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CROSS-BORDER TRANSPORTS AND CROSS-BORDER MOBILITY IN EU BORDER REGIONS

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Abstract:

Administrative boundaries create all sorts of barriers. These include obstacles associated with cross-border mobility. The presence of cross-border transports can be pivotal to reducing the barrier-effect on citizen's mobility and to increasing territorial integration of the European Union (EU). As recent surveys have revealed, cross-border accessibility is still considered a major barrier across most EU borders. In this context, this paper examines the overall current panorama of cross-border transports in the EU as a crucial barrier, whilst proposing a Cross-border Transport Permeability index to allow comparing this barrier across the EU. The findings indicate that cross-border transports are not yet sufficiently developed in the face of the increasing needs of EU citizens to cross borders, even in the most mature and socio-economically developed EU border areas, and that complex legal and administrative frameworks from both sides of the border make the creation of joint solutions for improving cross-border transportation across EU borders a challenging task.

Keywords: Border regions, cross-border cooperation, cross-border transports, cross-border mobility, border barriers, barrier-effect.

1. Introduction and methodology

In round numbers, as of 2016, the European Union (EU) border regions (NUTS 3 - Nomenclature of Units for Territorial Statistics, Level 3) cover around 40% of the EU total population, and 60% of its territory. Inevitably, border issues have gained increasing consideration within the EU policy-making agenda as the EU territory expanded over time. In the end, there is a general awareness that the EU goal of achieving a more integrated and cohesive territory requires concrete measures to reducing the barriers posed by the presence of administrative boundaries.

Here, it is important to first clarify the exact meaning of a ‘border region’ and the related concepts of ‘border’ and ‘boundary’ which, according to Lundén (2006: 7-8), are often used indiscriminately. For Lundén, in British English, “a border is an area running parallel to and on both sides of the boundary, which is a line without an area”. In this perspective, a ‘border region’, or ‘border area’, as some like to call it, denotes a delimited surface area alongside both sides of a particular boundary.

For practical reasons (access to available statistics), the European Commission (EC) has been using the border adjacent to NUTS 3 to define the EU border areas which can access EU funding for cross-border cooperation (CBC) programmes. However, the EC is widely aware that these selection criteria can be erroneous, as several areas within the border NUTS 3 do not have a genuine border character. In light of this, the EC is advocating the use of a 25-km buffer zone on each side of a given boundary as more adequate criteria to define EU border areas.

The presence of a boundary delimiting the sovereignty between different nations inevitably introduces all sorts of barriers to CB flows in border areas. As such, it is acceptable that one uses the notion of ‘border barriers’ instead of ‘boundary barriers’. Indeed, barriers are often associated with border areas and, according to Nijkamp *et al.* (1990: 247-250), can be divided into several types, such as ‘physical’ (mountains, rivers, man-made walls), ‘congestion’ (discrepancy between demand and supply), ‘fiscal’ (visa costs), ‘institutional’ (costs involved in crossing a border between different jurisdictions), ‘technical’ (incompatibility in railway systems of various countries), and ‘cultural, language and information’ barriers.

In the end, all the EC CBC interventions are, directly and indirectly, expected to reduce the prevailing border barriers, or obstacles, as the EC likes to designate them, along the EU borders. Under this scenario, in 2015, included in the celebration of the 25th anniversary of the INTERREG

Community Initiative, now known as the European Territorial Cooperation (ETC) Objective of EU Cohesion Policy, the EC launched a ‘public consultation on overcoming obstacles in border regions’, with the overall goal of collecting “experiences and opinions from citizens, key stakeholders and experts, in order to get a comprehensive overview of what obstacles persist and of their impact on the daily lives of people and businesses in border regions”ⁱ.

As a result, recent and updated data are available to provide more complete and accurate information on the most persisting barriers along the EU borders, together with recent EU surveys (Eurobarometers on border-related barriers) and other studies on the CBC process in the EU. In this regard, this article intends to add an updated and overall analysis of one of the most persisting barriers to EU citizens (mostly cross-border (CB) commuters, those making short-term trips and tourists): the barrier posed by the lack of or reduced presence of CB transports in the EU territory.

Hence, the quality/quantity of CB accessibilities and means of transport play a crucial role in the changes to CB mobility, since they directly affect the potential numbers of CB commuters. Moreover, Rietveld (2012) adds to this discussion the importance of the generalized direct (transport, taxes) and indirect (associated with cultural, institutional and fiscal differences) costs related with crossing the border. In a different prism Gerber (2012), when discussing CB mobility in Benelux, highlights the importance of existing macroeconomic differentials on both sides of the border and the intensity of CB mobility. Finally Schiebel et al. (2015), invoke several other related determinants which affect the citizens behaviour and choices when crossing borders: socio-demographic (age, education, occupation, household composition, and car availability), spatial (density, diversity, proximity to infrastructure and services, availability of parking, and frequency of public transports), journey characteristics (trip purpose, travel distance, travel time, travel cost, departure time, trip chaining, weather conditions, and interchanges between different transport modes) and socio-psychological factors (experience, familiarity with the public transport system, lifestyle choices related to education and occupation, habits, and perceptions and attitudes to transport). In sum, from a conceptual standpoint, CB mobility entails complex and multicomponent analyses.

By selecting the EU border regions as a case study, our analysis does not provide a detailed overlook at the current status of CB mobility in all EU borders. Rather, it intends to depict the present panorama of CB transports availability at the main EU physical crossings. Moreover, it relates the obtained data with recent EU surveys on the perception of EU citizens on persisting

border obstacles, and CB commuting data, in order to identify the EU border crossing with higher and lower permeability to CB mobility.

In the end, this article attempts to fill a noticeable gap in the ‘border regions literature’, by providing some tentative answers on the overall panorama of the CB transports in the EU, and their crucial role in improving CB mobility, which is still regarded as a major border barrier by EU citizens. Moreover, it intends to instil further discussion at the academic and political level, on the need to view CB transports as a fundamental vehicle to reduce the barrier-effect in the accessibility dimension all over Europe. In sum, our work proposes to answer the following research questions:

1. To what extent are CB public transports regarded by European citizens as one major barrier to cross national borders?
2. Which EU border regions are more affected by CB transport-related barriers?

From a methodological standpoint, the answer to the first question relies on the use of mostly qualitative information (literature review), while the second adds quantitative data (availability and number of travels regarding CB transports – buses and trains – in the main CB passages in the EU) to the mix. The paper also makes use of secondary data obtained in EU citizen surveys (Eurobarometer and a recent EU survey on border obstacles).

More specifically, we propose the construction of a ‘simplified CB transports permeability index’ based on two crucial components of transports availability: supply and demand. Supported by available data, the supply information relates to the availability of CB transports in the main CB passages in the EU (international bus and train connections), while the demand is supported by the potential CB commuter’s needs to cross the border by means of CB public transports, based on information provided by EU surveys. Additionally, the demand index is adjusted by two other indicators: (i) population density across the border, and (ii) the amount of commuters in each analysed border: Box 1 - Cross-Border Transport Permeability index formula. Here, the higher the value, the higher the cross-border permeability of the border region.

TP: CB Transport Permeability index TSi: CB Transport Supply index (0-1) TDi: CB Transport Demand index (0-1) B: Buses CB intensity (0-1) T: Trains CB intensity (0-1) C: Commuters CB intensity (0-1) P: Population density in the border region (0-1) D: Demand for CB transports (0-1) $TSi = (B+T)/2$; $TDi = (C+P+D)/3$; $TPi = (TSi/TDi)$

Box 1 - Cross-border Transport Permeability index formula

In sum, the CB Transport Supply index is obtained by the average availability of bus/train routes in EU main physical passages (see Fig. 4). This data was obtained by analysing the available CB bus and train routes (online schedules) across Europe. In turn, the CB Transport Demand Index is based on the average of three different indicators which provide an indication on the potential level of demand for CB public transportations: (i) the level of CB commuting (see Fig. 3); (ii) the amount of population which dwell in border regions (NUTS III - see Fig. 6) and (iii) the perception of EU citizens regarding the need to improve CB accessibility (Fig. 5). The CB commuters data comes from a scientific report on the mobility of CB workers within the EU-27/EEA/EFTA countries (Nerb et al., 2009) (and the perception data comes from a 2015 Eurobarometer survey on border obstacles).

