border workers' profiles according to the location of their daily activities, and explores the great complexity of daily activity schedules. Additional qualitative analyses exploring representations associated with their life rhythms reveal the high intensity associated with these lifestyles and the difficulty in managing numerous daily activities. The latter have a direct impact on quality of life and their degree of integration in Luxembourg.

Cross-border workers, space-time, daily activities patterns, time geography, rhythms of life

FRANCHIR LA FRONTIÈRE CHAQUE JOUR: une perspective rythmique

Dans le sillage de la croissance de l'emploi au Luxembourg, de plus en plus de travailleurs traversent chaque jour la frontière pour se rendre sur leur lieu de travail. Cet article propose d'étudier la vie quotidienne de ces travailleurs frontaliers en analysant leurs programmes d'activités quotidiens à partir d'une approche spatio-temporelle. Différents types de profils de travailleurs frontaliers sont identifiés et caractérisés en fonction de la localisation de leurs activités quotidiennes. Cette analyse met également en évidence la grande complexité de leurs programmes d'activités quotidiennes. Des analyses qualitatives complémentaires axées sur la représentation des travailleurs frontaliers au sujet de leur programmes d'activités quotidiens révèlent des rythmes de vie perçus comme particulièrement soutenus. Les résultats de l'enquête qualitative montrent les nombreuses difficultés rencontrées par les travailleurs frontaliers concernant la gestion de l'ensemble des activités quotidiennes. Les difficultés à concilier les différents aspects de la vie quotidienne ont des conséquences directes sur la qualité de vie des frontaliers et leur niveau d'intégration au Luxembourg

Travailleurs frontaliers, espace-temps, programmes d'activités quotidiennes, géographie du temps, rythmes de vie

TÄGLICH DIE GRENZE ÜBERQUEREN: EINE RHYTHMISCHE PERSPEKTIVE

Im Zuge des Beschäftigungswachstums in Luxemburg überqueren immer mehr Arbeitnehmer täglich die Grenze, um zu ihrem Arbeitsort zu gelangen. Dieser Artikel befasst sich damit, das tägliche Leben dieser Grenzgänger zu untersuchen, indem ihre täglichen Aktivitätsprogramme mithilfe eines räumlich-zeitlichen Ansatzes analysiert werden. Verschiedene Arten von Profilen von Grenzgängern werden gemäß dem Ort ihrer täglichen Aktivitäten identifiziert und charakterisiert. Diese Analyse zeigt ebenfalls die hohe Komplexität ihrer täglichen Aktivitätsprogramme. Zusätzliche qualitative Analysen, die sich darauf fokussieren, wie die Grenzgänger ihre täglichen Aktivitätsprogramme darstellen, zeigen Lebensrhythmen auf, die als

besonders intensiv empfunden werden. Die Ergebnisse der qualitativen Befragung zeigen die vielen Schwierigkeiten auf, mit denen die Grenzgänger beim Management ihrer sämtlichen täglichen Aktivitäten konfrontiert sind. Die Schwierigkeiten bei der Vereinbarung der verschiedenen Aspekte des täglichen Lebens haben direkte Auswirkungen auf die Lebensqualität der Grenzgänger und ihren Integrationsgrad in Luxemburg.

Grenzgänger, Raumzeit, tägliche Aktivitätsprogramme, Zeitgeographie, Lebensrhythmen

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Introduction

Through several territorial development instruments (e.g. EGCT, European Grouping for Territorial Cooperation) and research-oriented programs (e.g. INTERREG, ESPON), European public policies are attempting to develop cohesion measures with regard to cross-border areas at the social, territorial and political levels (Durand, 2014). Measuring spatial and territorial cohesion is more often than not reduced to a set of spatio-functional indicators that reflects the intensity of interactions between spaces located on both sides of the border (ESPON, 2010). Some recent studies based on consumer practices (Spierings and Van Der Velde, 2013) and daily mobility of populations living close to border (Drevon et al., 2018) propose new approaches to understanding cross-border interactions. These disaggregated approaches help shed light on the different ways individuals experience the border and live in cross-border areas (Dubois and Rérat, 2012). A joint analysis of work, social and consumption-related activities allows us to trace the paths of the everyday life (Giddens, 1984) in these cross-border contexts. This article follows this perspective by linking ways of living (Stock, 2006) in cross-border areas and the daily practices of cross-border workers from the three neighboring countries (France, Germany, Belgium) in Luxembourg. The analysis is based on the theoretical corpus of Time Geography (Hägerstrand, 1970) and an activity-based approach (Jones et al., 1983). The resulting analytical tools make it possible to show how activities are carried out in space and time on both sides of the border. In this perspective, this article proposes a rhythm-based approach that analyzes cross-border workers' behavior in the Luxembourg cross-border area. It shows how cross-border commuters use different places according to the rhythm of their spatial practices. From this, different cross-border lifestyles emerge and highlight different levels of spatial integration in Luxembourg. In addition to analyzing the spatio-temporal behaviors of cross-border workers, it also attempts to enable a better understanding of the determinants of these different levels of integration. Spatiotemporal behaviors are effectively often related to socio-familial patterns that tend to shape daily activity programs (Chow and Recker, 2012; Ho and Mulley, 2013). Thus, the level of integration in Luxembourg revealed by spatio-temporal behaviors is also dependent on socio-familial configurations and the leisure time available. Cross-border workers' life rhythms govern how they carry out their activities and, consequently, their degree of spatial integration in Luxembourg.

The article is divided into three sections. The first introduces the conceptual tools used for the analysis, and based on which the methodology was developed. The second section presents the data and methodology. The third section presents and discusses the main findings of the analyses.

Life rhythms for reinterpreting lifestyles in cross-border areas

The analysis of life rhythms takes two forms (Drevon, 2019). The first analyses the spatio-temporal configurations of activity programs. The second considers the perception of time and individuals' relationship with their daily activity programs more specifically. The analysis developed here combines these two approaches both conceptually and methodologically. The theoretical framework is therefore based on Time Geography (spatiotemporal configurations of activity programs) and the psychology of time (analysis of time perception). This first conceptual section presents these two approaches.

A conceptual reference framework: Time Geography

Torsten Hägerstrand initiated and developed the concept of Time Geography in the mid-1960s. This way of conceiving space and time based on an individual-centered approach makes it possible to study how events take place and are inter-related in a spatiotemporal setting (Hägerstrand, 1970). By investigating individual daily practices, this approach then analyses group behaviors in order to understand structures and processes at larger scales. Studying individuals who are representative of socio-spatial groups fosters greater comprehension of the factors at play in individual choices with regard to spatiotemporal budgeting. By taking the individual as its basic study unit, this approach emphasizes the importance of time in people's choice of activities. This temporal dimension clearly appears essential when it comes to synergizing people or objects to make the socioeconomic system work. By combining schedules and the spaces travelled and occupied daily, the concept of spatio-temporal path shows how people move in a spatiotemporal environment. These paths highlight the constraints and limits of possible activities and thus demonstrate that, in many cases, indi-

viduals' decisions are not independent of the spatial and temporal dimensions of their daily lives. Individual constraints refer to the limitations of human movement (i.e. physical and biological factors). Three main constraints identified were: 1) capability constraints, that physically limit individuals' movements; 2) authority constraints, defined by a group of individuals or institutions with power; and 3) spatiotemporal synchronization constraints, which occur when individuals must interact with each other in order to carry out a task at a given place and for a given time period.

The manifest interest for this approach is largely due to the relative simplicity of the concepts used and the original representations that it introduces. Naturally, the situation is more complicated when individuals live in cross-border settings.

Difficulties balancing daily schedules

Faced with long commutes and a lack of time, families must find solutions to the spatiotemporal challenges of their daily lives. Time pressure appears when several elements are combined. For workers, it is mainly a question of reconciling working life, family life and daily mobility. Understanding the life rhythms of cross-border workers requires a holistic approach that includes the combination of three structuring elements of the daily lives of working people: the professional sphere, the family sphere and the spatial sphere, which are part of the daily prism of Time Geography.

The professional sphere includes work-related activities, and family activities occur within the family sphere. The spatial sphere refers to the location of activities and daily spatial mobility. Each of the spheres is associated with time and activity obligations relative to the constraints identified by Hägerstrand (1970). For the professional sphere, this refers to authority constraints; for the family sphere, this means spatiotemporal synchronization constraints; finally, constraints in terms of linking all these activities fall under the spatial sphere. The increasing diversity of the activities of household members is now broadly accepted, and mobility is a key issue in family life (Thomas et al., 2011). This observation is even more significant for households living in low-density areas that are poorly accessible by public transport (Orfeuill, 2010). In cases where children are not yet autonomous with regard to their daily mobility, car use is necessary (Dupuy, 2000). Each household member has his or her own daily and weekly activity schedule, and mobility needs sometimes conflict within the family

unit, giving rise to trade-offs and negotiations. This clash of scheduling is most pronounced between parents and children (David, 2007), resulting in discord between family members and increased time pressure on the couple. Interactions between household members lead to the establishment of mobility arrangements (support, carpooling, etc.) (Timmermans and Zhang, 2009; Aybek et al., 2014). This situation directly influences individuals' choices in terms of transport modes, which are determined in part by interactions and arrangements (Ho and Mully, 2013). While interactions between household members lead to schedule planning, they also reflect the degree of time pressure. Daily life plays out based on households' mobility capacities. Long commutes may even increase the risk of separation (Kley, 2015). Travel is an obligatory time constraint that limits participation in other activities (Korsu, 2010). The mobility survey of cross-border commuters revealed an important relationship between fatigue, stress (28% and 23% of respondents) and commuting (Schmitz et al., 2012). Cross-border commuters in Luxembourg had the salient feature of travelling long distances from home to work (45 minutes one way on average). This feature suggests that Luxembourg's cross-border workers are potentially subject to significant time pressure.

Data and methods

Understanding the temporal dimension of the daily lives of cross-border workers requires original data. The difficulty, however, lies in the cross-border context. Hence, two complementary surveys were used. The collected data were analyzed using quantitative and qualitative methods to better understand the life rhythms of the individuals surveyed.

Data: two complementary surveys

This research was based on two complementary datasets constructed from two surveys: a large cross-border mobility survey (2010) and a qualitative survey conducted on 10 cross-border households (2015) with two working adult members.

The activity patterns of cross-border workers were estimated based on a quantitative mobility survey covering a representative sample ($n = 7,235$) based on sociodemographic (gender, age, PCS) and spatial (place of residence) criteria of all cross-border workers working in Luxembourg and living in France, Germany and Belgium in

2010. Respondents were contacted by means of a letter, sent by post, that contained the questionnaire. They completed the questionnaire themselves (self-administrated questionnaire) and sent it back to investigators with a pre-stamped envelope. The response rate was 18% of those contacted (40,000 letters sent and 7,235 respondents). We analyzed this dataset in order to understand the daily life rhythms of cross-border workers relative to the location of their daily activities within the Luxembourg cross-border metropolitan area. The method used included the number of activities, their succession over time and their location. It also combined techniques derived from spatial analysis and multivariate statistics.

Conducted between September and December 2015, the qualitative survey included 10 households in which 10 couples were interviewed, i.e. an overall sample of 20 individuals (Drevon, 2016). The interviews were conducted in a semi-directive manner at the place of residence of the recruited households. Respondents were recruited via a process that involved random selection of addresses within the morphological agglomeration of Thionville in France. This random selection process took into account three socio-demographic criteria and one spatial criterion, namely working couples with two to three children under 18, with at least one partner working in the Luxembourg urban area.

Analytical methods

The analytical methods dealt with two types of materials. The analyses of the observed daily rhythms were built based on the Cross-border Mobility Survey. The analyses dealing with representations of life rhythms were obtained from the qualitative survey analyses.

