## The locational behavior of advanced logistics. A European city network analysis

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## Abstract:

The process of globalization has been accompanied by the rise of a few world cities that appear as control centers of the global economy. The World City Network (WCN) research field adopts a vision of global economic processes that emphasizes the space of - financial, informational, goods - flows (Castels, 1996), which connect these cities in a network. Empirical analysis of World Cities (Sassen, 1993) showed that they are characterized by a strong presence of Advanced Producer Services firms (APS). In fact, while large companies in these sectors have adopted a worldwide localization strategy, in order to better serve their clients (i.e. MNEs), APS tend to concentrate in only few cities (i.e. World Cities), which represent clusters of knowledge ,and offer to APS a special competitive advantage. The interlocking network methodology (Taylor, 2001), which is based on the intra-firm networks of large APS firms, has been developed on this starting point.

The APS most commonly considered in WCN research are finance, insurance, accountancy, law, advertisement, management, consultancy (Baeverstock et al., 1999; Sassen, 2000; Taylor, 2004). Though, recently, a broader panel of services and industries, including logistics, has been included by WCN research (O'Connor, 2010; O'Connor et al., 2012 and 2015; Wang and Cheng, 2010). The logistics sector is in fact particularly relevant in the global economy as it manages the physical flow of commodities (Hesse and Rodrigue, 2006). Besides, the management of supply chains also deals with information flows, therefore, logistics providers play a similar role to that of other advanced services. However, so far, there are very few attempts to build a logistics interlocking network (Antoine et al., 2016).

While there is an extensive literature on traffic flows and location of logistics facilities (Hesse and Rodrigue, 2004; Hong, 2007; Hesse, 2008; Graham and Sahling, 2004; Mariotti, 2015; Holl and Mariotti; 2017), the study of logistics within the WCN framework suggested to investigate another issue: the locational pattern of 3PL command and advanced logistics functions (Antoine et al., 2016; Hall et al., 2011). In accordance with the studies devoted to port and maritime industry and APS (Verhetsel and Sel, 2009; Jacobs et al., 2010), existing research on advanced logistics functions (O'Connor, 2010; O'Connor et al., 2015) outlines two main types of city that are particularly attractive for major offices: World Cities and main infrastructural nodes' cities. According to Jacobs et al. (2011), in the case of port and maritime APS, the choice of a port location is linked to the presence of a port industry and of other maritime APS firms, rather than to the mere presence of

traffic flows. In other words, maritime APS are more willing to be located in knowledge rich contexts, whether specialized (port cities) or generic (World Cities).

The present contribution aims to provide new insights in the analysis of the locational behavior of global 3PL management function within the WCN framework. The first objective of the research is to draw an interlocking network dedicated to logistics cities. The analysis concerns the European Union and the Schengen area, and it is based on the location of management function of the 27 largest global 3PL active in the area. This part of the research is based on firm data provided by the Bureau Van Dick's Amadeus database. The logistics city network does not merely point the presence of companies in European cities, but highlights their level of connectivity and the links between pair of cities. Geographically speaking, the most obvious traits of the network we have built are the absolute dominance of Paris, and a center of gravity of the networks oriented toward the Centre-North Europe.

The second objective of the study is to investigate the location determinants of the 3PL management functions. Specifically, it is explored the key role played by world cities (urbanization economies; market size and market potential, WCN connectivity), and the spatial concentration of advanced logistics functions (localization economies) in attracting 3PL. To do so, descriptive statistics is followed by an econometric analysis run at the European NUTS3 province levels and referring to the year 2014.

Keywords: Logistics, Europe, World City Network, Locational preferences, APS.

## References

- Antoine S., Sillig C., Ghiara H. (2016), "Advanced Logistics in Italy: A City Network Analysis", in *Tijdschrift voor Economische en Sociale Geografie*, 10.1111/tesg.12215
- Beaverstock, J.V., Smith, R.G., Taylor, P.J. (1999) "A roster of World Cities", *Cities 16. (6)*,pp. 445-58. Castells, M. (1996) *The Rise of the Network Society*, Blackwell, Oxford.
- Graham, L., Sahling, L. (2004) European Warehouse Market Research. Overview of Pan European Trends, Prologis, Amsterdam.
- Hall, P.V., W. Jacobs & H. Koster (2011), Port, Corridor, Gateway and Chain. Exploring the geography of advanced maritime producer services. *In*: Hall, P.V., R. McCalla, C. Comtois & B. Slack, eds., *Integrating Seaports and Trade Corridors*, pp. 81-100. Farnham- Burlington: Ashgate.
- Hesse, M. (2008), *The city as a terminal: the urban context of logistics and freight transport,* Ashgate, Burlington.
- Hesse, M., Rodrigue, J.-P. (2004) "The transport geography of logistics and logistics distribution", *Journal of Transport geography 12*, pp. 171-184.
- Hesse, M., Rodrigue, J.-P. (2006) "Global Production Networks and the Role of Logistics and Transportation", *Growth and Change 37 (4)*, pp. 499-509.
- Holl A., Mariotti I. (2017), The geography of logistics firm location: the role of accessibility, Networks and Spatial Economics, forthcoming.
- Hong J. (2007) Transport and location of foreign logistics firms: the Chinese experience, Transportation Research Part A, 41: 597-609.
- Jacobs, W., Ducruet C., De Langen, P. (2010) "Integrating world cities into production networks: the case of port cities", *Global Networks 10* (1), pp. 92–113.

- Jacobs, W., Koster, H., Hall, P. (2011) "The Location and Global Network Structure of Maritime Advanced Producer Services", *Urban Studies 48 (13)*, pp 2749-69.
- Mariotti I. (2015), Transport and logistics in a globalizing world, Springer.
- O'Connor, K. (2010) "Global City regions and the location of logistics activity", *Journal of Transport Geography 18 (3)*, pp. 354-62.
- O'Connor, K., Holly, B., Clarke, A. (2012) "A case for incorporating logistics services in urban and regional policy: some insights from US metropolitan areas", *Regional Science Policy and Practice* 4 (2), pp. 165-77.
- O'Connor, K., Derudder, B., Witlox, F. (2015) "Logistics Services: Global functions and global cities", *Growth and Change*; DOI: 10.1111/grow.12136
- Sassen, S. (1993) The Global City, Princeton University Press, Princeton.
- Sassen, S. (2000) Cities in a World Economy, Pine Forge, Thousand Oaks, CA.
- Taylor, P.J. (2001) "Specification of the World City Network", *Geographical Analysis 33 (2)*, pp. 181–94.
- Taylor, P.J. (2004) World city network: a global urban analysis, Routledge, London, New York, NY.
- Verhetsel, A., Sel, S. (2009) "World maritime cities: From which cities do container shipping companies make decisions?", *Transport Policy 16 (5)*, pp. 240-50.
- Wang, J., Cheng, M.C. (2010) "From a hub port city to a global supply chain management center: a case study of Hong Kong". *Journal of Transport Geography 18*, pp. 104-115.