Finally, the attributed CB maturity level was based on our vast experience in evaluating EU CBC programmes (since early 1990s). To evaluate this indicator, we took into consideration the intensity of several parameters: (i) CB strategy (from pin point to long-term); (ii) CB institutional intensity (from weak to strong); (iii) the time period in which CBC processes were formally established (from recent to ancient); (iv) the number of CBC entities (from none/a few to several); (v) the degree of involvement from local/regional authorities (from low to high). This justifies the fact that none of the EU border regions in this study received a maximum (1) value in this indicator. The population density values were obtained in Eurostat.

With regards to the proposed formula to obtain the TPi index, we are aware of some inherent issues in its formulation. Firstly, we decided to average the availability of CB bus and train (supply) transports as a simplification measure. This can be criticized, however, since trains have a higher transport capacity than buses. The same applies to the demand index, which averages three distinct indicators (commuters, density and demand for CB transport). Also, the classification given to all these elements is based on the collected information, which does not have, for the most part, a very

detailed level, namely at the local and regional levels. Finally, the division of the TSi and the TDi provides the index final value.

Understandably, due to the fact that the analysis focuses at the European scale, this index will represent an average situation of its present permeability at the national level. Equally, the analysis does not use a complete set of data for all EU CB accessibility passages. That would make this study unviable, and could only be possible if a similar study focuses on one or two border regions alone.

The paper is structured as follows. The following section (second) provides a synthetic analysis of the CBC process in the EU, and more particularly of the evolution in the operationalisation of the EU CBC financial support, via the INTERREG/ETC programmes since they began to be implemented (1990). A third section is then used to discuss the present panorama of the main border obstacles in the EU, while assessing the importance of CB accessibility barriers to EU citizens. In a summarized way, the fourth section elaborates on EU policy actions on tackling cross-border mobility barriers. Finally, a remaining section (fifth) applies the proposed methodology to assess the EU borders permeability to CB transports, whilst presenting an overall outlook of the degree to which EU border regions still face CB transport barriers, their main causes and potential solutions to solve such type of barriers.

2. Cross-border cooperation process in the EU

As the term implies, CBC is a process which requires the collaboration of one or more entities from at least two different sides of an administrative borderline (normally a country), in order to achieve a certain (common) goal (Medeiros, 2015). According to Wassenberg and Reitel (2015: 8) this cooperation process denotes an action of participating in a common task, and “refers not only to joint activities but also to all the formal and informal mechanisms of concerted action between stakeholders at frontiers”.

For the EC, however, in an initial phase, the EU CBC process was understood as a collaboration activity between neighbouring administrative authorities adjacent to the internal or external frontiers of the EU (Cranfield and Lucchese, 1996: 5). Presently, however, the EC rationale to support CBC programmes is supported by the following main goals: ‘helping to ensure that borders

are not barriers, bringing Europeans closer together, helping to solve common problems, facilitating the sharing of ideas and assets, and encouraging strategic work towards common goals'.ⁱⁱ

Regarding the main impacts of the EU CBC process, although they vary from border area to border area, due to distinct degrees of CB maturity, investment, and other idiosyncrasies, it is more or less consensual that it has directly and indirectly led to the increasing permeability of the EU state borders (see EC, 2010; Medeiros, 2010, 2014; Panteia, 2009). This permeability can be witnessed, for instance, by the increasing CB flows which, in many border regions, are seen as an opportunity for territorial development and restructuring (Sohn, 2014). For some, however, despite a considerable decline in the border effects, they still remain substantial in Europe (Rietveld, 2012).

Moreover, the EU CBC process has been both an essential cornerstone to ensure the implementation of the EU goal of a more harmonious, balanced and integrated EU territorial development process (Medeiros, 2018). At the same time, it has provided a clear institutional, economic and sociocultural added value, as it has led to an increasing involvement and mobilisation of entities and citizens, the mobilisation of the endogenous potential of border regions, and the dissemination of knowledge about the neighbour region (Guillermo-Ramirez, 2018). Despite these contributions, the present political map of Europe still hides a palimpsest of earlier territorial divisions, and reflects differences in housing and job opportunities in adjacent states (Lundén, 2018: 97). Even so, it is possible to positively correlate the implementation of the EU CBC process and the gradual opening of the borders across the EU, following its expansion to the south and east.

More importantly, however, has been the importance of the EU CBC process to instil the implementation of CB entities, of all sorts, across EU borders. The implementation of these entities has increased the possibility to identify common solutions and to address common challenges that are not part of the national administrations priorities (Lange and Pires, 2018). More recently (since 2009), the legal figure of the European Groupings of Territorial Cooperation (EGTCs), established in the EU law, has become a central tool for the EU border regions, namely as a means to organize territorial cooperation processes. The more than 70 EGTCs implemented by early 2018, represent a clear sign of increasing institutionalization of cross-border governance arrangements within Europe, although their institutional capacity varies according context-related factors, such as “functional and structural conditions for cooperation, procedures of cooperation and the nature of measures that should be implemented (Evrard and Engl, 2018: 225).

In short, the understanding of the present scenario of CB barriers intensity in all policy areas, which include CB accessibilities, was forged by historical events over the past centuries. Likewise, far more recent (1950s) transnational (EU, Nordic Council) and cross border (NL-DE Euregio) institutional experimentations have opened avenues for increasing cross-border collaborations, in nonwestern Europe. This explains the higher degree of CB maturity in this part of Europe, when compared with other European territories (Medeiros, 2011). To some extent, the increasing of this CB maturity process followed closely the successive accession processes of EU Member States to southern and eastern Europe, and is closely correlated with the reduction of the border barriers across Europe.

3. Cross-border transports as a major border barrier in the EU?

While less recent literature puts emphasis on different types of existing physical barriers, recent border literature is mainly focused on non-physical types of barriers. ~~More pointedly,~~ (Abler et al. (1972) in their iconic study on ‘spatial diffusion’, identify three main types of physical barriers to flows: (i) absorption (mountains, swamps); (ii) reflexion (lakes); and (iii) permeable (narrow rivers). Understandably, human technology has made it possible to reduce these physical barriers to a minimum, during the last century, especially in the most developed areas of the world, which include the European continent. Here, the notion of permeability, as present in Box 1, is directly related with the permeability of all sorts of border barriers to flows.

As such, more recent literature on existing border barriers is mostly concerned about persisting non-physical barriers, while proposing several different and complementary typologies into which they can be organized. In more detail, Suárez-Villa *et al.* (1991) proposes a division of barriers in three main groups: (i) isolated; (ii) interconnected; (iii) commonly controlled. As it stands, presently, all EU borders could be fitted in the second type of borders (interconnected), and only a few in the last one (commonly controlled), as it depicts a scenario in which there is no duplication of services and a pro-active engagement in the management of local administration across borders. For Wassenberg and Reitel (2015:8), however, existing barriers are commonly understood to be of legal, political, economic or cultural character, while Medeiros (2010) proposes the division of the barrier effect into five main dimensions: (i) accessibilities; (ii) cultural–social; (iii) environment–heritage; (iv) institutional–legal; (v) economy–technology.

~~More whimsically,~~ For Knotter (2002-03), inequalities and discrepancies between nations and regions on each side of the border can be seen in the field of economy, society, law and culture, which determines distinct cross-border behaviours. At the same time, Knotter stresses that borders open opportunities to explore differences in wages, prices, employment, services and regulations, whilst stating that “most of the cross-border mobility and interaction was and is of an opportunistic nature and based on national differences instead of integration” - the border paradox.

As it happens, we all live in a world of borders and associated barriers which, as Newman (2006:172) asserts, give order to our world, and are not confined to the realm of inter-state divisions, while impacting strongly on our daily life practices, despite being invisible to our lives. But as far as the EU project is concerned, a useful entry point for the discussion of border barriers is the analysis of the goal of ‘European integration’. Recognizably, this process has been in the making during the last three decades, and has directly, and indirectly, “created an array of new opportunities for internal flows and exchanges by successively dismantling many obstacles which previously resulted from the more rigid function of the classical nation-state borders. However, barriers and obstacles continue to exist at the internal EU/EEA borders and, especially along the external EU/EEA borders, they have in some respects been further strengthened” (ESPON GEOSPECS, 2013: 74).

In reality, under normal circumstances, one would expect that the reduction of barriers across EU borders would lead to a perception by EU citizens that there is a continuous reduction of border obstacles across EU borders. However, recent data from EU surveys on existing border obstacles concludes otherwise (Medeiros, 2016). This is the paradox of the CBC process. But does this mean that this process is counterproductive to territorial development? Definitely not. This solely reflects the wide differences between EU Member States administrative and legal regulations, which can only be encountered when the border permeability is increased.

