Can logistics compensate for the local effects of deindustrialisation? The situation in the Ile-de-France region between 1982 and 2012

Nicolas Raimbault, Adeline Heitz, Adrien Beziat, Nathan Bounie

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Adeline Heitz
Researcher, French Institute of Science and Technology for Transport, Development and Networks (IFSTTAR), Laboratoire systèmes productifs, logistique, organisation des transports et travail (SPLOTT - Productive systems, logistics, transport organisation and labour laboratory), Paris-Est University
Adeline.heitz@ifsttar.fr Tél. : 01 81 66 87 78

Nicolas Raimbault
Assistant Professor and Researcher, IGARUN, ESO (UMR CNRS 6590), University of Nantes and Luxembourg Institute of Socio-Economic Research (LISER)
Nicolas.raimbault@univ-nantes.fr

Adrien Beziat
Researcher, École nationale des travaux publics de l'État (ENTPE - National School of State Public Works), Laboratoire aménagement économie transport (LAET - Development Economy Transport Laboratory)
Adrien.beziat@entpe.fr

Nathan Bounie
Researcher, French Institute of transport, planning and infrastructure sciences and technologies (IFSTTAR), City Mobility Transport Laboratory (LVMT)
Nathan.Bounie@ifsttar.fr

Over the last few years, logistics have emerged as an economic activity offering an alternative to the decline of industrial employment (Husing, 2004; De Lara, 2012). But what about in Ile-de-France, a region marked by a long history of industrialisation that still widely structures its urbanisation (Gilli, 2014) and which is still one of the main consumer markets and Europe's logistic gateway ?[1]

Employment generated by logistic activities is yet to be analysed or compared with industrial jobs. In terms of social geography, it is not only a matter of evaluating the number of jobs logistic development is able to promote in the region in order to reduce the impact of deindustrialisation processes, such as job losses among workers with few skills (Husing, 2004), but also of examining the location of these jobs at local level which may well reduce or increase spatial mismatch[2] for such workers (Korsu, Wenglenski, 2010).

Our analyses mobilise data on municipal employment as estimated by the successive population censuses of 1982, 1990, 1999, 2006-2007 and 2011-2012. They also make use of various socio-economic data, once again at municipal level.

1. Interface between a transport infrastructure and its territory, entrance point for merchandise.
2. Introduced by Kain (1968) to refer to black workers in U.S cities, the notion 'spatial mismatch' is the relation between places of residence and places of work and the difficulties of accessing employment.

INDUSTRY AND LOGISTICS: SIMILARITIES IN THE NATURE OF BLUE COLLAR JOBS AND LOCATION FACTORS

Definitions of logistics include strategic management of movement and the storage of flows of goods across production and distribution chains (Christopher, 2003), and physical distribution activities, i.e. production of such flows including transport, handling and packaging, warehousing, and trans-shipment (McKinnon, 2009).

The first activity field involves employment of middle and upper managers and office employees. These "white collars" are mainly located in offices in major tertiary centres. The second field involves jobs located in warehouses (Savy, 2015), which involve tasks such as handling, preparing orders, sorting or loading-unloading (Gaborieau, 2017), as well as employment of heavy goods vehicle drivers and delivery drivers. According to the French Nomenclature of Socioprofessional Categories and Professions (PCS 2003) established by INSEE, these are "blue-collar" workers: employees performing routine or semi-routine manual work as part of a hierarchical organisation of labour offering very little autonomy.

According to a study carried out using population census data and published by the Afilog association (2016) – which, since 2001, has brought together professionals from the logistics field and territorial representatives – in 2012, workers accounted for 80% of logistic employee workforces, compared with 14% for technicians and 6% for managerial employees. Statistics are similar in the industry sector, where generally low-skilled workers are required for physical and routine operations and where, since the 1960s, the volume of qualified employment, and the number of managerial employees in particular[3], has increased considerably (Choffel, Kramarz, 1988) outside factories, usually in offices located in major tertiary centres.