Analytical methods for the quantitative survey

Cross-border activities patterns were reconstructed based on activities and travel data from the Cross-border Mobility Survey. To do this, the place/time of departure, place/time of arrival, duration, as well as the purpose of the trip were recorded for each trip. Based on these elements and by exploiting the previously mentioned variables, we were able to link activities and daily trips. The main goal was to analyze the length and layout of the patterns. This approach was applied to all cross-border workers in order to build their activity patterns. The size and layout of the patterns were analyzed by not taking into account the distribution of activities over countries, and secondly, by integrating on what side

of the border the activities took place into the analysis.

Beyond the organization and the time sequencing activities, the analysis of their rhythms also took into account their location. All the places individuals frequented daily were considered activity spaces characterized by three factors: the place of residence, the location of regular activities, and movement between the places frequented by the individuals (Golledge and Stimson, 1997; Schönfelder and Axhausen, 2010). The duration of activities was also taken into consideration and thus became an additional factor weighting activity locations according to the activity duration. To analyze the activity locations of cross-border workers, the standard deviational ellipse method seemed most relevant. Its direction distribution analysis allows it to characterize and synthesize the distribution of activity locations in space (Cauvin et al., 2008). For each individual surveyed, the activities were first described graphically in the form of a dot plot. The latter can be analyzed using a standard deviational ellipse and its derived indicators: length of the major and minor axis, center of gravity and surface of the ellipse. All of these parameters summarize the dispersion and spatial distribution of activities (Pumain and Saint-Julien, 2010). In the cross-border context, considering the border is essential. In this way, four supplementary variables were created: surface of the ellipse respectively in and outside Luxembourg, and number of activities respectively in and outside Luxembourg. As the data extracted was significant, we had to reduce it in order to facilitate our analysis. The Principal Component Analysis (PCA) was the most appropriate method for reducing the number of variables and making the information less redundant (Rey et al., 1977; Bavoux and Chapelon, 2014). In our case, the aim more precisely was to determine the correlations between the spatial variables resulting from the standard deviational ellipses in order to identify the main components that characterize the dispersion and distribution of activities in border residents' living areas. Once these components were determined, a Hierarchical Cluster Analysis (HCA) was used to create groups of profiles that were characteristic of cross-border activity areas.

To go beyond the simple description of behaviors, it was necessary to understand their determinants. The groups of cross-border commuters were classified, thus providing an overview of different daily mobility behaviors. Better understanding of these behaviors required further analysis in order to determine which factors contributed to a particular behavior. To do so, we used a multinomial regression model that aimed

to determine the effect of other individual variables on the various profiles identified (Lebart et al., 2006). This technique not only allowed us to understand the effect of a set of explanatory variables in a single probabilistic model (Hosmer Jr. and Lemeshow, 2004), but also to take into account variables that had more than two modalities. By considering the different spatial profiles as the variable to be explained and comparing them with sociodemographic variables, regression facilitated understanding of the determinants of the different groups identified.

Analytical methods for the qualitative survey

The qualitative survey analysis was based on discourse analysis that can be considered in two ways. Firstly, a qualitative approach focused on the content and meaning of the expressions used by individuals, by thoroughly reinterpreting the body of interviews in order to detect strategies and individual representations. Secondly, a quantitative approach based on the recurrence of respondents' comments during the interview was developed. These two approaches were complementary within the framework of this research and were therefore used together. On the one hand, the goal was understanding and analyzing the meaning of individuals' comments; on the other hand, the analysis of occurrence allowed us to measure the importance of the words and expressions used by individuals (Degenne and Vergès, 1973).

The discourse analysis method was done in three stages. Firstly, the recorded interviews were fully transcribed. Then, the data was processed using qualitative and quantitative approaches. The qualitative analysis was subject to the researcher's subjectivity. However, from a deep review of the text corpus, it was possible to identify verbatims necessary for interpreting individuals' comments relative to the topics addressed and identifying perceptions, opinions and strategies. The analysis of occurrences reveals main lexical fields based on a count of the words or expressions used. The dialogue that emerged between these two approaches was an asset for the analysis. Effectively, an in-depth analysis of the comments was weighted using quantitative measures. Inversely, the qualitative analysis gives meaning to the frequency of the expressions used.

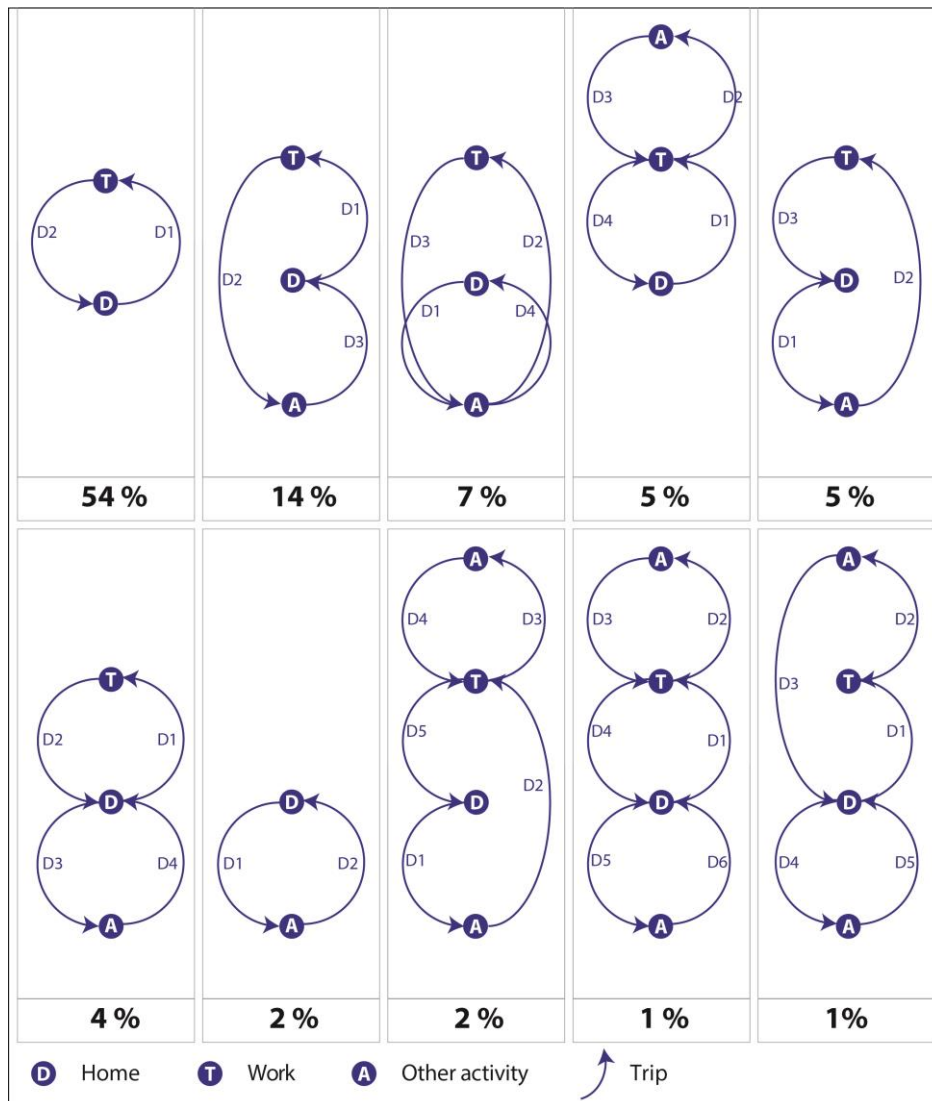
Results

Cross-border workers have an important distinction with regard to the spatial configuration of their home-to-work trips. In 2010, Luxembourg's cross-border workers travelled an average of 44

kilometers to work. In comparison, workers living in the Metz agglomeration travelled an average of 20 kilometers per day for all their activities (SCOTAM, 2017). In France, the average distance from home to work was around 15 kilometers in 2008 (ENTD, 2008). These figures highlight the specific nature of Luxembourg cross-border workers' mobility patterns, which predispose them to significant time pressure due to long commutes. The results of the analyses are organized according to three main entries. Firstly, cross-border workers' activities schedules, which show their activities over a typical day, are presented and discussed. Secondly, based on the analysis of activities spaces, the way they carry out their activities is detailed. Thirdly, based on interviews, the heavy life rhythms of these workers are described.

Complex activities schedules

The results of the quantitative analyses show the daily pace of cross-border workers' lives. The first result comes from an analyses of activities patterns, which illustrates both the succession of activities of cross-border workers (Figure 1) and the number of workers and their location relative to the border (Figure 2). This analysis indicates how cross-border workers in Luxembourg organize their activities around two structuring places, namely their place of residence and their workplace. Secondary activities carried out outside home and work fall into several categories (leisure, shopping, drop-off, service, etc.). Figure 1 shows ten main activity patterns representing 95% of the total configurations. In total, about 600 different pattern combinations were identified. The aggregation of the various outside-of-the-home/outside-of-work activities helped us better understand the distribution of cross-border commuters according to the types of patterns. Not surprisingly, the basic home-work-home pattern represented the vast majority of cross-border commuters (54% of them). This pattern concerns cross-border workers who made only two trips per day, the first to get to work and the second to get back home. These individuals did not carry out any other activities on a typical day. This situation can be explained by the fact that their commutes are relatively long, in terms of both distance and time. Furthermore, 14% of cross-border commuters engaged in an activity after work, 7% before and after work and 5% between two work periods, usually during lunch break. The 46% of cross-border commuters who engaged in at least one activity outside of the home or workplace had more diversified, complex patterns.



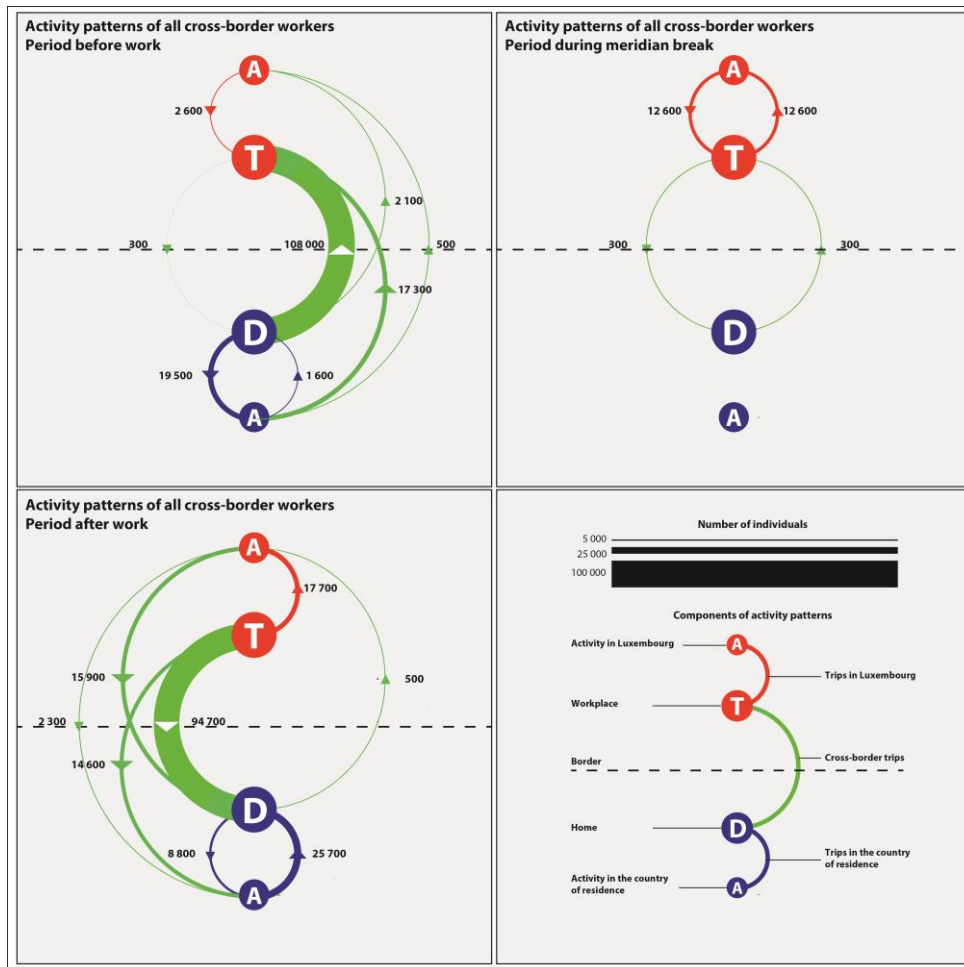
Activities patterns of cross-border workers in Luxembourg Fig. 1