But what are the most prevailing barriers across EU borders after more than 25 years of EU CB programmes implementation in the old EU Member States’ borders, and close to ten years in the eastern ones? In this regard, the recent (2015–2016) online public consultation on border obstacles, conducted by DG REGIO (EC), revealed that EU citizens consider ‘legal and administrative’ types of barriers as the main obstacles to their daily lives when crossing the border. These barriers are followed by language, and those related to physical accessibilities, which include transports (Fig. 1). Regarding the latter, the same survey highlighted several concerns associated with the lack

and/or low quality/safety of physical CB infrastructures, the lack of integrated public transport systems at the border, the low frequency and excessive pricing of existing CB transport connections, the presence of different rules and standards in relation to transport, and the inadequacy of existing CB physical connections to the present traffic flows, in several EU border regions (EC, 2016).

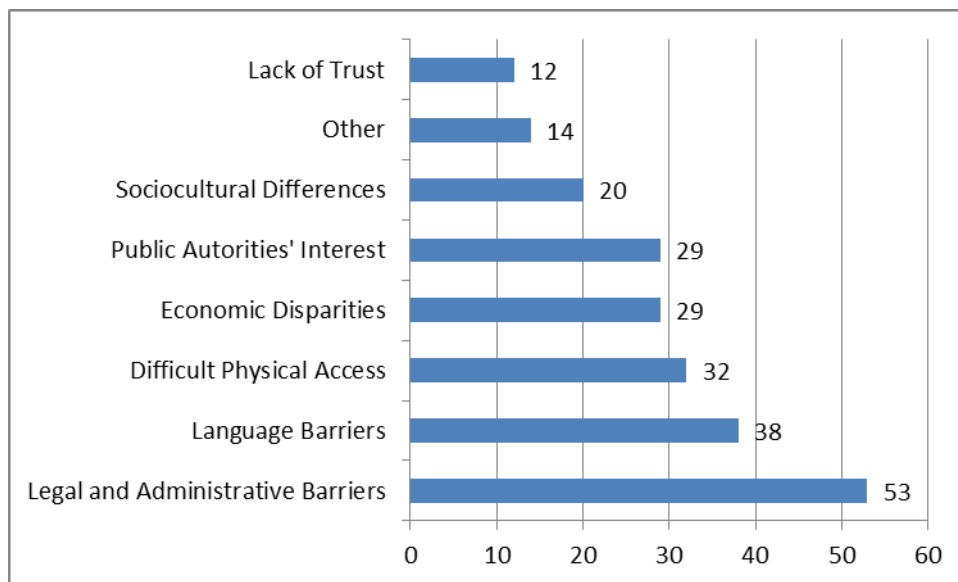


Fig. 1 - Relevance and frequency of obstacles for EU citizens - 2016 (%) - Source: (EC, 2016)

A more detailed analysis of the open-ended responses of the aforementioned online public consultation on persisting border obstacles in the EU/EFTA space, reveals that the accessibility dimension of the barrier-effect concept was mentioned by a quarter of the survey respondents as a main obstacle to crossing the border, mainly due to the existence of poor CB connectivity and the lack or reduced presence of adequate CB transports (Table 1). As it stands, the importance of proximity and existence of public transport means are seen as important drivers for CB commuting, although administrative barriers can be overcome if strong pull economic factors exist (Fries-Terch et al., 2018).

Table 1 - Main persisting border obstacles per Barrier Effect dimension in the EU - 2016

Barrier Effect	%	Barrier Effect	%
1 - Accessibilities	25,6	3 - Economy/Technology	13,8
1.1 - Public Transports	8,7	3.1 - Economic Disparities	6,7
1.2 - Road Connections	2,5	3.2 - Fiscal Issues	1,2
1.3 - Rail Connections	2,9	3.3 - Labour Market	3,9
1.4 - Transport Systems	0,7	3.4 - Innovation	0,2
1.5 - Air Transport	0,3	3.5 - Entrepreneurship	0,2
1.6 - Poor connectivity	7,9	3.6 - Use of technology	1,0
1.7 - Transport rules, regulations, price	1,9	3.7 - Exchange rates	0,6
1.8 - Maritime Connections	0,6	4 - Institutional/Administrative	31,7
2 - Social/Culture	28,3	4.1 - Legal Asymmetries (tax-visa-laws)	13,2
2.1 - Language	15,2	4.2 - Public Authorities Involvement	7,1
2.2 - Trust	2,5	4.3 - CBC Structures	0,7
2.3 - Health	2,6	4.4 - Governance	0,7
2.4 - Education	4,0	4.5 - Information	1,5
2.5 - Culture Differences	2,9	4.6 - Administrative asymmetries	6,4
2.6 - Security	0,6	4.7 - Mobilizing civil society	0,4
2.7 - Young people	0,2	4.8 - EU bureaucracy and budget	1,7
2.8 - Mental barriers	0,2	5 - Environment	0,6
Source: based on the DG REGIO's public consultation on persisting 'border obstacles' open questionnaire - author compilation		5.1 - Environment issues	0,5
		5.2 - Tourism	0,2
		5.3 - Heritage Protection	0,0

More importantly, however, is the revelation that these CB transport barriers are extensive to most EU borders, including the ones where the CB process is more mature and intense (Fig. 2). This is easily explained by the increasing CB flows which these latter border areas have experienced in the last decades, as a consequence of increasing border permeability, and by many other factors which are behind the incapacity to adapt CB accessibility infrastructures to the increasing CB flows across the EU. This assumption is confirmed by Pucher et al. (2016:2), in a recent study on the CB transport infrastructure European missing-links, which concluded that "densely populated areas with high commuter flows may need additional border crossings due to their high demand, even when existing infrastructure is highly developed".

As expected, CB transport is mostly seen as a more significant obstacle to the EU citizens living in the old EU Member States (Svensson and Balogh, 2018), as the levels of cross-border commuting are more intense there (Fig. 3). Indeed, as a complement to the mentioned 'public online survey',

data from another recent EU survey (Eurobarometer 2015) on the presence of border obstacles in each EU financed CBC programme, showed that around one in three respondents considered accessibility-related barriers to be their fifth major barrier when crossing borders (30%), after the presence of cultural (32%), legal and administrative (45%), and socio-economic differences (47%), and language-related barriers (56%). In more detail, respondents from all around Italy were the ones with more complaints regarding accessibility types of barriers (Fig. 4). In a complementary way, Decoville and Durand (2018: 15-6), also based on an Eurobarometer survey (442), conclude that cross-border flows and perceptions vary greatly from one cross-border area to another, and that one cannot simply associate the concept of cross-border integration with only one of its dimensions, and namely that of cross-border flows.