In terms of working conditions, logistical workers' jobs mainly present the same characteristics as manufacturing jobs (Benvegnù, Gaborieau, 2017). In warehouses, where the main activities are preparation of orders, packaging, labelling and the organisation of consumer goods deliveries, operations performed are very similar to assembly-line work in factories, including, for example, the presence of conveyor belts and repetitive sorting tasks. The evolution of techniques and technologies has not brought an end to the Taylorist approach, but has transformed it instead. Thus, traceability of flows has been accompanied by such new operators' tools as vocal guidance, which has drastically reduced workers' autonomy and intensified the physical tasks performed, and whose introduction causes significant health issues (Gaborieau, 2017). The blue-collar nature of these occupations also matches the low level of qualifications required to perform warehouse operations. In this sense, such operations are therefore very close to tasks performed by factory workers.

A comparison between location criteria for logistical activities and industrial activities highlights the similarity of these two sectors' spatial rationales. Excluding the criterion of proximity to consumption areas, factories and warehouses generally meet the same criteria: search for large land plots, close to transport hubs and within areas with a large catchment area of a low-skilled workforce. However, reconfiguration of logistical chains has caused a decrease of the number of warehouses on production sites – in immediate proximity to factories – and a sharp increase outside such sites, closer to consumption areas. This is the beginning of the construction of so-called "latest-generation" warehouses (DTZ, 2011). Logistical geography is therefore in the process of emancipating itself from industrial geography. At national level, distribution centres have increasingly focused on large urban agglomerations since the 1980s (Hesse, 2008, Cidell, 2010, Dablanc & Frémont, 2015). At regional level, the search for available, inexpensive land has led to logistical sprawl (Dablanc, Andriankaja, 2010, Dablanc, Ross, 2012, Dablanc et al, 2014). The emergence of a financialised property market tends to emphasize this pattern (Hesse, 2004; Raimbault, 2016).

3. The total number of senior management, intermediate profession and office employee jobs accounts for over 50% of manufacturing sector jobs, whilst workers account for only 44% of such jobs.

Table 1. Main factors of factory and warehouse location

LOCATION DETERMINANTS	LOGISTICS	INDUSTRY
Proximity to consumption areas	Need to be closer to the consumer, particularly to facilitate delivery and "last-mile" logistics.	No benefit in being closer to the consumer.
Proximity to suppliers	Only for some logistics activities (industrial logistics). Very important for manufacturing firms, in order to secure supply.	
Land availability	Significant requirements in terms of land, search for large, inexpensive plots, leading to such activities being moved progressively away from agglomerations, starting in the 1950s for the industrial sector and in the 1990s for the logistics sector.	
Accessibility of transport networks	Importance of proximity to motorway hubs. Sometimes to rail and inland waterway modes of transport.	
Workforce availability	Need to be relatively close to an area with a low-skilled workforce.	
Public policies	Severe regulatory constraints for the development of these activities in densely populated areas, context quite favourable to their development in agglomeration peripheries. Regulations on establishments classified for environmental protection (ICPE) favourable to development of these activities in periurban areas. Facilitation of development of industrial and logistical activities in economic activity zones (ZAE). Activities perceived as generating nuisance and pollution.	
Real-estate offers	Obsolescence of old industrial and logistical buildings due to sector evolution towards larger, more modern buildings that meet new standards.	
Economic environment (Cluster)	Location in former industrial territories and new logistical and industrial clusters.	

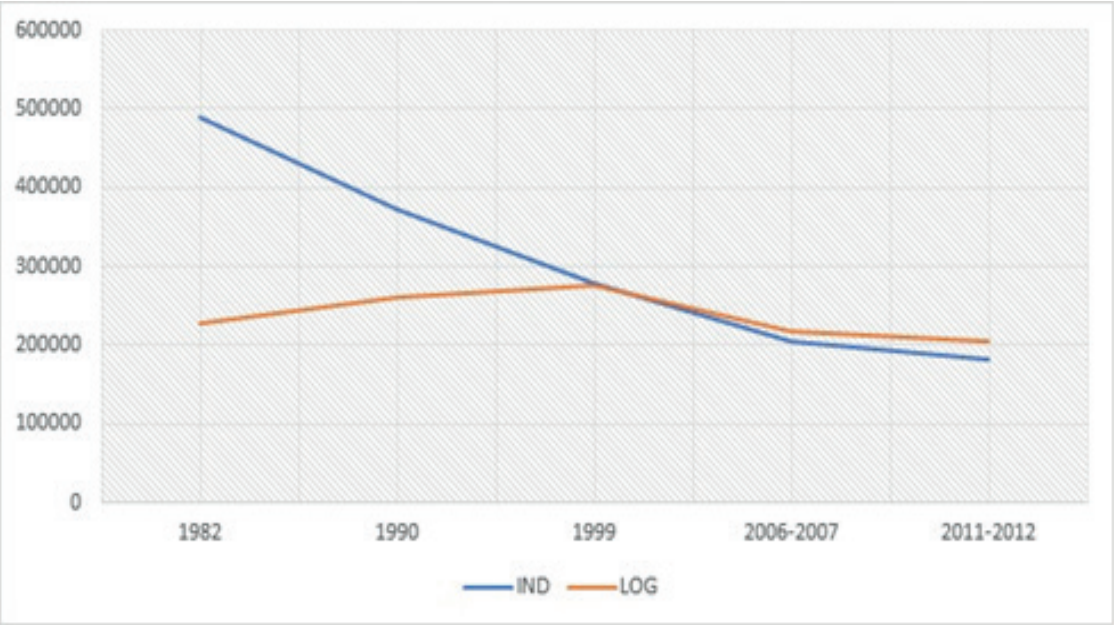
According to Mérenne-Schoumaker, 2007; Masson & Petiot, 2015; Hayter 1998; Aydalot, 1985; and Sergeot, 2004

