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Extended abstract

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The factors of location of logistics facilities: new perspectives for the Paris Metro Area

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Introduction | The “Axe-Seine” is a project developed in 2007 that combines the economic and territorial development of the Seine valley between Paris and Le Havre with a transportation infrastructure policy. From a strategic perspective, the planning of this corridor should strengthen the Paris metro area and the competitiveness of the port of Le Havre. By improving the connection between the project aims to make the Paris basin less dependent on supplies from the ports of Antwerp and Rotterdam. Very popular with governments between 2007 and 2012 and the various local stakeholders, this project, which requires significant public investment, is in competition with the Seine-Nord canal, which should relieve congestion on motorways from northern Europe. Less costly, in a context of rationalization of public spending, this project was favored by the following governments between 2012 and 2017. In 2018, the government relaunched the Axe-Seine project under the name "Vallée de la Seine". The political choices in favor of one project or another are not without consequences on the logistical geography of the Parisian metropolis.

Indeed, warehouses are now located on a North-South axis and in the east of the city, which accounts for more than 40% of the construction of new warehouses between 2008 and 2018. If this spatial distribution of the logistics real estate stock suits a geography of flows linked to a mainly road freight transport that is deployed on a local, national and European network, the development of a corridor to Le Havre would imply a major logistical development in the west. Is it possible to reverse the regional logistics geography? In order to answer this question, we propose in this study to examine the factors of location of logistics activities in the Paris region in order to understand their spatial distribution. A number of studies have focused on location factors, in particular to explain logistical spread, in a geographical reading of "center-periphery”. These analyses do not make it possible to explain why the western Ile-de-France region does not experience logistical development of the same intensity as the eastern part of the region.

Objectives | This paper aims to analyze the location’s choice of logistics facilities in the Paris Region. Many works have already looked at these location’s choice factors, our study aims to provide new perspectives on this location regarding spatial distribution and freight flows. From an urban planning and geography perspective, research on urban logistics have mainly focused on the proximity of logistics facilities to the consumers. To deliver goods the most efficiently, carriers and shippers look for facilities and available land to close to city center, in dense part of the metro area. Urban logistics focus on deliveries and last miles and takes little account of the entire network in which the warehouse is part. On the other side, researches on freight and logistics in the field of supply chain management, which are not focused on the “last mile”, explained the location of logistics facilities by the transport costs. Both of those two perspectives have contributed to explain the location of logistics facilities. In this paper,
we propose a holistic approach in order to combine short and long distance perspectives to explain the
location of logistics facilities. By examined the case of the Paris region, we propose to explain the
location of the logistics facilities at different scale regarding freight flows (from suppliers to consumers).

**Method** | First we propose a literature review on the location’ choice of logistics facilities at different
scale. Then, we propose to identify the factors of location of logistics facilities. In this paper, we use the
RRBL (Heitz, Launay, Beziat, 2017) a database that cense all logistics facilities in the Paris in 2016,classified by size and sector. There are eight sectors (food wholesale trade, e-commerce, mass retail
markets, industry, wholesale trade, logistics service providers, transport, and parcel’s industry).

Then, this paper examines the spatial distribution of the logistics facilities in the Paris region. We used
the method of kernel density estimation that allows identification of hot spots and reveals major trends
in localization. Kernel density estimation is a smoothing technique that highlights clusters with a high
density of logistics facilities.

Then, we selected several companies representing each type and conducted interviews to determine the
location choice factors. Based on a method developed by Onstein and al. (2019) the interviews provide
information that allow us to hierarchize the factors of location. In a prospective way, we determine if
the development of the “Vallée de la Seine” would affect or change their location’s choice. In the end
we will conduct between 10 and 15 interviews.

**Results** | The paper is an ongoing research and all results have not been examined yet.

1. Literature review on the location choice

   At local scale, suburban areas have gradually become a privileged location for logistics facilities in
the metro areas (Andriankaja, Dablanc, 2010; Dablanc and al. 2012). Logistics sprawl has been well
analyzed in the literature. To explain this spatial dynamics, research work have focused on several
factors of explanation. First, the availability of land appears a key factor. Logistics facilities increase in
the periphery of metropolitan areas, often in former agricultural lands. Then, the role of public policies
in favour of developing logistics policies are also important location factors (Mérenne-Schoumaker,
2008). Also, public authorities and logistics land developers prefer to foster the construction of logistics
facilities in low dense areas, which prevents additional costs from proximity with densely populated
areas. Then, the proximity to consumption markets, labour market, as well as accessibility and
availability of transport infrastructure are also considered explanation factors (Mérenne-Schoumaker,
2008; Aljohani, 2016). Some other research work focus on the necessity for shippers and transport
operators, mostly road shippers, to find a compromise between proximity to the delivering area and the
suppliers and shippers area. The location of a logistics facility depends first on transport costs, in
particular terminal transport. Minimization of transport costs can only be achieved by minimizing the
sum of the tonne-kilometres transported from the warehouse to the customer. For this purpose, the
barycenter of a set of customers to be delivered is determined. It is the center of gravity of the network
of customers weighted by a coefficient of importance (generally weighted in tonnes). Supply costs must
also be taken into account, but generally with fewer points of origin and a different weighting, as unit
transport costs are lower (Pimor, 2008). The location of the logistics facilities relative to the parcel’s
industry can be explained by a network mode of operation, and an intra-firm network (Launay, 2018).

2. Spatial distribution of the logistics facilities in the Paris metro Area.

The logistics facilities are located on a north-south axis and mostly in the east part of the Paris region.
Several factors could enlighten this distribution regarding land prices, availability of land, transport
infrastructures (road), accessibility, logistics zones. Our hypothesis is that the location of warehouses
also depends on a search for proximity to the road networks that connect the Parisian metropolis to other
European metropolises. A location in the north, south or east of the Paris metro area provide access to
the city-center, and access to suppliers from northern European countries (Belgium, Netherlands) or
eastern countries (Germany) or southern countries (Spain, Italy). The European market is dominant and freight flows mainly operated by road.

3. Analysis of the potential impact of a corridor project on the location of logistics facilities in the Paris Region.

Our hypothesis is that the corridor project may have an impact on urban logistics projects but not necessary on multiscalar logistics.

Conclusion

The result is a compromise on a location of the logistics facilities in low-density areas, which makes it possible to solve the equation between land prices and proximity to the consumer market, and accessibility to the suppliers. Considering all those location factors, we will explore the spatial distribution of the logistics facilities in the Paris metro area.

References |