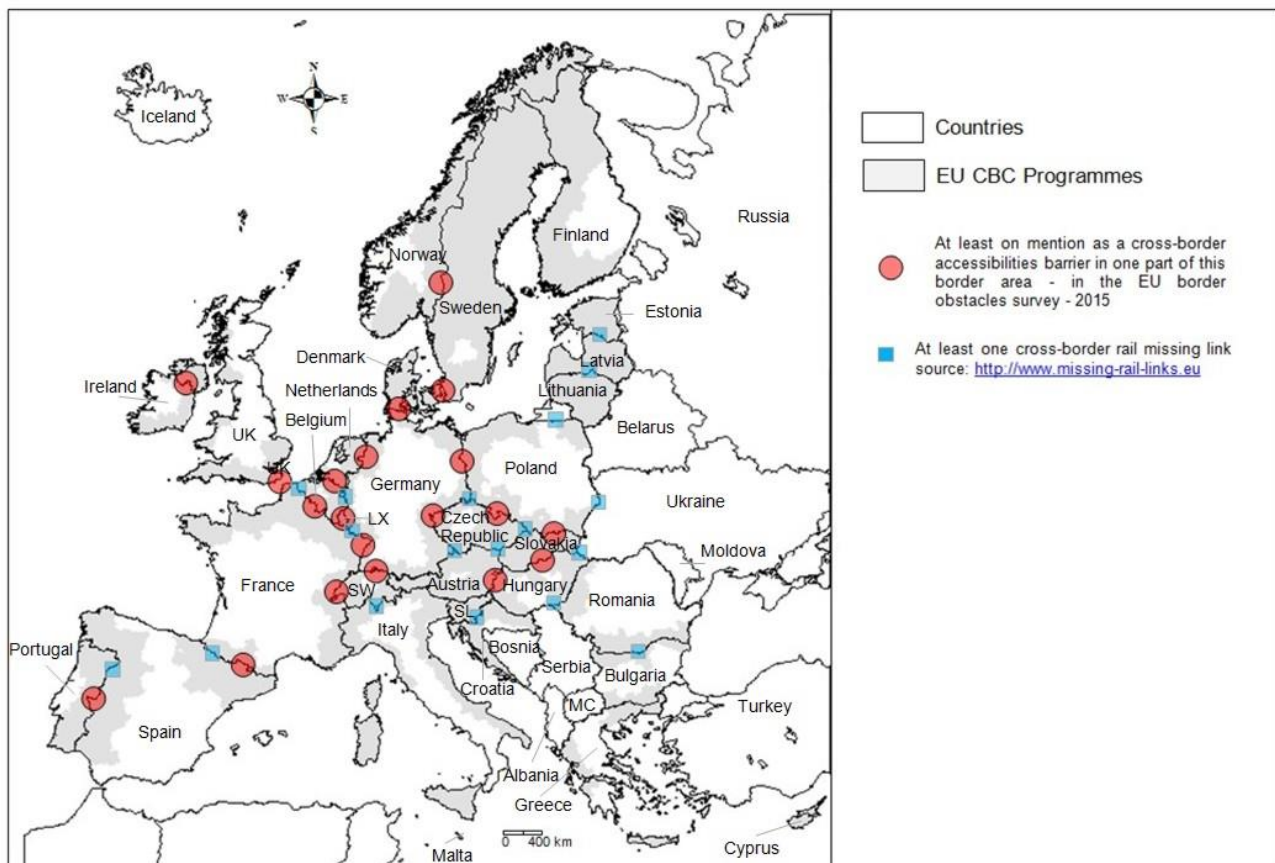


Fig. 2 - Transport accessibility barriers in Europe - Own elaboration

Hence, and returning to one of the article main research questions, from our analysis we can conclude that crossing European borders by means of CB public transports is still regarded as one of the major barriers to EU citizens and to the goal of achieving CB integration, and that such barrier is widespread throughout all EU territory.

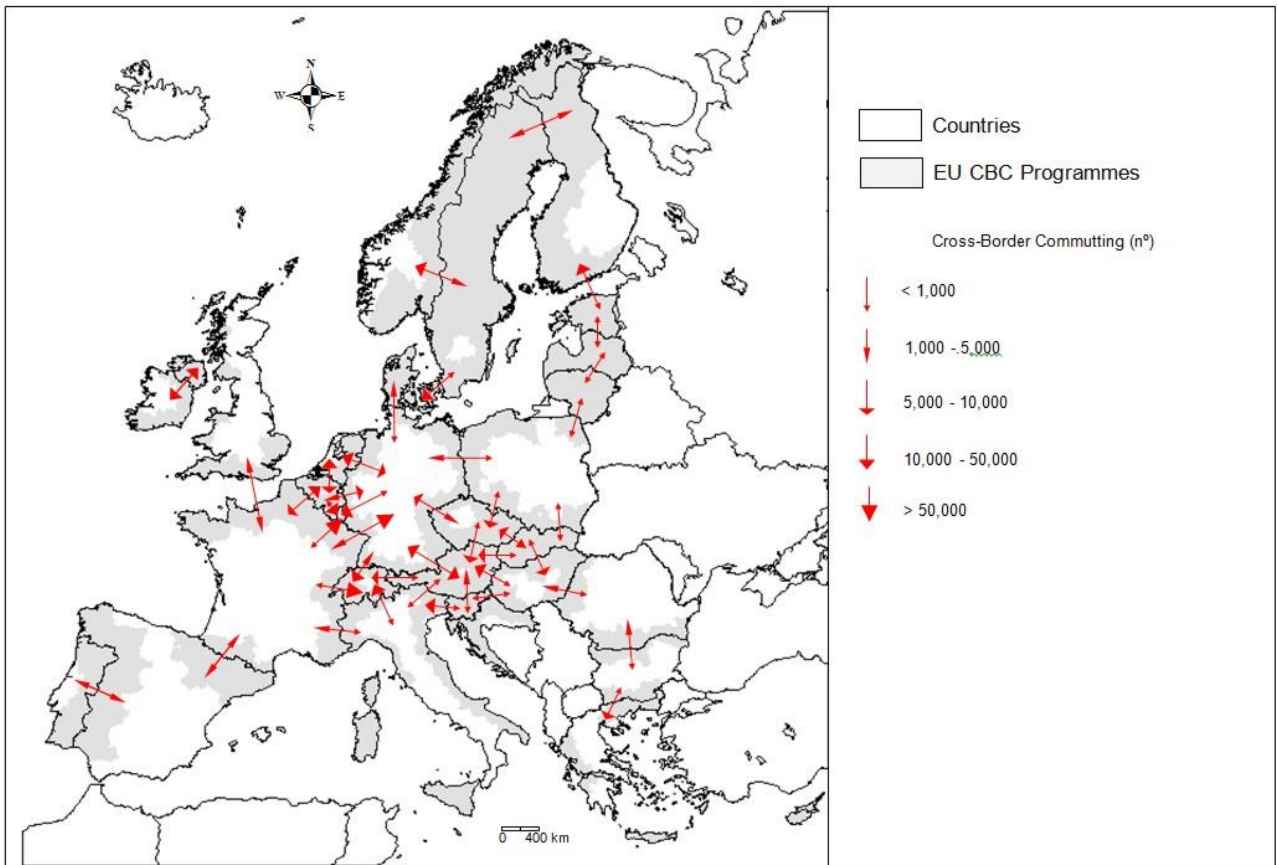


Fig. 3 - Cross-border commuting and Perception of Accessibility barriers - Own elaboration

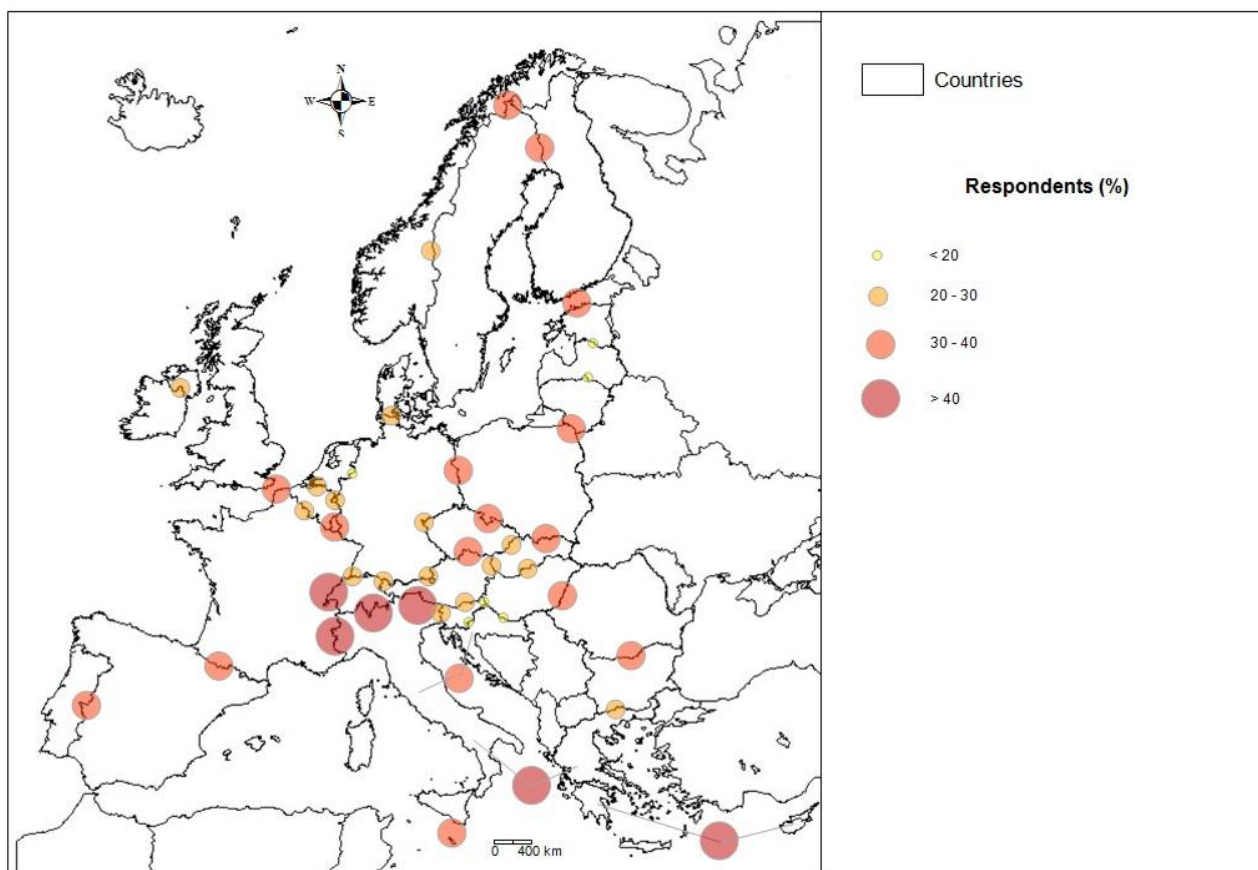


Fig. 4 - Accessibility barriers intensity based in the EU CBC programmes - 2015. Source: Eurobarometer survey on border obstacles