Author: G. Drevon

Source: Cross-Border Mobility Survey (2010), with 7,235 respondents (a response rate of 18%)

Positioning the border in cross-border workers' activities patterns (Figure 2) shows how their activities are distributed on each side of the border. Incorporating the number of workers into the analysis allowed us to report on the size of the flows associated with the activities. Although home-to-work commuting was largely structured, the addition of other activities highlights the complexity of daily activity patterns. The patterns differed in length, from two to ten trips daily for one to nine activities. Clearly, residential and workplace location largely structure the organization of these patterns. To simplify the graphical representation, three successive periods were represented: the period before work, the period during the lunch break and the period after work. In the first period, which usually corresponded to the morning, 108,000 cross-border workersⁱ (83%) travelled directly from home to work. About 15% (19,500) carried out at least

one activity in their country of residence before going to work. Only a small proportion (1.6%) of them carried out their first non-work activity in Luxembourg (2,100). During the lunch break, nearly 10% of cross-border workers (12,600) carried out one non-work activity in Luxembourg, versus 0.2% who returned to their country of residence (300). Finally, the majority of cross-border workers (73%) returned directly to their homes after work (94,700), while 14% engaged in a second activity in Luxembourg and 11% did so in their country of residence. The distribution of activities for this period was almost symmetrical for both sides of the border. This shows cross-border commuters' interest in carrying out certain activities in Luxembourg (17,700). A limited number of cross-border commuters (2,300) carried out activities on both sides of the border before returning home. Once home, they very rarely returned to Luxembourg (less than 1%).



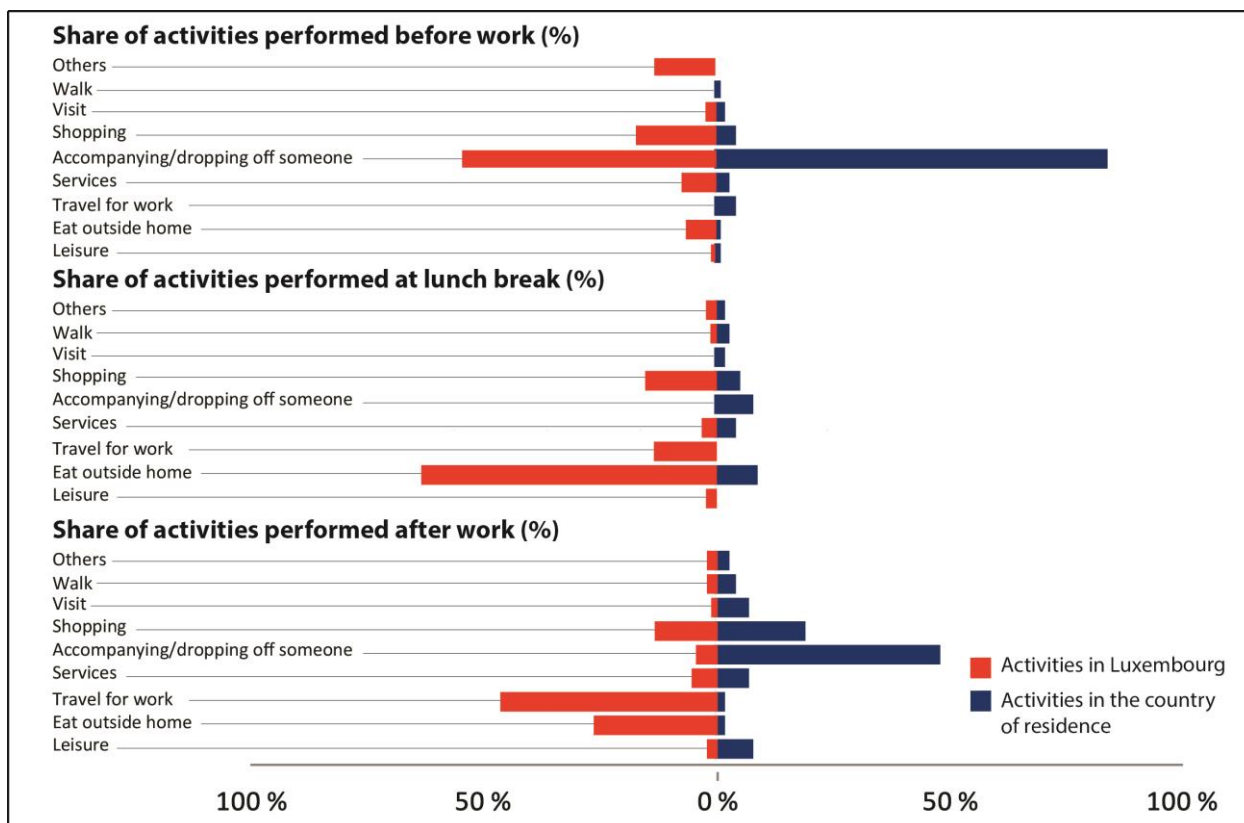
Activity patterns during the three major periods of a working day Fig. 2

Author: G. Drevon

Source: Cross-Border Mobility Survey (2010), with 7,235 respondents (a response rate of 18%)

For 60% of cross-border commuters, working hours were imposed by the employer, versus 26% who negotiated their hours jointly. Only 14% were able to choose their own working hours. Thus, a majority of these workers organized their working activities according to non-flexible hours. Other activities were organized around working hours and can be differentiated according to three periods of time (before work, lunch break, after work). As a result, 50% of the activities carried out before going to work (morning) involved accompanying/dropping off someone, and 9% involved shopping activities (Figure 3). During this first period, in the country of residence, 92% of the activities also involved accompanying/dropping someone off. The lunch break was mainly characterized by lunchtime activities outside of work and the home in Luxembourg (60%). After work, activities in Luxembourg were related to work-related travel (45%) as well as eating out (20%). On the other side of the border, in the country of residence, the main activities were accompanying/dropping off

someone (50%) and shopping (19%). These results show a clear differentiation of activities according to the period of the day. The morning was devoted to accompanying/dropping off people in Luxembourg and in the country of residence. The lunch break was almost exclusively spent in Luxembourg. The after-work period was more ambivalent, with a more balanced distribution between the country of work and the country of residence. Regarding the classification of activities, we can see that, beyond the spatial distribution, cross-border commuters mainly carried out obligatory activities outside the home and workplace (accompanying/dropping off someone). However, some of these activities were also voluntary (like shopping) and represented times of relaxation and sociability. By 'obligatory activities', we mean activities related to accompanying/dropping someone, which most often correspond to childcare, as well as catering, which includes activities that meet the physiological and social needs of individuals. Finally, shopping is done to support the house-



Breakdown of activities according to three main periods of the day: before work, between noon and two, and after work Fig. 3:

Author: G. Drevon

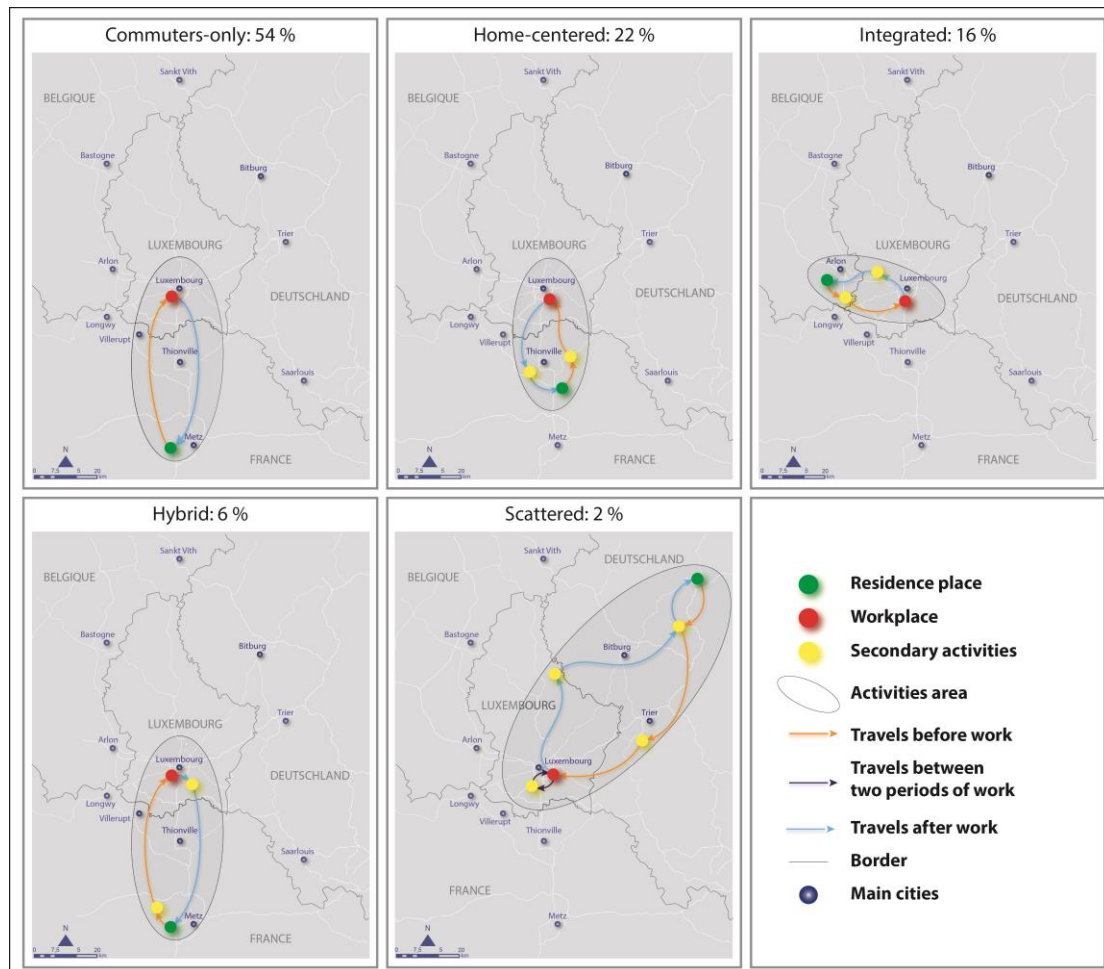
Source: Cross-Border Mobility Survey (2010), with 7,235 respondents (a response rate of 18%)

hold and is therefore an obligation. Beyond these initial observations, it is clear that little time remained for leisure activities.

How are these activities carried out?

The analysis of activity spaces allowed us to understand the dispersal and distribution of daily activities. The analyses were based on variables identified from a standard deviational ellipse. The standard deviational ellipse may be one of the most appropriate techniques for analyzing the daily spatial configurations of cross-border activity spaces. It can be used to synthesize activity locations, which are graphically represented by a set of dots. This spatial analysis approach provides several spatial indicators that characterize the spatial distribution of activities: the mean center, the length of major and minor axes of the ellipse, and the ellipse area. The area of the ellipse represents the actual size of the activity space. By combining a PCA and an HCA, the analysis provides five typical profiles, which were present in the three countries of residence (Figure 4). 'Commuters only' (54%) were one category of cross-border workers who only trav-

eled from home to the workplace and back. The home-centered group was the second largest group of employees (22%). These commuters had a more concentrated area of activities in the country of residence. Their secondary activities were mainly around home. The integrated group formed the third group (16%), with different characteristics illustrated by its standard deviational ellipse. In most cases, the center of gravity of their ellipse was located within Luxembourg. This group also carried out more secondary activities in Luxembourg. These cross-border workers generally lived close to the border and their activities areas largely included Luxembourg, with a significant area ratio between the part of the ellipse inside and outside Luxembourg. The fourth group, which we called hybrid (6%), was characterized by a residential location relatively far from the border. The average center of the distribution was generally located outside Luxembourg and their activities were relatively close to one another. Finally, the scattered, the last group (2%), distinguished themselves by the significant distance between their place of residence and their workplace. People in this category took part in numerous activities and had a fragmented area of activity.