4. Cross-border mobility in the EU policymaking

The debate over the relation between regional accessibility and economic competitiveness has been long and is still ongoing (see Keeble et al., 1982). On one hand, it is difficult to dispute the argument that improvements in transport infrastructure leads to increasing regional competitiveness, attractiveness, and levels of productivity and wages (Matas et al., 2015), as well as lower transport costs for commodities and access to markets. However, certain “analysis of the impacts of the development of the trans-European high-speed rail network confirms the view that Trans-European Networks -TENs, in contrast to the claims of the Maastricht Treaty, may widen rather than narrow differences in accessibility between central and peripheral regions” (Vickerman et al., 1999: 12).

Despite this lack of consensus, “there seems to be a clear positive correlation between transport infrastructure endowment or the location in interregional networks and the levels of economic indicators such as GDP per capita. However, in most countries this correlation may merely reflect historical agglomeration processes rather than causal relationships effective today” (ESPON TRACC, 2015: 1). In effect, “while a good transport network might be important for development,

its effects depend critically on what else happens in the region or country concerned” (EC, 2014: 228).

From a strictly policy guideline point of view, the EU transport policy expresses the rationale that a well-functioning transport system connecting the EU and neighbouring countries is crucial for sustainable economic growth and the wellbeing of EU citizens. Furthermore, it argues that a better integration of national networks will contribute to fostering regional cooperation and integration between the EU and its neighbouring countries (EC, 2007b: 1). But more importantly, the increasing opening of borders in the EU territory should, in our view, place the need for improving EU territorial accessibility at the core of the EU policy agenda.

Most fundamentally, this need for an EU common transport strategy and policy, while referred to the Treaty of Rome, was only actively developed at the end of the 1980s (Dühr, 2010: 295). Faced with increasing needs for territorial mobility, the EU transport policies have been evolving since then. ~~More particularly,~~ The Trans-European Transport Networks (TEN-T), which were engaged by the early 1990s with the overall goal of supporting “the functioning of the internal market through continuous and efficient networks in the fields of transport, energy and telecommunications” (Eurostat, 2015: 208), can be seen as the most eloquent example of the EU accomplishments in connecting the EU territory. To keep this pace, by 2014, a new transport infrastructure policy was agreed, following the white paper entitled ‘Roadmap to a Single European Transport Area, Towards a Competitive and Resource Efficient Transport System’ (EC, 2011), in order to better connect the main EU ports and airports with rail and road links to the major cities.

Another landmark for EU transport policy was the introduction of the Cohesion Fund in 1992, in order to increase the support for investment in transport and environmental infrastructure in less developed Member States (EC, 2014; Medeiros et al., 2016). In concrete terms, evaluation reports concede that EU investments under EU Cohesion Policy built around 3,000 km of key European transport networks (15% of the overall TENs network), while EUR €59B is allocated to transport and energy network infrastructure in the present programming period (2014–2020), a decrease of 21% compared to 2007–2013. There is, however, recognition that few new railway lines were constructed over the period up to the end of 2012, despite “significant improvements made to existing lines, through electrification, the installation of modern signalling, conversion of single to dual track and so on” (EC, 2014: 216).

Generally speaking, and according to Dühr et al. (2010: 295), the main argument for EU transport and infrastructure policies intervention is rooted in three main goals: competitiveness, cohesion and sustainability. Again, transport improvements are regarded by the EC to be pivotal to economic development and cohesion. In a sense, the associated investments can provide positive impacts in increasing territorial cohesion and establishing a smoother operation of the internal market (Fontesa et al., 2014). In the same line of reasoning, European Observation Network for Territorial Development (ESPON) synthesis reports conclude that existing accessibility bottlenecks can hamper territorial development (ESPON ATLAS, 2007; 2014: 34). Indeed, in present times, at certain EU border crossings, CB commuting flows may be substantial (Huber and Nowotny, 2013), thus justifying continuous investment on mitigating CB accessibility bottlenecks.

For the most part, however, the implementation of CB transport infrastructures is based on the EU TEN-T policy (Fontesa et al., 2014) which proposes to establish 35 CB projects to reducing existing bottlenecks. From past experience, it is possible to conclude that joint investments in border areas have the potential to provide for enhancing improvements in road accessibility on both sides of the border. In this regard, CB road transport developments, financed with EU funds, “have improved the situation for many regions, particularly in Eastern Europe, benefiting both from reduced border waiting times and from new infrastructure endowment” (ESPON, 2009: 6). However, the influence of the CB entities in the design of EU TEN-T policies is limited, as these policies are defined between Member States and the EC (Chilla et al., 2012: 972).

From an EU level, the INTERREG/ETC programmes have been the most important EU financial instrument for supporting the EU CBC process. Since its first phase (1989 –1993) they started to finance flagship transport infrastructural projects across all EU border areas. In the south of Europe, particularly, the efforts were concentrated on improving basic and missing CB accessibilities. For instance, between Portugal and Spain, INTERREG-A funded the construction of two CB bridges (Valença and Guadiana) and the improvement of several CB road crossings (see Medeiros, 2010). In turn, in the ‘old’ EU borders, efforts were put into improving inter-regional and international transports, such as the implementation of CB public transport projects between Emmen-Meppen (DE/NL) and a transports consortium in the Salzburg-Berchtesgadener Land-Traunstein Euroregion (AT/DE). But also, the EU eastern borders saw their share of flagship CB transport projects, such as a new ferry line in the Elbe-Labe Euroregion (CZ/DE) and a new CB crossing between Radomierzycze and Hagenwerder (PL/DE - see AEBR, 2014).

Furthermore, according to Wassenberg and Reitel (2015:3) several other EU border areas received support to improve CB transports: Benelux, the external borders of Finland/Russia and the Black Sea Programme, Finland/Estonia, Sweden/Finland, Estonia/Latvia, Ireland/UK, Italy/Slovenia, and Greece/Cyprus. In addition, available literature indicates that these and many other EU border areas were subject to CB accessibility related interventions (Table 2).

Table 2 - Cross-Border accessibility remarks in available literature

Border area	Synthetic remarks	Source
Portugal/Spain	The INTERREG completely changed, for the better, the accessibility panorama in this border area	(Fontesa, <i>et al.</i> , 2014). (Medeiros, 2010)
Ireland/UK	The border has become more porous overtime	(Nash and Reid, 2010)
Denmark/Germany	Considerable progresses in CB accessibility reflected a pronounced growth of CB commuting.	(Buch, <i>et al.</i> , 2009)
Hungary/Romania	Improvements in CB accessibility have been seen as priorities, providing alternatives to the heavily used crossing points	(Lawrence, 2011)
Estonia/Finland	The possibilities of EU Structural Funds have stimulated issues regarding the transport infrastructure	(Pikner, 2008)
Sweden/Denmark	Investments in CB transport infrastructure have had a strong impact on reducing the physical distances around the Öresund region	(Lundquist and Trippl, 2011)
Sweden/Norway	INTERREG provided a way to finance CB transport studies with positive consequences to increasing CB rail passages and territorial cohesion	(Medeiros, 2014b, 2014c)
England/France	A strategic framework for development and transport called A Vision for Euroregion was put in place	(Church and Reid, 1999)
Oslo-Berlin Corridor	There is a strong commitment to see transport as a means for development of this corridor	(Jensen and Jespersen, 2006)
Switzerland-France-Germany	Extensive agglomeration areas, especially within the country of the agglomeration centre itself, are not served by any cross-border services (neither rail nor bus).	(Barth, 2014)

5. Cross-border transports permeability across the EU.

When it comes to the accessibility type of barrier it is important to take into consideration that accessibility is the main 'product' of a transport system (ESPON TRACC, 2015:1). From an historical perspective, until the 1970s no major advances were made in improving CB transports connections in Europe. On the contrary, on certain occasions, existing CB transport infrastructures were deactivated due to reduced profitability, as in the case of train lines in the Norwegian-Swedish border area (Lundén, 2004). However, the late 1980s marked a shift towards the implementation of more pro-active measures to improving CB physical links, following the implementation of the Single Market, the constant EU enlargement processes and the availability of wider financial sources (EU Cohesion Policy - Cohesion Fund and INTERREG, PHare and SAPARD, and ISPA (AEBR, 2014).

On the positive side, this continuous process of European integration has considerably facilitated labour mobility in the EU territory, as CB labour flows found their *raison-d'être* in labour market disparities. Nevertheless, CB commuting is still at a low level in many EU border regions, even in some mature and old ones, as in the German-Danish case (Buch et al., 2009). Indeed, as some case-studies point out, the supply of CB transports is still low vis-à-vis the growing need to cross borders in the EU, even in the more mature CB areas (MOT, 2006). ~~More acutely,~~ Recent data points to an average modal share of public transport in CB flows of around 7%, which is explained by a mismatch between a poorly adapted or insufficient transport supply and an unknown demand due to a lack of surveys and statistics.

In France alone, which is an EU Member State characterized by large-scale and increasing CB flows of outgoing commuters (around 380.000 workers – roughly 40% of all European flows of cross-border workers; – MOT, 2015: 66), the use of cross-border transports by commuters is relatively weak, due to a limited offer, leading to negative impacts on the environment by the excessive use of private vehicles. Curiously, the majority of the French cross-border commuters use the train (78%), and the rest available bus connections (22%). More precisely, the 43 lines of urban buses which depart from 12 CB agglomerations are located mostly in the northeast of France. In essence, the number of inter-urban buses is very reduced – minimum service – which explains the reduced use of those bus lines and their precarious development. Regarding the French cross-border train connections, certain lines offer 30 trips per day. However, for the most part, there is a lack of interoperability between existing public transports (MOT, 2006).

Concerning these cross-border physical barriers, an ESPON study (GEOSPECS, 2013), produced updated and enlightening cartography on the travel time by road to the EU and EFTA countries' internal and external borders, which paints a picture of contrasting areas between well-served 'old-central' EU borders (Benelux, France, Germany, Switzerland, Czech Republic, Hungary) and poorly-served northern and eastern borders, in terms of cross-border road infrastructure. Indeed, this contrast is once again revealed when using data related to the availability of CB public transports in the main EU CB physical crossings (road and rail - Fig. 5), although this data should be read with care, as available transports tend to adapt with passenger demand. Nevertheless, the reading of this data represents a clear sign that the barriers to CB mobility in the EU are undesirably high.

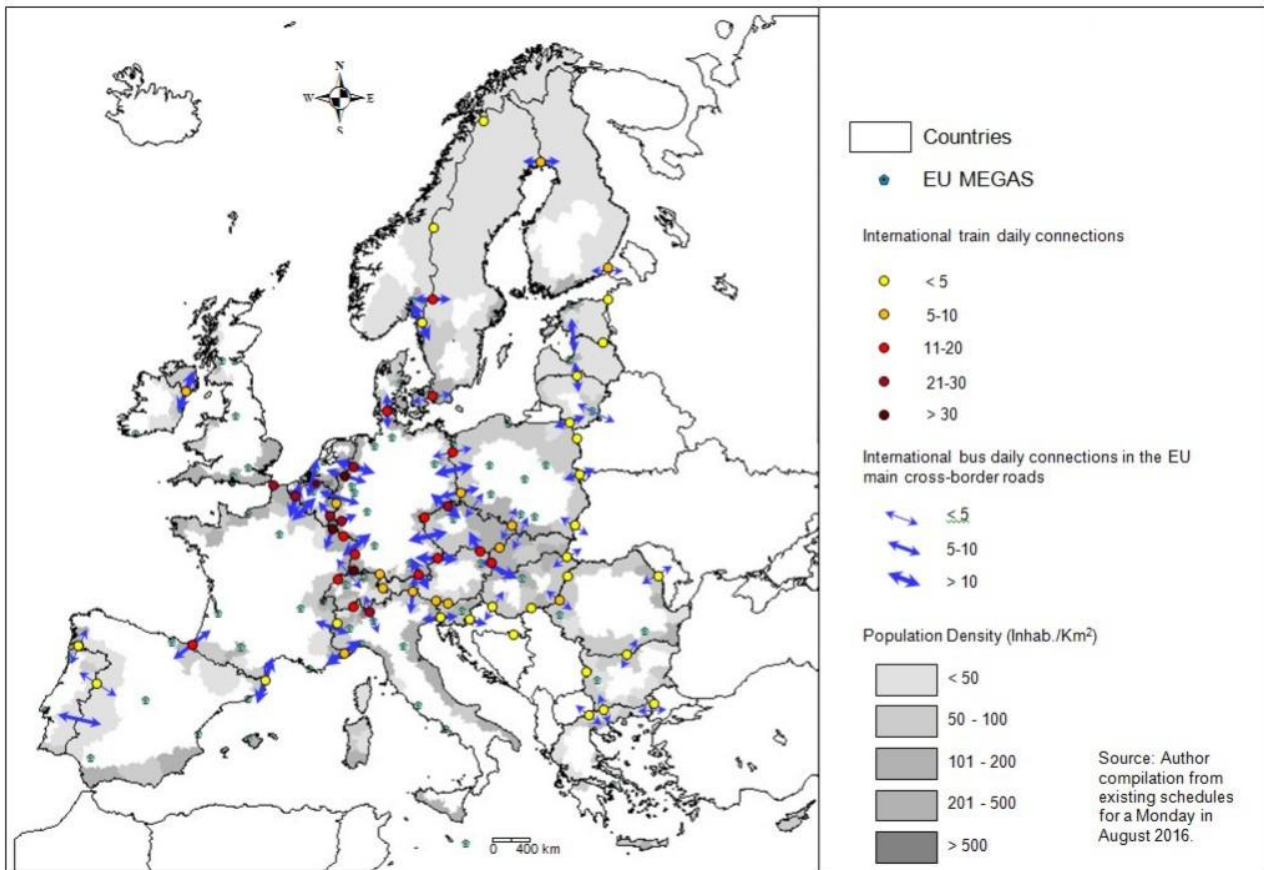


Fig. 5 - Cross-border international transport carriers in the main road and rail crossings - EU 2016

On the other hand, the simple fact that some EU border areas have higher numbers of daily CB public transport connections does not necessarily mean that they are adapted to the current needs of CB travellers, as the population densities are higher there, so the CB flows of workers are more intense as well. From a different angle, an increasing availability of CB public transports will eventually add to higher levels of CB mobility. As a consequence, investments in improving CB transports can have a dual positive impact in reducing barriers to CB mobility and in mitigating environmental impacts associated with the use of private transportation. In addition, CB transports might lead to the reduction of disparities within border regions (Buch et al., 2009).

Moreover, the improvement of the EU CB public transport systems could represent one important factor for the European integration process, not only because of its potential to encourage CB mobility, but also because it allows for the multiplication of CB contacts and exchanges, as well as for the establishment of platforms for advanced CB spatial planning strategies (MOT, 2006). As some note, successful CBC in spatial development can lead to joint strategy development in border

regions in several domains, such as “economic clusters, labour markets, education and training, transport, as well as tourism and public services” (Knippschild, 2011: 644).

In the bigger picture, Euroregions are mostly concerned with administrative matters demanding CB coordination at the regional and local levels, which include spatial planning, transport and environmental externalities (Perkmann, 2002: 115). In some cases, other territorial authorities delegate the managing of transports, social protection or housing policies, to Euregions (Harguindeguy, 2008). As an example, Perkmann (2007: 257) highlights the success of the first EU Euroregion (EUREGIO – between the Netherlands and Germany in 1957) in “influencing transport infrastructure decisions, such as the building of motorways connecting the area to the main German networks or the preservation of railway lines”.