Spatial profiles of Luxembourg cross-border workers Fig. 4

Authors: G. Drevon and O. Klein

Source: Cross-Border Mobility Survey (2010), with 7,235 respondents (a response rate of 18%)

The next step consisted in understanding the sociodemographic determinants and mobility patterns associated with the different standard profiles (variable to be explained). The multinomial regression model was based on five explanatory variables: age, gender, socio-professional category, principal mode of transportation and travel time between the home and the workplace. The commuter only profile (54%) was used as a reference modality for the variable to be explained. This was the dominant profile and corresponded to the structuring pattern (D-T-D) common to all workers. The regression deepened our understanding of the addition of the secondary activities that characterized the other spatial profiles (home-centered, integrated, hybrid and scattered). The commuter profile was the reference (the most important) to which the other profiles were compared, based on the explanatory variables, by integrating them into a single regression model. This technique measured the probability of adopting one or the other spatial behaviors according to individuals' sociodemographic characteristics and mobility patterns.

erns.

As suggested by the results presented in Figure 5, the modalities of the explanatory variables influenced spatial behaviors in contrasting ways by acting specifically on certain profiles at different levels. Those with a home-centered profile tended to be aged 35 and under and, to a lesser extent, the 30-50 age group. They also tended to be women with at least one child, whose preferred mode of transport was the car. The distance between home and work was relatively non-discriminatory insofar as it appeared to be significant in both its modalities (less than 30 minutes and between 30 and 60 minutes). For the integrated profile, age was relatively insignificant. However, being under 35 sometimes resulted in the individuals concerned undertaking more activities in Luxembourg. Being a woman also seemed to be correlated with such behavior. Individuals in managerial positions tended to carry out their activities in Luxembourg; this observation also applied to employees. The distance between the home and workplace was also not very discriminating. Like the home-

centered profile, it was also relevant for both modalities of the variable. The hybrid profile was less marked by age or gender. Having at least one child increased the likelihood of falling into this profile. Falling into the categories of professional/managerial staff or intellectual professions increased the probability of having hybrid spatial behavior, with a relatively balanced distri-

bution of daily activities between the country of residence and the country of work. Only child-related and socio-professional variables seemed to influence the dispersed profile somewhat. However, this low significance suggests that having children increased the likelihood of having a rather dispersed profile.

	Spatial profiles of cross-border workers							
	Home-centered		Integrated		Hybrid		Scattered	
	Sig	Exp(B)	Sig	Exp(B)	Sig	Exp(B)	Sig	Exp(B)
Age								
Under 35 y.	***	1.895	**	1.401				
35 to 50 y.	**	1.432						
50 y. and more (Ref)								
Gender								
Woman	***	2.119	***	1.483				
Man (Ref)								
Children								
At least one child	***	2.114			***	1.804	**	1.626
No children (Ref)								
CSP								
Managerial & intellectual prof.			***	0.705	***	0.608		
Employees			***	0.412	***	0.382	**	0.585
Intermediate professions (Ref)								
Principal mode of transportation								
Car	***	1.778			***	3.444		
Bus					*	2.218		
Train (Ref)								
Travel time D-T								
Less than 30 min.	***	1.955	***	2.019				
30 to 60 min.	***	1.459	***	1.759	***	0.325		
More than 60 min. (Ref)								
Constant	***		***		***		***	

Pseudo R-squared		
Nagelkerke	0.132	
McFadden	0.054	

Thresholds of significance		
1%		***
5%		**
10%		*

Significance of sociodemographic and economic characteristics of spatialized lifestyles of cross-border commuters Fig. 5

Note to the reader: The home-centered spatial profile of cross-border workers generally corresponds to a woman, aged under 35 years, having children, and travelling by car regardless of the duration of the trips.

Author: G. Drevon

Source: Cross-Border Mobility Survey (2010), with 7235 respondents (a response rate of 18%)

The regression model provided elements for understanding the profiles of cross-border workers. It was particularly interesting for the home-centered profile, which was one of our most important findings. Home-centered behavior often applied to women and men who were the parent of at least one child. These individuals used the car for most of their trips, a finding that may suggest the high percentage of obligatory activities related to household management, which corroborates previous findings that show the importance of these activities in daily activity schedules. Carrying out these rather obligatory activities may therefore induce cross-border workers to do their daily activities closer to home.

Several findings from the analyses stand out in particular. First, certain activity patterns highlight

the fact that cross-border workers carry out few activities outside of the place of residence or the workplace. The patterns also show the overwhelming tendency to have complex activity schedules due to heavy life rhythms and long commuting distances. The pattern analysis revealed daily activities patterns of up to 22 successive activities over the course of a day. The nature of activities undertaken outside home and workplace showed that cross-border commuters were more likely to undertake obligatory activities. The analysis of cross-border commuters' daily activity areas revealed five spatial profiles. Although the vast majority of cross-border commuters only made a roundtrip journey between home and work, or had a strong residential base (home-centered profile), a relatively large proportion of cross-border commuters

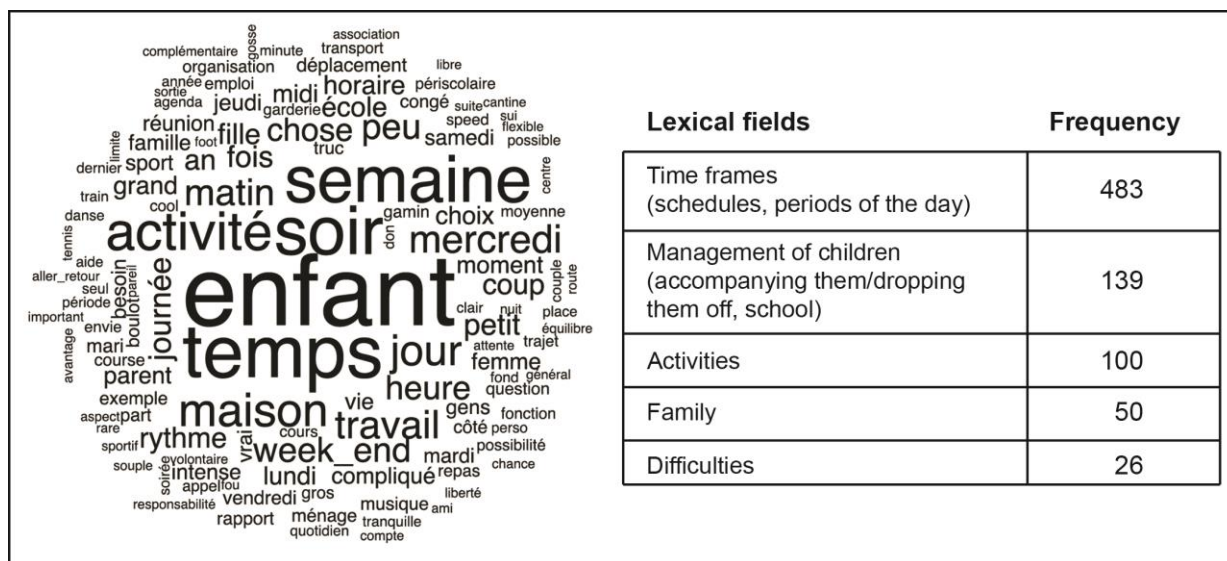
were spatially integrated in Luxembourg. This trend did not differ according to the worker's country of residence. French, Belgian and German cross-border workers all had a balanced distribution of workers according to the five spatial profiles. In contrast, the spatial profile seems to be influenced by individuals' sociodemographic characteristics. Thus, a cross-border worker living with a partner with children was more likely to be locally rooted relative to the residential location. Limited activity schedules with mainly obligatory activities could reflect household composition and long commutes for the behavior, observed within the limits of available data. A heavy rhythm with long commutes encouraged familial withdrawal.

Heavy rhythms of life

Family life was punctuated by the activities of all household members. Each member presents his or her own schedule of activities. Parents had to juggle professional life, family life and daily trips. Timeframes and activity schedules had to be agreed upon in order to facilitate daily life out-

side home. However, the management of family life also included life at home and the activities of daily life. The sharing of child-related and domestic tasks was a determining factor in organizational arrangements and strategies.

The analysis of comments associated with weekly activity rhythms (Figure 6) reveals five major themes. Timeframes (N=493) was the main topic discussed by the individuals surveyed during the interviews. This topic referred to time constraints and the different times of the day. Words and expressions associated with child-care were also important (N=139). Expressions relating to daily and regular activities rank second. The family was also a structuring element in comments. Finally, the difficulties of everyday life came up relatively often with the interviewees. The first level of the descriptive analysis reveals three important elements. Firstly, the rhythm of activities was mainly associated with time management and scheduling throughout the day and week. Secondly, individuals' comments showed the importance of children and the latter's activities. Finally, overall, comments reflected the difficulties of family life.



Occurrence of words associated with the rhythm of daily activities Fig. 6

Author: G. Devon

Source: Cross-border households interviews (2015), where 20 individuals (10 couples) were interviewed

An in-depth analysis of respondents' words allowed us to go beyond a mere description of the terms used. For the most part, the rhythm of daily life was considered very difficult (Figure 7). This representation is most often associated with managing children. Children's schedules and the need to pick them up at specific times was an important part of the week's rhythm. Parents were thus obliged to respect schedules

and timeframes. Taking children to their extra-curricular activities was a key element of activity scheduling. Managing children and attending to their mobility needs was a burden to parents, particularly when each child had one or more activities outside school hours during the week. Although not greatly emphasized, professional responsibilities and commute times were also mentioned in the comments. However, on the

whole, heavy rhythms mainly referred to children's activity schedules, which required parents to provide support during the week, combining professional life, daily travel and household management.

The analysis confirms the hypothesis of heavy activity rhythms for all of the couples interviewed. Understanding these rhythms also yields

important elements based on the relationship families have with their daily schedules. To our knowledge, few studies question this temporal dimension that significantly improves our understanding of the structuring elements of families' daily lives from a more comprehensive perspective that attempts to sum up the interactions between the various spheres of daily life.

- "The rhythm is monstrous, but we chose it" (cross-border commuter 2, man)
- "Hectic pace, we chose it, we do not complain, I prefer to move rather than to do nothing" (cross-border worker 2, woman)
- "At full speed..." (cross-border commuter 2, man)
- "When we add children, their homework and their activities, we can say that we have a really strong rhythm during the week and no time left" (cross-border worker 1, men)
- "We organize our schedules according to the schedules of the children" (cross-border commuter 2, woman)
- "Yes, there are activities every evening. Whether one or the other, or when we are together, we are out because of them on Mondays, Tuesdays and on Thursdays. However, on Wednesday afternoons there are several activities. It's for kids every evening, it's sport and music" (Cross-border worker 1, woman)
- "Concerning the children, it's complicated. The little one, he was playing football on Wednesday, but it is not possible any more. The week is focused on the job and then obviously we have children so we must follow their homework. When we come back home, we take care of the children right away" (Cross-border worker 1, man)
- "Today, I counted, I spent two hours in the car, just managing the day-to-day" (Cross-border worker 2, woman)

Excerpts from cross-border commuters' interviews Fig. 7

Author: G. Drevon

Source: Cross-border households interviews (2015), where 20 individuals (10 households) were interviewed

Detailed analysis of respondents' remarks about everyday life rhythms highlighted five major results. (1) Couples' concerns mainly have to do with the sequencing of activities and finding the right arrangements. This result refers in particular to activity patterns, which can be considered as markers of everyday life arrangements. (2) Work appeared as secondary, though it was considered as structuring in terms of the time budget for the activities done there. (3) Children were the central feature of everyday life for the households interviewed. (4) Presented as a choice, the rhythm of activities seemed suitable, but subject to well-known concessions, for example, in the form of part-time work (Nicole-Drancourt, 1990). (5) Although this intense pace was partially deplored by the interviewed households, it seemed to be largely compensated for by residential satisfaction.