In effect, the growing importance of Euroregions and similar types of CB entities (Working Communities, European Groupings of Territorial Cooperation EGTCs - see Perkmann, 2003; Medeiros, 2011) in the EU territory, elevates their role as main drivers to reduce the barrier-effect in CB accessibilities, as the “management of the border regime determines the relative ease or difficulty with which borders are crossed, or alternatively the extent to which the borders still constitutes a barrier to movement of people, goods and ideas” (Newman, 2006: 172).

In more particular cases, the ‘Greater Region’ (Grande Région in French - a large border area around Luxembourg) identified transport as one of five priority policies which have the potential to increase the CBC process in this border region (Chilla et al., 2012: 970). Also, the ‘Transmanche Region’ (England-France) has produced a strategic framework for development and transport, called ‘a vision for Euroregion’ (Church and Reid, 1999: 647). For its part, in the ‘Metropolitan region of Luxembourg’, around 21,000 workers per day use public transportation to cross the country’s borders, towards the agglomeration of Luxembourg City (more than one quarter of the overall number of commuters). This scenario placed physical mobility by road and rail as a key strategic arena for intensifying the CB metropolitan region’s functional integration. However, as Dörny and Decoville (2016: 69) conclude, “governing such multifaceted issues in cross-border regions requires the implementation of suitable and efficient organizational solutions”.

Likewise, certain EU CB metropolitan areas have not neglected the need for strategic interventions in improving CB public transportation services. As an example, the Eurometropolis Lille–Kortrijk–Tournai, has been developing a public transport strategy which “aims to improve both the internal

accessibility and external accessibility of the cross-border urban area in order to create a space that is as integrated as metropolitan regions that are not crossed by borders“ (Durand and Lamour, 2014: 199). Evidently, the concretization of such a goal requires strongly coordinated efforts from both public and private actors. At another spatial level, all EU macro-regional strategies also have as a central goal the improvement of CB transport infra-structures (Bialasiewicz et al., 2013; Medeiros, 2013).

As it happens, even in times of advanced technological advances, with increasing possibilities to communicate without a need for physical presence, the multiple contacts we had with project leaders from INTERREG-A projects confirm the assumption that the lack of proper physical CB connections can undermine the CBC process in any given border area. These revelations add to the need to place CB transports and infra-structures at the heart of development strategies for CB regions (AEBR, 2014: 332). In equal measure, as Lundquist and Tripl (2011: 454) put it:”when it comes to the exchange of knowledge (especially tacit one) which depends on face-to-face contacts, the accessibility dimension could be assumed to be very important”.

However, reaching high levels of CB labour market integration in border regions requires more than the mitigation of physical, administrative and legal obstacles alone (Buch et al., 2009). In reality, one detailed study on CB transports in the EU (French borders) identifies several obstacles to developing better CB transport systems (MOT, 2006:11):

- Weak statistics: lack of knowledge on the number of passengers on certain bus connections;
- Inadequate offer in relation to the demand: the poor results in the use of certain CB transport lines do not give incentives to public powers to improve and adapt the offer to certain schedules and itineraries, which might interest the users (mostly CB workers);
- Weak articulation between transport projects and spatial planning: for the most part, CB transports are not part of spatial planning. Even in France, they are not present in regional and urban spatial plans. Hence, the articulation of CB transport projects is weak and rare. Worse still, the creation of CB bus lines is mostly a private initiative;
- Absence of a model of actor’s involvement: there is a lack of knowledge from the transport systems, and a large break-up between decision-making levels;
- Difficult articulation: between the competence levels on both sides of the border;

- Difficulties in train interoperability: these problems are more visible in the security systems. The delays in the homologation from new materials require at least two years and the acquisition of CB material is more expensive than expected.

Moreover, in its preparation study to assess the main prevailing obstacles in EU borders, a research consortium identified six main analytic components related to cross-border transportation obstacles (METIS, 2015), as follows: (1) scope and quality of regional/local and cross-border transport infrastructures; (2) passenger transport by road and ferry services on inland waters (e.g. quality of transport system, density of connections etc.); (3) public transport by bus, rail, light rail or metro (e.g. quality of service offer, density of connections, harmonisation of tariffs and schedules, etc.); (4) freight transport by rail, road or inland water shipping (i.e. systems interoperability, logistics services, modal shifts, etc.); (5) intelligent traffic systems and management of road congestion; and (6) border crossing points and efficiency of customs clearance processes. As can be seen, the analysis of CB transports in the EU encompasses a wide spectrum of inter-related elements, which require planning consensus from many involved entities, making it a complex process.

One crucial source of information regarding the updated overview of existing barriers in the EU for this article was the online public consultation on overcoming obstacles in EU border regions. This public consultation had several closed and open-ended questions. As expected, the latter revealed a very detailed and diverse set of comments. The analysis of all these responses revealed that regarding the transport accessibility related obstacles the following aspects were highlighted by EU citizens as the most important barriers:

- Lack of information on existing tariffs and schedules;
- Lack of quality of transport infrastructures;
- Inappropriate speed and frequency of cross-border public transportation modes;
- Excessive ticket prices;
- Marked differences in rules and ticket systems;
- Lack of interoperability of existing cross-border transport systems;
- Lack of cross-border planning in establishing cross-border transport systems.

As concrete solutions to those problems, the respondents proposed several measures such as the harmonization of the existent CB transport systems; improvements in providing higher levels of information to the public; reduction of ticket prices; the implementation of more, faster and direct transport connections; improvements in the existing transports links and interoperability; and the expansion of railway lines and motorways.

In short, CB public transports in Europe face several challenges and obstacles of different character (technical, political and institutional), requiring political and institutional will from many entities to agree upon tailor-made solutions and financing, in order to better serve the present needs of cross-border commuters. This goal includes the optimization of existing CB public transport links; the harmonisation of technical, institutional and political frameworks; and the provision of new cross-border transport connections where necessary.

However, at the basis of persisting CB transport-related barriers are complex legal, regulatory, technical and institutional frameworks; the degree of the local-regional political will; and relations to engage in solving this specific issue, as the solutions should be formulated at the local-regional level (see Barth, 2014; CONPASS, 2002). Furthermore, the lack of available data (statistics) to provide a more detailed picture of the current situation of CB transports in the EU, together with the inability of institutions and citizens to solve this question (MOT, 2006) add to the persistency of this type of obstacle in the EU territory. Finally, the general absence of up-dated and effective CB planning processes within the EU borders hinders the implementation of needed CB transport accessibility projects.

Despite all the complexity involved in the analysis of CB transport permeability, in order to answer our second research question (which EU border regions are more affected by CB transport-related barriers?) we built a CB Transport Permeability index, as explained in the methodology section, using data related with the ‘supply’ (availability and intensity of CB bus and train connections in the main EU CB passages) and ‘demand’ (citizens needs on CB transportation, border region population density, and intensity of CB commuting) sides of the CB transport process in the EU/EFTA area. As previously noted, the proposed Index is quite simplified and generic due to data availability in the studied territory, and would require a complemented deep analysis in each of the analysed border regions at the national/regional levels. Nevertheless, the results showed in Table 3 are, in our understanding, sufficiently informative to conclude the following:

~~- There is no correlation between the degree of CB maturity and the level of CB transport permeability in Europe. Meaning, that even~~ Old and mature cross-border regions experience high levels of CB transport obstacles, such as the case of the French-Swiss border region. For instance, one of the EU border regions with higher levels of cross-border maturity (Germany - Holland) presents an index of 1.071 in contrast with border regions characterised by less mature and intense

cross-border relations from an institutional point of view (Estonia - Latvia - 1.500). This is a result of an evident inadequacy of available CB public transportations in view of the commuters present demand.

- Several eastern European border regions need to greatly improve the degree of CB transports permeability, namely on bus and train connections (Poland - Slovakia; Hungary - Romania and Poland - Czech Republic). Yet, this problematic issue is extensive to many other EU border regions.

- Only two border regions experience a high level of CB transport permeability, both located in around Germany. And only six present an index above 1.490. ~~This is a worrying scenario in which the supply of CB public transports is not being adjusted to the demand.~~

Following from the index results, it is possible to realise that much is needed to improve the CB transport accessibilities across EU border regions. As possible policy measures to invert this scenario are the need to (i) establish and finance more CB bus and train connections, both at the local/regional and transnational (TEN-T networks) levels; and (ii) finance more detailed studies on the present demand and supply of CB transports in all EU border areas, in order to adequate the demand with the supply when it comes to the expectations of CB commuters in crossing the border. These measures should be accompanied with the improvement of CB physical accessibilities (roads, railways), by taking into consideration the present CB commuting flows, as well implementing proactive measures to attract more CB commuters to use CB transports: (i) reduction of ticket prices; (ii) wider availability and frequency and speediness of CB transports; and (iii) better information to users from both sides of the border.

The potential benefits for improving CB accessibility via public transport by train and bus, is not only immediately evident for all CB commuters - as the mitigation of this border barrier would facilitate their daily lives when travelling from home to work -, but for all citizens as well. In this regard, one can point out several potential positive impacts: (i) environmental benefits, as the use of private vehicles is required in a less degree; (ii) tourism benefits, as points of touristic interest destinations would become easily accessible for all, and namely for tourists not travelling in their private vehicles; (iii) economic benefits, as the use of public transports is far more efficient than the use of private vehicles, and because of potential increasing of more tourists; (iv) social benefits, as public transportation tickets tend to be subsidised, since they are often considered a service of general interest; and (v) cultural benefits, as a potential wider number of visitors across borders.

Table 3 - Cross-Border Transport Permeability (TP) Index

CB Link	Bus	Train	Commuters	Pop. Density	Demand	Maturity	TP Index
Germany - Czech Republic	0,75	0,75	0,25	0,5	0,25	0,5	2,250
Germany - Denmark	0,5	0,75	0,25	0,5	0,25	0,75	1,875
Spain-France	0,5	0,5	0,25	0,25	0,5	0,5	1,500
Germany - Austria	0,75	0,5	0,5	0,5	0,25	0,75	1,500
Sweden - Norway	0,5	0,5	0,5	0,25	0,25	0,75	1,500
Estonia - Latvia	0,5	0,25	0,25	0,25	0,25	0,25	1,500
Latvia - Lithuania	0,5	0,25	0,25	0,25	0,25	0,25	1,500
France-Germany	0,75	0,75	0,75	0,5	0,5	0,75	1,286
France-Belgium	0,75	0,75	0,5	0,75	0,5	0,75	1,286
Belgium - Holland	0,5	1	0,75	0,75	0,25	0,75	1,286
United Kingdom - Ireland	0,5	0,5	0,5	0,5	0,25	0,5	1,200
Germany - Poland	0,5	0,5	0,25	0,5	0,5	0,5	1,200
Austria - Slovakia	0,5	0,5	0,5	0,5	0,25	0,5	1,200
Austria - Hungary	0,5	0,5	0,5	0,5	0,25	0,5	1,200
Sweden - Finland	0,5	0,25	0,25	0,25	0,5	0,75	1,125
Sweden - Denmark	0,25	0,5	0,25	0,5	0,25	0,75	1,125
Germany - Holland	0,5	0,75	0,75	0,75	0,25	0,75	1,071
Germany - Switzerland	0,25	0,75	0,75	0,5	0,25	0,75	1,000
Austria - Czech Republic	0,5	0,5	0,5	0,5	0,5	0,5	1,000
Hungary - Slovenia	0,25	0,25	0,25	0,25	0,25	0,5	1,000
Belgium - Luxembourg	0,5	0,75	0,75	0,75	0,5	0,75	0,938
Germany - Luxembourg	0,5	0,75	0,75	0,75	0,5	0,75	0,938
France-United Kingdom	0	0,75	0,25	0,5	0,5	0,5	0,900
Italy - Slovenia	0,5	0,25	0,5	0,5	0,25	0,5	0,900
Belgium - Germany	0,5	0,5	0,5	0,75	0,5	0,75	0,857
Portugal-Spain	0,25	0,25	0,25	0,25	0,5	0,5	0,750
France-Italy	0,25	0,5	0,25	0,5	0,75	0,75	0,750
France-Luxembourg	0,5	0,75	1	0,75	0,75	0,75	0,750
Italy - Switzerland	0,25	0,75	0,75	0,5	0,75	0,75	0,750
Italy - Austria	0,5	0,25	0,25	0,5	0,75	0,75	0,750
Austria - Switzerland	0,25	0,25	0,5	0,25	0,25	0,75	0,750
Austria - Slovenia	0,25	0,25	0,25	0,5	0,25	0,5	0,750
Poland - Lithuania	0,25	0,25	0,25	0,25	0,5	0,25	0,750
Czech Republic - Slovakia	0,25	0,25	0,25	0,5	0,25	0,5	0,750
Hungary - Slovakia	0,25	0,25	0,25	0,5	0,25	0,5	0,750
Bulgaria - Romania	0,25	0,25	0,25	0,25	0,5	0,25	0,750
Bulgaria - Greece	0,25	0,25	0,5	0,25	0,25	0,25	0,750
Poland - Slovakia	0,25	0,25	0,25	0,5	0,5	0,5	0,600
Hungary - Romania	0,25	0,25	0,25	0,5	0,5	0,25	0,600
France-Switzerland	0,25	0,5	0,75	0,75	0,75	0,75	0,500
Poland - Czech Republic	0,25	0,25	0,5	0,5	0,5	0,5	0,500

Note: The higher the ratio, the higher the permeability

6. Conclusion

This article provides a general overview of the CB transports in the EU as a persistent barrier to CB mobility and the EU territorial integration process. It started by appreciating the continuous and growing EU support given to the process of CBC through the INTERREG/ETC programmes, and their positive effects in reducing the barrier effect, in all its main dimensions, in the EU internal and external border areas. Then it identified the most persistent barriers to the EU CBC process in present times, mostly based on recent EU surveys (Eurobarometer on border obstacles 2015 and the EU online public consultation on border obstacles 2015–2016). Based on this information, it was possible to conclude that CB physical accessibilities are still regarded as one of the most important barriers to EU/EFTA citizens, just after the legal-administrative and the language-related barriers.

Following from a deeper analysis of the ‘EU border obstacles survey’ was the realisation that the lack or inadequate presence of CB transports in most EU borders is still regarded by EU citizens as one of the most important obstacles to a full implementation of the EU’s freedom of movement principle. In this regard, a brief analysis of the EU transport policies shows that, despite the positive impacts from some large infrastructural projects in improving physical connections across EU borders (TEN-T policy), and the recent proposal to establish 35 CB projects to reduce existing CB bottlenecks, the fact remains that there is lack of a common and specific EU strategy for jointly eliminating legal and administrative obstacles which hamper the implementation of CB transport lines at the local and regional levels, across EU borders.

In effect, based on the literature review presented in the last section of the article, it is also possible to conclude that the EU integration process has led to increasing CB flows of all sorts, specifically of CB workers. Again, for the most part, our analysis confirmed the present inadequacy of available public and private services for CB transport, in the EU border areas, in view of the current demand. Another conclusion is that this barrier basically involves all EU borders.

Indeed, the proposed methodology to compare the degree of CB transport permeability in all EU/EFTA borders led us to conclude that, even in certain old/mature European border areas, the availability of CB transports is not sufficient to cover the citizens’ demand for CB transport services. This panorama adversely affects the socio-economic development and environmental sustainability of border areas, by limiting the CB flows and by promoting the use of private vehicles.

According to the available literature, there is no quick and easy solution to immediately solve the CB transport-related barriers question, as it results mostly from a lack of harmonisation of existing legal, administrative and technical frameworks on each side of the border, which include fare systems, transport frequency and interoperability issues, amongst others. Furthermore, the lack or reduced presence of pro-active CB spatial plans limits the knowledge on the need for improving CB public transport connections in many EU border areas. In addition, the reduced degree of implementation of CB planning procedures and detailed studies and data on the present situation of CB transports in the EU borders increases the likeliness that few concrete and substantial actions will be taken to mitigate the CB transport barrier all over the EU territory.

Indeed, one of the findings in our quest for information regarding the present outlook of CB transports in the EU was the reduced number of detailed studies focusing on local and regional case studies across all EU borders, namely in shedding light on the availability of CB transports vis-à-vis the evolution of CB travellers. In this regard, a detailed MOT study (2006) on the problems related to CB transports on the French borders can be followed by other interested entities, and namely the EC, in extending this analysis to the remaining EU borders. On the positive side, however, we are aware that the CE is currently supporting several studies to identify the most persistent obstacles in the EU, and at the same time analyse some of them in detail, which include CB accessibilities as well as transports, and the legal and administrative obstacles associated with them. As such, we see some light at the end of the tunnel when it comes to necessary future actions which might lead to a substantial reduction of CB barriers associated with the lack or insufficient presence of CB transports across the EU border areas.

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