Conclusion

The results of the analyses show particularly complex programs of activities. This complexity suggests that cross-border workers are confronted with high-intensity living patterns. The perception of daily activity programs shows significant difficulties related to time management in daily life. Time pressures associated with time management issues tended to affect the quality of life of the people interviewed. Beyond the analysis of life rhythms, the analyses helped highlight different ways of living on the border. Spatial profiles showed different levels of integration that reveal the complexity and scattered nature of activity schedules. The analyses suggest that time constraints seem to influence the level of integration of cross-border workers in Luxembourg. Indeed, family configurations and the related time constraints seemed to have a greater influence on the level of integration in Luxembourg. From this perspective, living pat-

terns were a determinant of spatial integration for cross-border workers in their country of work. Integration was greater for cross-border workers who had more flexibility in their activity schedules. On the other hand, cross-border workers with schedules wherein family obligations were heavy were likely to be less integrated in their country of work. The choice to go to one or another activity location also depended on opening hours and accessibility. Recent analyses show that cross-border workers undertake more activities near their place of residence depending these two factors (Drevon et al., 2015).

This paper highlights several important points in the literature. First, it complements traditional approaches to Time Geography (Hägerstrand, 1970; Pred, 1977; Miller, 1991) which do not take into account the perception of time (Hallin, 1991). The association between the joint analysis of spatiotemporal behavior and the interviews conducted with a panel of cross-border workers made it possible to take into account the effects of particularly complex activity schedules on individuals. Taking into account socio-familial configurations also provided a better understanding of how time constraints shape individuals' behaviors (Drevon, 2019). These results reinforce the capacity and social interaction constraints mentioned in Time Geography theory. Regarding Time Geography theory, mobility patterns of cross-border workers are specific, mainly because of long-distance commuting. These long distances considerably re-

duce the time available for other activities. According to Time Geography theory, the "constraint time" (work and travel time) of cross-border workers is greater than that of other workers (e.g. inhabitants of Metz's agglomeration). This mobility configuration tends to impact other activity spheres, such as social and familial spheres, a situation that seems to affect cross-border workers' well-being.

The methodology developed in the article allows us to propose a new disaggregated approach to cross-border functional integration that complements that of flows (Van Houtum, 2000) by using the spatiotemporal behaviors of cross-border workers. This approach reveals different ways of living in cross-border areas (Drevon et al., 2018). The specific analyses developed in this article notably suggest that time resources influence the degree of integration in the country of work. From this perspective, the rhythm or pace of life is determinant for cross-border integration. The rhythmic approach developed in this paper, which combines quantitative and qualitative analyses, paves the way for new perspectives for analyzing cross-border metropolitan areas. Based on spatiotemporal behaviors, the analyses reveal cross-border lifestyles corresponding to compositions in the time and space of daily activities and experiences which reveal ways of living (Pattaroni, 2013). The measurement of these forms of cross-border lifestyles could open new analytic perspectives for the border studies field.

NOTES

ⁱ Flows were calculated based on the cross-border mobility survey. The results obtained have been adjust-

ed from the characteristics of the population at the place of residence.

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CROSS-BORDER DYNAMICS OF EMPLOYMENT: examining Luxembourg's financial cluster

OLIVIER DAMETTE, VINCENT FROMENTIN and MARC SALESINA

The effect of financial fluctuations on labor markets has received attention in the recent literature, particularly since unemployment has become a major concern for policy makers. The consequences of the 2007-10 crisis were very significant in countries where the financial sector played a large part in the economy, like Luxembourg, where cross-border workers coming from Germany, Belgium and France, represent a large part of the workforce of the Luxembourg economy, particularly in the financial sector. This work studies the links between financial market conditions, activity indicators and cross-border workers in Luxembourg's financial services cluster. We combine a theoretical approach in the vein of Porter, and an econometric approach, using a simple VAR (Vector AutoRegressive Model) and impulse response functions to illustrate the synchronization between financial, economic and cross-border activity cycles in Luxembourg. Luxembourg's cluster seems to behave as an 'attractor' of core competencies (Prahalad and Hamel, 1990), by facilitating workers' mobility and retention. Moreover, cross-border employment is sensitive to the business and financial markets cycles in Luxembourg.

Cross-border workers, Financial shocks, Competitive Advantage, Vector autoregression

LES DYNAMIQUES TRANSFRONTALIÈRES EN MATIÈRE D'EMPLOI: un examen de place financière du Luxembourg

L'effet des fluctuations financières sur le marché du travail a retenu l'attention dans la littérature récente, en particulier depuis que le chômage est devenu une préoccupation majeure des décideurs. Les conséquences de la crise de 2007-2010 ont été très importantes dans les pays où le secteur financier jouait un rôle important dans l'économie. C'est le cas du Luxembourg, où les travailleurs frontaliers venant d'Allemagne, de Belgique et de France représentent une grande partie de la main-d'œuvre, en particulier dans le secteur financier. Ce travail étudie les liens entre les conditions des marchés financiers, les indicateurs d'activité et les travailleurs frontaliers au sein du „cluster financier“ luxembourgeois. Nous combinons une approche théorique au regard de l'approche de Porter et une approche économétrique, utilisant un simple VAR (modèle vectoriel autorégressif) et des fonctions de réponse impulsionnelle pour illustrer la synchronisation entre les cycles financiers, économiques et transfrontaliers de l'activité au Luxembourg. Le „cluster financier“ luxembourgeois pourrait être appréhendé comme un « attracteur » des compétences essentielles (Prahalad et Hamel, 1990), en facilitant la mobilité et la rétention des travailleurs. En outre, l'emploi transfrontalier est sensible aux cycles et aux fluctuations économiques et financières au Luxembourg.

Travailleurs transfrontaliers, chocs financiers, avantage concurrentiel, modèle vectoriel autorégressif

Grenzüberschreitende Beschäftigungsdynamik: Untersuchung des Luxemburger Finanzclusters

Die Auswirkungen von Finanzschwankungen auf die Arbeitsmärkte haben in der jüngsten Literatur Beachtung gefunden, vor allem, weil Arbeitslosigkeit zu einem bedeutenden Anliegen für politische Entscheidungsträger geworden ist. Die Folgen der Finanzkrise 2007-2010 waren besonders signifikant in den Ländern, in denen der Finanzsektor eine große Rolle für die Wirtschaft spielte, so wie in Luxemburg, wo Grenzgänger aus Deutschland, Belgien und Frankreich einen großen Teil der Arbeitskräfte der luxemburgischen Wirtschaft, insbesondere im Finanzsektor, ausmachen. Diese Arbeit untersucht die Zusammenhänge zwischen Finanzmarktbedingungen, Aktivitätsindikatoren und Grenzgängern im Luxemburger Finanzdienstleistungscluster. Wir kombinieren einen theoretischen Ansatz nach Porter und einen ökonometrischen Ansatz unter Verwendung eines einfachen VAR (Vector Autoregressive Model) und einer Impulsantwortfunktion, um die Synchronisation zwischen finanziellen, wirtschaftlichen und grenzüberschreitenden Aktivitätszyklen in Luxemburg zu veranschaulichen. Das luxemburgische Cluster scheint sich als „attractor“ von Kernkompetenzen zu verhalten (Prahalad und Hamel, 1990), indem es die Mobilität und Arbeitnehmerbindung fördert. Darüber hinaus ist die grenzüberschreitende Beschäftigung für die Wirtschafts- und Finanzmarktzyklen in Luxemburg entscheidend.

Grenzgänger, Finanzschocks, Wettbewerbsvorteil, Vektorautoregression

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Introduction

The 2007–2009 financial crisis highlights the importance of understanding the effects that financial market conditions have on the real economy (McLean and Zhao, 2014). The transmission of the crisis to the real economy went through different channels (Bricongne et al., 2010).

- Access to credit became more difficult and costlier: lenders faced an increased risk of default, made borrowers pay more, and hardened their terms of grant (increased collateral requirements, etc.).
- The sharp contraction in financial and real estate wealth led households to restrain their spending, due to a negative "wealth effect" (Chauvin and Damette, 2010). Wealth depreciation means that the need for savings to finance future consumption increased.
- The financial crisis also led to a general crisis of confidence. Loans between banks dried up. Households, fearing unemployment, increased their precautionary savings (Challe and Ragot, 2010). Companies restricted their investments.

Economic theory offers competing hypotheses on how the cost and availability of finance influence labor (Boustanifar, 2014). While better access to finance resources may allow firms to hire more labor, it also encourages firms to invest in more capital, which may not automatically translate into greater job creation (Dao and Liu, 2017). Theoretically, the cost and availability of external finance have divergent effects on employment. On the one hand, easing financing constraints may allow firms to optimally substitute capital for labor (Garmaise, 2007). On the other hand, because of market frictions investment is limited by the availability of internal funds in the presence of capital, a decrease in the cost of external finance will increase firm-level investment, and the demand for labor can then increase in the financial sector and in other sectors.

Therefore, the importance of this question is particularly clear following the recent financial crisis, which caused massive job losses, especially in the financial sector.

The effect of financial fluctuations on labor markets has received attention in the recent literature, particularly since unemployment has become a major concern for policymakers.

Several empirical studies, mainly in the U.S., estimate the impact of financial conditions on employment by comparing labor market conditions before and after financial regulation

changes, or before and after a large financial shock (e.g. Mian and Sufi, 2014; Chodorow-Reich, 2014; Haltenhof et al., 2014). This is all the more true when the analysis focuses on a financial center which is dependent on changes in financial market conditions. These links may differ in terms of meaning and amplitude depending on the country being studied, especially when studying a major financial center.

The consequences of the 2007-10 crisis were very significant in countries where the financial sector played a large part in the economy, as in London, New York, Dublin and Luxembourg.

Luxembourg City, located in the heart of the Greater Region, is a major international financial center, and can be considered a "financial cluster". The activity of the financial sector contributes directly and indirectly to the economic growth of the country of Luxembourg and the surrounding territories. The sector is, by the volume of its assets, the largest in the euro zone when expressed as a percentage of GDP. The financial and insurance sector represented more than 28% of the GDP in 2015 (while it was "only" 10% in Switzerland and 5% in France (OECD, 2017)), and also represented 10% of the employment.

In the case of Luxembourg City, it is particularly interesting to note that cross-border workers coming from Germany, Belgium and France represent a large part of the workforce of the Luxembourg economy, particularly in the financial sector. The Greater Region concentrates one-fifth of all frontier workers from the EU 27, and is the largest employment center for cross-border workers after Switzerland. Excluding temporary fluctuations (in 2001 and 2009), the number of cross-border commuters working in the Grand Duchy has increased steadily since the 1980s, reaching around 180,000 in the last quarter of 2016.

Analyzing the interrelationships between financial market conditions, the real economy and employment is therefore particularly interesting. Moreover, to our knowledge, no study has examined such interactionsⁱ.

This work studies the links between financial market conditions, activity indicators and cross-border workers in Luxembourg's financial services cluster. Our paper is at the crossroads of many research streams.

This study's contribution is threefold.

Firstly, we approach a transverse topic in an original way to establish the interactions and causalities along three dimensions: financial activity, economic activity and employment. This research theme has international and regional economic and political implications.

Secondly, the geographical context of the analysis is of interest, in the sense that Luxembourg's economy is particularly open to the outside world, making it dependent on and sensitive to the vagaries of international markets. Its financial sector is preponderant, and a source of growth for the country and the neighboring regions.

Thirdly, to analyze the links between economic and financial activity, and cross-border workers, in a financial cluster, we combine a theoretical approach in the vein of Porter (section 2), and an econometric approach, using a simple VAR (Vector AutoRegressive Model) and impulse response functions (section 3) to illustrate the synchronization between financial, economic and cross-border activity cycles in Luxembourg.

Addressing Luxembourg's financial services sector's roles in its environments: clusters, competitive advantage and workers' mobility

Clusters: definition and organizational aspects

Clusters have been the subject of academic interest since the mid-to-late 1990s, on account of their paradoxical reliance on location as a source of competitive advantage in an otherwise globalized competition (e.g. Porter, 1998), and because of their importance for stimulating innovation in knowledge-based industries (e.g. Breschi and Lissoni, 2001). According to Michael E. Porter (1998, p. 78), clusters can be defined as

“critical masses – in one place – of unusual competitive success in particular fields, assuming the form of “geographic concentrations of interconnected companies”ⁱⁱ and institutions.”

Clusters have inherent beneficial effects on business and organizational performance (ibid.). Coopetition, i.e. a mix of competition and cooperation between cluster members, is their main driving force. The theoretical explanations of a cluster's benefits derive from neo-institutional economics (e.g. Williamson, 1981), resource dependence theory (Pfeffer and Salancik, 1978), and Porter's own view of competitive advantage (Porter, 1985). Broadly put, clusters lower transaction costs through geographic concentration: such concentration affects not only the costs that are associated with physical movement (of

inputs, people, capital, etc.), but also those associated with opportunistic behaviors, the management of voluntary interdependence on other organizations, and barriers to entry. More specifically, clusters are argued to lead to three main sources of increased performance (Porter, 1998, pp. 81-84).

Firstly, clusters increase their members' productivity. On the one hand, positive effects on productivity arise from a series of cost reductions. Proximity directly lowers supply costs by the mere reduction of physical distance. It also indirectly lowers the peripheral costs that are associated with procurement (e.g. inventory costs), and reduces the risks of delays. Additionally, proximity creates opportunity structures where a suppliers' reputation is a significant key success factor. This creates an incentive for suppliers to develop trust-based, ongoing relationships with their business partners, and drives the suppliers' quality of service up. Similarly, geographical concentration makes clusters attractive to new entrants into the various supply markets that support them, creating a downward pressure on the pricing of existing suppliers' services. Clusters' impact on outsourcing relies on the same rationale.

On the other hand, qualitative elements also explain why clusters positively influence their members' productivity. The division of labor between members leads to specialization, with positive consequences on the price-quality ratio of end products, as well as on that of suppliers' and subcontractors' products. Because of both the repetition of interactions between a cluster's members and the importance of preserving trust, the flow of information is also enhanced, which lowers the costs of access to valuable information and increases information reliability. Lastly, because a cluster strengthens the linkages that exist between its members' value chains, it offers opportunities to develop complementary activities, and clusters' members ultimately take part in *de facto* strategic alliances (Kogut, 1988). Such alliances rely on each member's offers targeting specific customers' needs, so that markets can be segmented in a way that allows for both competition and cooperation. As members become more and more dependent on each other's success, clusters foster more and more cooperation. Because clusters have positive economic impacts which go beyond the individual members' performance, they also create incentives for institutions such as national, regional and local governments to support a cluster's activity and growth. This influences town and country planning, infrastructure (and, therefore, further improves productivity through the facilitation of the flows of capital, goods, people,

information, etc.) and the provision of public goods through government agencies, as well as both public and private investments.

Secondly, clusters accelerate innovation for two sets of reasons: proximity and co-opetition affect both the costs and pace of change. The first set of explanations is similar to what we just described: downward pressures on costs, access to information, and specialization. Other mechanisms are specific to innovation. For instance, proximity 'reveals' business and/or innovation opportunities by facilitating the identification of grounds for improvement in the cluster's global value chain: information-sharing plays an important role in providing insights about customers' preferences, technological evolutions, and so forth. Physical proximity also accelerates the frequency and pace of problem-solving, which can be carried out by pooling several firms' resources, thereby creating connections that fertilize synergies (Goold and Campbell, 1998). Another effect of proximity arises indirectly from sharing information and knowledge, in the form of increased pressures on decision-making. Clusters deepen the social embeddedness of firms, top and middle management, and workers; and this embeddedness paves the way to an increase in the pace of change (because more information and knowledge are shared about what does not work and/or what can be done) and to phenomena that are akin to peer pressure (e.g. pressures to conform to certain technological standards) or institutional isomorphism (e.g. the creation of systems of shared beliefs, which lead the firms' top management levels to push in favor of similar organizational features and/or goals; (DiMaggio and Powell, 1983)).

Thirdly, clusters stimulate the formation of new businesses. Again, information-sharing and proximity foster increased flows of information and knowledge, concentration of actors, and trust. This allows for, respectively, the rapid identification of gaps in the responses that firms offer to customers (which can serve as the basis for new business development), the interconnectedness of organizations of complementary natures (typically: businesses, investors, public institutions such as government agencies, education and higher education services, research centers, and so forth), and the stimulation of investments (because the growth of a cluster acts as a signal which is perceived as lowering the risk of investment; see below).

Another important aspect of clusters as Porter defines them is their size: 'critical mass' refers to the cumulative levels of capital, resources and activity that clusters generate, which create financial, economic and commercial barriers preventing similar, competing clusters to form

nearby. This is because the initial investments (financial, technological, temporal, etc.) that are necessary for a rival cluster to achieve such critical mass are far too large for any actor to consider them a valid strategic option. Such a characteristic is paramount in Porter's theory of competitive advantage (1985), where the preservation of the advantage strongly relies on a firm's ability to exploit an industry's competitive structure (the infamous Five Forces framework), especially through the creation of barriers to entry.

In sum, clusters can be interpreted as an alternative form of organizational structure (Porter, 1998). The specificity of a cluster structure is that it allows its members to take advantage of the benefits that are usually associated with vertical integration, all the while preserving organizational independence and flexibility. Flexibility takes two prominent aspects in clusters: internally, the critical aspect is information, which enhances a firm's ability to react and adjust to change; externally, critical aspects are both information/knowledge and proximity, which respectively allow business and/or innovation opportunities to be quickly identified, and make capital, resources and competencies readily available for reassembly into a new venture.

Clusters and competitive advantage

Other propositions about the nature of competitive advantage on the one hand, and the literature on knowledge management on the other, help complement this first approach. The literature on knowledge management provides a useful set of theoretical propositions to understand and explain "the structure and mechanics of knowledge stocks and flows and their impact on competitive advantage at the firm level" in the context of regional clusters (Tallman et al., 2004, p. 262a). This literature draws heavily on the resource-based view (RBV) of the firm's perspective, which posits that productive resources are neither perfectly homogenous nor perfectly mobile. This means that the source of a firm's competitive advantage can be found in the resources that it has control over, provided that these resources have specific attributes. Barney (1991) provides a list of four cumulative attributes of firms' resources which make them the source of a competitive advantage, adding that such attributes also render this competitive advantage sustainable, i.e. maintained over time: value creation, rarity, resistance to imitation, and the absence of strategically equivalent substitutes. It must also be noted that a firm must have the

organizational ability to make use of resources with such attributes (Barney and Hesterly, 2012). Following this view, it can be argued that the *inclusion within a cluster* is, in and of itself, a resource that satisfies Barney's (1991) conditions, in the sense that inclusion provides a cluster-level sustained competitive advantage over non-members, and a firm-level competitive advantage based on private knowledge that remains unavailable to other members (Tallman et al., 2004; Damette et al., 2018).

Firstly, clusters shape their members' tangible environments (e.g. infrastructure as well as the flows of capital, resources, people and so forth) and intangible environments (e.g. the flows of information and knowledge), thereby materializing conditions that support value creation processes.

Secondly, because clusters are 'unusual' success stories, a firm is far less likely to be a cluster member than to be an outsider, which makes the inclusion within a cluster a rare resource. However, clusters are not cartels and it must be assumed that there is no legal impediment to new firm-level competitors entering into an existing cluster: for a sustainable competitive advantage to emerge, *something else* must remain rare. This is where the literature on knowledge management becomes particularly relevant. Indeed, not all kinds of knowledge are identical in nature and value. For our purpose, it is useful to draw on the distinction (Henderson and Clark, 1990) between *component* knowledge ("those specific knowledge resources, skills, and technologies that relate to identifiable parts of an organizational system rather than to the whole") and *architectural* knowledge (which "relates to an organization as an entire system and the structures and routines for coordinating and integrating its component knowledge into patterns for productive use and for developing new architectural and component knowledge" Tallman et al., 2004, pp. 264-265).

Component knowledge is relatively easily transferable and can spread among a cluster's members, therefore creating quasi-private knowledge that is shared by members and is unavailable to non-members. This helps to define a cluster-level competitive advantage; even with low to non-existent barriers to entry, cluster-level component knowledge remains a rare resource as long as it is unavailable to outsiders.

Architectural knowledge is not as easily transferable, and firm-specific architectural knowledge is likely to remain within the firm or, if it were discovered by a firm-level competitor, is likely to be of little value since said competitor would find itself unable to replicate the benefits that are associated with such knowledge, be-

cause of causal ambiguity, social complexity, and cultural embeddedness (see next bullet point).

Thirdly, although clusters can in principle be replicated (theoretically speaking, it is conceivable that a competing cluster would form either nearby or far away from a given cluster), this is, in practice, unlikely.

As we pointed out above, the necessary critical mass that must be achieved acts as a barrier to replication by a competing set of firms. More pragmatically, one could also add that clusters are neither 'designed' nor 'planned': they emerge from opportunity structures that are successfully exploited, and their growth relies heavily on path dependency phenomena. This alone is a severe impediment to replication.

Further, the conditions in which cluster-level architectural knowledge is acquired and transferred depend on causal ambiguity, social complexity and path dependency.

Lastly, firm-level private information and knowledge remain exclusively enjoyed by the firm, which created it.

Turning to the absence of strategically equivalent substitutes, it can be argued that strategic alliances (e.g. joint ventures), as well as a carefully planned and implemented mix of integration and outsourcing tactics, could serve as a substitute for inclusion in a cluster. However, it is doubtful that such substitution could be strategically equivalent, since either (a) the organizational structure created by implementing such tactics would generate higher costs than those of inclusion in a cluster, especially because of geographical distance, or (b) because any mix of joint venture, integration and outsourcing where actors operate in close proximity is a subset of the definition of clusters; however, even if the organizational structure itself can be replicated, it is, as we pointed out above, the mix of transferable and non-transferable knowledge of the original cluster which in this case knows no substitute.

Clusters, workers' mobility, and implications for Luxembourg's financial services cluster

Luxembourg City's financial services sector follows Porter's (1998) definition of a cluster very closely: on the Kirchberg plateau, finance and insurance companies (as well as a network of companies whose activity is strongly dependent on them) on the one hand, and private as well as public institutions (most notably the European Court of Auditors, the European Investment

Bank, and Eurostat) on the other, are packed into an area of about 3.37 square kilometers (about 98.8% of the size of Central Park, Manhattan). It is also of note that Luxembourg's financial services sector satisfies the condition of being 'unusual': the neighboring areas such as the French historical region of Lorraine, the Belgian province of Luxembourg, and the German states of Rhineland-Palatinate and Saarland do not display comparable assets when it comes to their respective financial sectors.

Porter's (1998) view is helpful for understanding how clusters work, including how they act as signals towards the labor market. In a reversal of Spence's (1973) original signaling theory, the signal comes from the firms that operate within a cluster and is directed towards potential employees. Porter here provides a *ceteris paribus* rationale that explains why workers would prefer working for a firm that is embedded in a cluster (Porter, 1978, p. 80 and pp. 84-85):

"Because a cluster signals opportunity and reduces the risk of relocation for employees, it can also be easier to attract talented people from other locations, a decisive advantage in some industries."

"A growing cluster signals opportunity, and its success stories help attract the best talent. Entrepreneurs take notice, and individuals with ideas or relevant skills migrate in from other locations."

In other words, Porter argues that the perceived expected gains from working within a cluster (in terms of 'opportunity' and job security, i.e. the terms and conditions of employment) are necessary and sufficient conditions to persuade a worker to relocate. Perhaps unsurprisingly, workers' mobility costs are left out of the picture; an omission consistent with longstanding critiques of Porter's 'perfectly mobile' resources (Barney, 1991; see above). However, costs are an important aspect of workers' mobility and largely exceed a mere cost-benefit analysis (e.g. the comparison of the costs associated with quitting a job and moving versus the benefits associated with a new job within the cluster). Other costs include, to name a few, the social and emotional costs that come with moving, moving with other family members (spouse and/or children), possible 'split family' situations (when one or more family members are not equally mobile and must therefore remain in the initial location), or the costs of learning about and fitting in a new cultural environment (Cerdin, 2010). Providing a deeper understanding of clusters in general necessitates incorporating constraints to workers' mobility into the analytical framework.

Luxembourg's financial services cluster is, however, a special case, and several elements combine to reduce—or even eliminate—some of the constraints on workers' mobility. Due to the

modest size of the country of Luxembourg, the small size of its native workforce, and how close Luxembourg City is to international borders, workforce mobility in the case of Luxembourg's financial services cluster is better analyzed as a type of international mobility, and foreign workers are a substantial portion of total workers in the cluster, thanks to the European Union regulations on workers' freedom of movement. The academic literature in management science takes an interest in international workers' mobility through the concept of expatriation. Yet Luxembourg's cross-border workers do not fall into classical nomenclatures: their situation is one of voluntary expatriation, but cross-border workers only stay in Luxembourg for the duration of their workday. Their situation is one of short-distance eurocommuting, and the commuting behavior that is associated with the cluster bears similarities to that of much larger cities, especially in North America.

A striking difference is, however, that the commuters of Luxembourg's cluster are not necessarily involved in situations of precarious employment (e.g. Premji, 2017). This is because, when it comes to assessing the costs of workers' mobility, it must be also underlined that Luxembourg benefits from comparatively lax fiscal policies and commercial law, which ultimately contribute to the ability of firms that are present in the country to offer comparatively higher wages than those of firms operating in neighboring regions. Adding to this, because of the nature of the industry that is considered, Luxembourg's cluster also targets highly-skilled workers, who typically graduated from higher education. This has implications for both the degree of 'competitiveness' on the labor market (cluster members must outcompete other firms on the higher end of the spectrum of working and employment conditions) and the characteristics of the workforce (which is more likely to be in an advantageous position as regards bargaining power).

In sum, the specific combination of economic and legal conditions allows access to the relevant workforce (in terms of both quantity and quality) through the reduction of the costs, both real and perceived, of mobility (Damette et al., 2018). Although this argument still needs to be empirically tested, it is safe to assume that workers' and potential workers' representations of the perceived economic and social advantages of working in Luxembourg act as a form of psychological incentive (e.g. in the form of cognitive biases in favor of working in Luxembourg). In other words, all else being equal (i.e. even in the borderline case where wages are held constant), this could explain why some workers would choose to work in Luxembourg

while remaining homed in their country of origin, and face the costs of commuting, rather than work in their country of origin. This situation, which is specific to Luxembourg, its cultural embeddedness in the context of the Great Region, and its idiosyncratic public policies, further enhances the non-replication attribute of inclusion in Luxembourg's cluster, since it relies on extremely complex historical and social interactions. Other studies, albeit carried out in different contexts, suggest that the wage premium component alone is not sufficient to explain workers' cross-border mobility preferences (e.g. Huber and Nowotny, 2013). Qualitative evidence is therefore needed to disentangle the root causes which govern the formation of such preferences. Consequently, Luxembourg's cluster seems to behave as an 'attractor' of core competencies (Prahalad and Hamel, 1990) by facilitating workers' mobility and retention. This means that these competencies become unavailable in the surrounding areas: a mechanism similar to that of 'brain drain' observed in developing countries (Beine et al., 2001). This raises serious issues in terms of public policies, economic development, competitive environment, and town and country planning for the neighboring regions. To provide a single example, these regions' public higher education services train and develop future workers, using public money. In a general setting, this can be regarded as a decision for investment in human capital (Becker, 1964), where the costs are expected to be overcompensated by future benefits that would arise, broadly speaking, from higher productivity, higher performance and increased tax revenues. However, this rationale is dependent on a redistribution system where workers and companies participate in economic life and pay taxes in the same country. This justifies further inquiry into the impacts of Luxembourg's cluster.

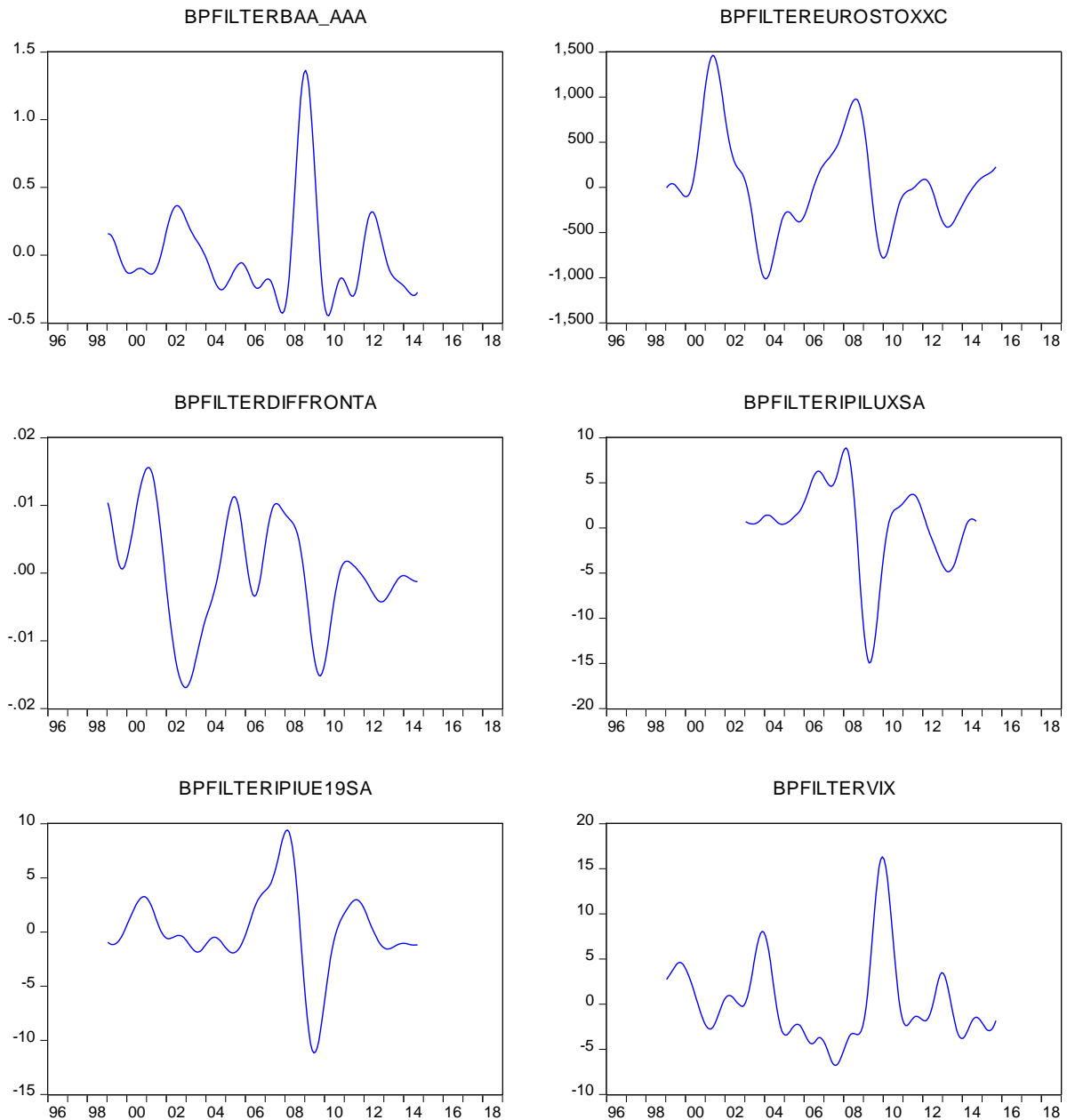
Empirical Analyses: Luxembourg's Financial Cluster and Firms' Competitive Advantage

Our empirical work consists in assessing the impact of some potential macroeconomic drivers on the cross-border worker dynamics. Our variables are selected from a 1996 to 2017 sample, with monthly frequency data, and are the following: cross-border workers (FRONTA; Source: STATEC), Moody's Seasoned Baa Corpo-

rate Bond Yield Relative to Yield on 10-Year Treasury Constant Maturity (BAA-AAA; Source: Federal Reserve Economic Data), Volatility Index (VIX; Source: Yahoo Finance), Euro Stoxx (Source: Yahoo Finance) and Industrial Production Index (IPI, Source Eurostat). Our empirical study uses data about the total population of cross-border workers employed in Luxembourg. In relation to the elements previously described, we use these variables since cross-border workers can be impacted (at the macro-economic level) by financial factors (such as financial activity or financial stability) and economic factors (such as industrial activity).

We first applied a statistical filter (Baxter King frequency filter) to smooth the dynamics of our series, since our series exhibit a great deal of seasonality (some periods each year are always a period of boom in employment and thus in cross-border hiring, and some periods – for example in August – are always calm in terms of activity and hiring) and noise. The advantage of the filtered data is to smooth the small variations (especially seasonal) and to better show the trends, peaks and variations common to the different series. For example, we can show (Figure 1) that during the subprime crisis, the decline in the IPI of the European Union (lower left) in 2009 seems to correspond to the rise and the peak of the VIX (lower right), the rise the BAA-AAA spread (top left) which is a proxy for the spread and the fall in the Euro Stoxx financial index.

The rate of variation of cross-border workers (in the middle on the left) seems to respond in a synchronized way to crises and peaks, and to business cycle variations. Each time, we notice a sharp dip and a sharp decline in the rate of change of cross-border workers. We now investigated these apparent correlations (in Table 1, particularly with Euro Stoxx, IPI Lux and VIX, with regard to the coefficients). Subject to stationarity of the series, the following correlation matrix shows that the rate of change of cross-border workers correlates negatively with uncertainty (VIX and spread BAA_AAA), with greater importance for VIX, but is well correlated positively with the Euro Stoxx. The more the financial market conditions are favorable and bullish, the more the cross-border workers are hired (although it is nevertheless not possible to prove any causality), and this correlates positively to the industrial activity of Luxembourg and the EU as a whole (EU 19 here), dynamic industrial activity being positively correlated with the number of cross-border workers in the field.



Dynamics of main filtered variables Fig. 1

Correlation matrix of main filtered variables Table 1

Correlation (2003 to 2014)	FRONTA
BAA_AAA	-0.208063
EUROSTOXX	0.511885
IPILUX	0.524730
IPIUE19	0.151817
VIX	-0.776670

Finally, we tested a VAR with the variables in level (even if a doubt about their order of integration remains and would deserve further technical investigations in future research) by choosing initially to retain only the IPI for Luxembourg and Euro Stoxx as respective proxies for the financial and real conditions of the economy (see Figure 2). VAR or Vector AutoRegressive models are very useful econometric tools and models that just allow the data to speak, and that find some potential correlations between some variables (considered as endogenous).

We estimate a VAR model with 6 lags (in accordance with SIC, HQ and main information criteria to select lags) with filtered level variables. The lags are useful for taking into account

the persistence in the series and the lags between a decision or a policy and its macroeconomic effects. The impulse response functions of the VAR (Cholesky impulse response with Monte Carlo simulations) are a means for analyzing how a variable reacts to a shock (as a one percent standard deviation) on another one.

Here, we want to understand how the cross-border flows are potentially influenced by the business cycles (IPI) and financial conditions. Results show that impulse responses of cross-border dynamics exhibit positive and significant responses: cross-border dynamics react positively to IPI and Euro Stoxx shocks (or one percent standard deviation) and this effect is clear-cut after 4 years. Thus, a shock in those variables leads to increasing cross-border flows; cross-border employment is sensitive to the business and financial market cycles in Luxem-

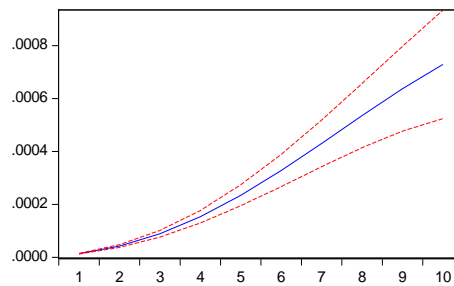
bourg. Note that this relative long time to have some effects is intuitive since we computed Cholesky identification methodology, and so shocks are not correlated in the short run, and we implicitly assumed that IPI and Euro Stoxx have no impact in the contemporaneous period.

Finally, we conducted the same analysis again but with differentiated variables to check the issues of integration order (see Figure 3). New results confirm the previous ones.

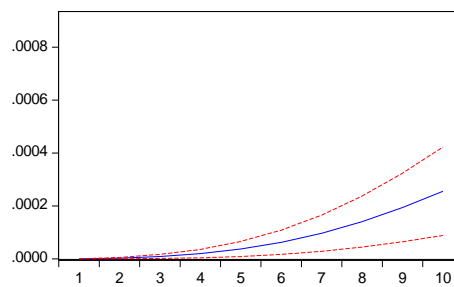
More sophisticated models with different VAR restrictions and time-variation and nonlinearity issues would be interesting extensions in the future to better investigate the simultaneous impact of financial and industrial activity on cross-border worker dynamics. We can refer to Damette and Fromentin (2013) for a detailed presentation of the methodology.

Response to Cholesky One S.D. (d.f. adjusted) Innovations ± 2 S.E.

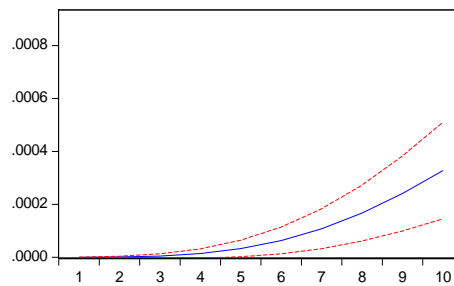
Response of BPFILTERDIFFFRONTA to BPFILTERDIFFFRONTA



Response of BPFILTERDIFFFRONTA to BPFILTEREUROSTOXXC



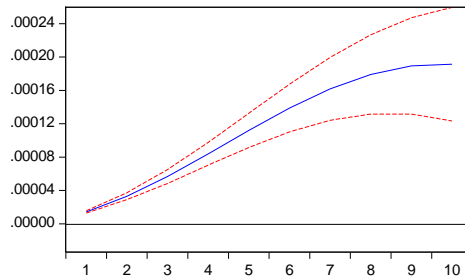
Response of BPFILTERDIFFFRONTA to BPFILTERIPI LUXSA



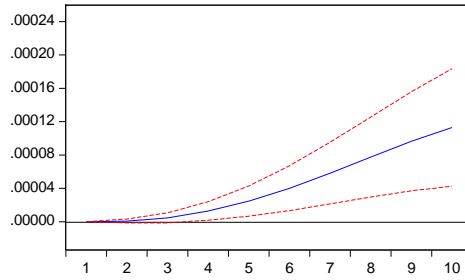
Response to cross-border workers in the VAR model with filtered variables in level Fig. 2

Response to Cholesky One S.D. (d.f. adjusted) Innovations ± 2 S.E.

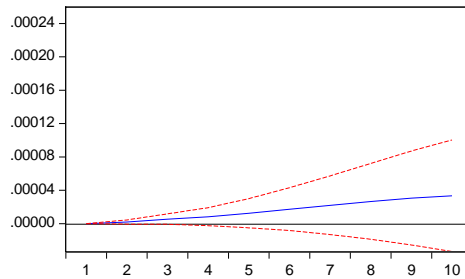
Response of D(BPFILTERDIFFRONTA) to D(BPFILTERDIFFRONTA)



Response of D(BPFILTERDIFFRONTA) to D(BPFILTERIPILUXSA)



Response of D(BPFILTERDIFFRONTA) to D(BPFILTEREUROSTOXXC)



Response to cross-borders workers in the VAR model with differentiated variables Fig. 3

Conclusion

The Luxembourg economy, which has been booming for twenty years, allows many workers from neighboring countries to find a job. Luxembourg takes advantage of this to counteract its problems concerning the availability of qualified labor. The case of Luxembourg is very relevant because of the extreme specialization in banking and the financial industry and because of the significance of cross-border workers. Luxembourg is a special case, with a very large financial services sector relative to national employment (11.9%) (Myers and Sendanyoye, 2009). Indeed, labor mobility could be an important adjustment mechanism through which regions adjust to asymmetric financial and economic shocks (Bloomfield et al., 2017).

This work studies the links between financial market conditions, activity indicators and cross-border workers in Luxembourg's financial ser-

vices cluster. We combine a theoretical approach in the vein of Porter, and an econometric approach, using a simple VAR (Vector Autoregressive Model) and impulse response functions to illustrate the synchronization between financial, economic and cross-border activity cycles in Luxembourg.

This virtuous relationship can be altered by the occurrence of economic and financial crises, especially as Luxembourg is a cluster that focuses on the activity of its financial sector. Correlation tests and impulse response functions highlight these interrelationships, showing that cross-border workers are subject to economic fluctuations and financial instability.

The Luxembourg financial cluster plays the role of an attractor of key skills (Porter, 1998; Damette et al. 2018). In this perspective, core competencies are mechanisms of

“collective learning in the organization, in particular how to coordinate various production skills

and the integration of different forms of technology” (Prahalad and Hamel, 1993).

Because of companies' investment in staff training, when an economic or financial crisis occurs, firms may be reluctant to part with staff in the short term, given the loss of human capital. Companies may wish to retain workers in whom they have invested more. At the same time, dur-

ing an expansion, employers will start hiring again, taking into account the time required for the employee training process. It is then possible that entrepreneurs may adopt a certain “wait-and-see attitude” before relaunching the hiring process, in order to validate the economic and financial recovery.

NOTES

ⁱ Apart from Damette, Fromentin and Salesina (2018) and Fromentin and Tadjeddine (2019), which offers an introductory analysis.

ⁱⁱ For the reader's convenience, we systematically refer

to 'companies' or 'firms' in this section. It must however be noted that the rationales which we describe apply to subsets of companies as well, such as branches and divisions.

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CROSS-BORDER LABOR MARKETS: dynamics and perspectives

RACHID BELKACEM and ISABELLE PIGERON-PIROTH

The work presented in this Thematic Issue aims to contribute to knowledge of the dynamics of cross-border labor markets, their institutions and the practices of actors in cross-border context. The various chapters provide a better understanding of the functioning of cross-border labor markets in all their complexity. First, the socio-economic profiles of cross-border workers according to the different border territories of France were presented, as well as the geographic mobility in relation to the rhythms of life. This was followed by analyses of institutions through training systems, industrial relations from the point of view of cross-border trade union cooperation, and finally the impact of economic dynamics, especially finance, on the development of cross-border work in Luxembourg.

Do the borders still prevent integrated cross-border labor markets?

Trying to understand the whole system that goes beyond the cross-border flows, the question we addressed in this thematic issue was about the organization of the labor markets: is the system organized in a cross-border way? Are there some brakes that prevent an integrated cross-border labor market in the Greater Region, for example? Analyzing different cross-border labor markets at the borders of France, the first chapter sheds light on the socioeconomic characteristics of cross-border work according to the local productive fabric. The authors report on the one hand the territorial specificities of cross-border work according to the markets considered, depending on the territories on which they operate. These

results confirm that cross-border work is a regulator. It fulfills both a quantitative and a qualitative adjustment function between the needs of enterprises and the availability of labor and qualifications across borders. These needs vary from one area to another and not all cross-border workers have the same profiles. On the other hand, there are common characteristics of cross-border workers (underrepresentation in certain sectors, underrepresentation of women, etc.), linked to the prevalence of borders and the specificity of the status of cross-border worker. While cross-border work can push boundaries to widen recruitment zones for companies and areas of investigation for individuals (geographic expansion of supply and demand), the border persists and has impacts on sectors of activity of cross-border workers, for example (underrepresentation in non-salaried activities, agricultural or administrative jobs, for example).

On institutional issues, including the organization of training (Chapter 2) or cross-border trade union cooperation (Chapter 3), the border remains present. Concerning vocational training and the education system (Chapter 2), in the absence of a common and integrated training system the border situation then appears as a possibility of diversification of the training offers. The analysis shows us that the geographical border situation constitutes an advantage. Indeed, from the example of Luxembourg, it appears that its labor market feeds on the inflow of labor and skills from neighboring countries. This central geographic position also allows it to draw inspiration from neighboring models of vocational training, notably Germany and France, to build its own model of vocational training. This leads to an original Luxembourgish model of training built by mixing principles that are not necessarily complementary, according to the authors. It is an institutional tinkering of princi-

ples borrowed from the vocational training systems of neighboring countries.

By analyzing the feasibility conditions of cross-border trade union cooperation, it appears that the border can also act as a break because of the institutional, organizational and cultural differences in national union practices (Chapter 3). However, despite the difficulties encountered, cross-border initiatives are multiplying. Through day-to-day practices, mixing and local arrangements, relationships are formed between unions across borders, to provide the basis for cross-border trade union cooperation.

The daily crossing of the border also helps to speed up the rhythm of life of cross-border workers (Chapter 4). They may have difficulty reconciling professional activities and carrying out domestic activities. This rapid pace can end up altering the quality of life. Few border workers have activities outside their daily home/work shuttle, because of the length of these commutes. The authors, however, highlight an important heterogeneity in both the practices and the profiles of these workers.

Sectoral economic dynamics (notably finance, the driving sector of the Luxembourg economy) impact the evolution of the number of cross-border workers (Chapter 5). Although relations between economic dynamics, sectoral dynamics and evolutions in the number of cross-border workers are difficult to analyze, a causal link appears. This result in some way corroborates our hypothesis that cross-border work is a regulator of the cross-border labor market.

Theoretical, methodological and empirical perspectives

From a theoretical point of view, the analysis of cross-border labor markets can be seen in connection with the assumptions of the different schools of thought in economics. If the dominant theory approaches the labor market as a place, where rationally considered job seekers

and employers meet and where adjustments are made according to the level of wages, our results show that other elements have to be taken into account, such as the cross-border practices of the actors or the institutions (e.g. education). The approaches in terms of regulation should be discussed.

From a methodological point of view, a multidisciplinary orientation of research (sociology, political science, economics, geography and management science) facilitates a better understanding of the complexity of cross-border labor markets. The contribution of spatiotemporal approaches to understanding the dynamics of labor market development and mapping techniques to capture and spatialize these dynamics at the cross-border scale are necessary. This work also teaches us about another necessity: building flow data alongside stock data, to better analyze flows and movements in the labor market. If the spatiotemporal approach or econometric modeling approaches this complexity, these must be coupled with qualitative methodologies.

From an empirical point of view, there is a need to develop studies in order to anticipate future developments in the cross-border labor market. Technological innovations, aging of the population, the need to integrate new environmental standards are factors that will impact both supply and demand in cross-border markets. This requires cross-border reflection, as shown in several chapters of this Thematic Issue, one of whose major lessons is that border proximity (and the needs of employment) make it possible to overcome the rigidities caused by the border.

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