Physical and routine operations are thus carried out in factories and warehouses alike, in the majority of cases by typically low-skilled workers. The dynamics of industrial office jobs are very different, while logistical "white collar workers" are few and far between. If we are to analyse the effects of deindustrialisation, we therefore need to gain a clearer idea of the spatial dynamics specific to factories and warehouses and precisely define those jobs located, on the one hand, on industrial sites and, on the other, on logistical sites. We propose to call these jobs (which, though primarily blue collar, also include technicians and associate professionals) industrial and logistical blue collar jobs.

IN ILE-DE-FRANCE, INDUSTRIAL JOB LOSSES PARTIALLY COMPENSATED FOR BY LOGISTIC JOBS

Between 1982 and 2012, the number of blue collar jobs dropped by 62.7% in the industrial sector and by 11% in the logistics sector in Ile-de-France. Three periods can be identified. Between 1982 and 1999, an all-time high of 275,849 jobs in logistics was reached whilst, the number of jobs in the industry sector fell (-43.6%) over the same period. In 2000, with job numbers continuing to plummet in the industrial sector (-21.3%), production employment in the logistics sector also started to decline (25%). The logistics sector had entered a maturation and rationalisation phase that was at the origin of the decline. It was also the very start of robotisation and automation in warehouses, likely to be expressed by a decreasing number of jobs for workers. Widespread recourse to interim workers (who are most certainly underestimated here) provides an explanation, at least in part, for the decline in logistic production employment.

Graph 1. Evolution of the number of blue collar jobs in the industry and logistics sectors in Ile-de-France (1982-2012)



More recently, the decrease in blue collar jobs in the logistics sector stabilised (-5.3%) and the fall in this type of employment in the industrial sector slowed (-12.1%). 2012 marked the beginning of the fourth phase, in which both sectors stabilised. It may therefore be noted that logistics had a compensating effect on the industry sector until the end of the 1990s, which continues to operate today to a lesser extent.

LOCATION OF INDUSTRIAL AND LOGISTICS WORKER JOBS IN ILE-DE-FRANCE: BETWEEN CONTINUITY AND DIVERGENCE

Nearly three quarters of Ile-de-France's municipalities accommodate industrial and logistics jobs. This proportion is stable, reaching 72.1% in 1982 and 71.1% in 2012. On a finer scale, this period shows a strong correlation between the decrease in the number of jobs in industry and logistics in Paris and its inner suburbs (-69.5% and -33.8% respectively). However, in its outer suburbs, non-skilled employment in the industrial sector is falling (-47.5%) whilst it is rising at the same rate in the logistics sector (+ 47.9%). Transition from industrial territory to logistical territory therefore seems to be at work in the outer suburbs of Paris.

ILE-DE-FRANCE'S INDUSTRIAL AND LOGISTICAL EMPLOYMENT IS LOCATED IN WORKING-CLASS AREAS

By cross-referencing the employment landscape with Ile-de-France municipalities' socio-economic characteristics[4], we observe that it is the most working-class areas that accommodate industrial and logistics activities. Municipalities with average to low population density, with employment concentration average or under the regional average and the lowest per capita income are those that appear to be most attractive for logistics development ("Municipalities with logistics employment growth" and "Municipalities with logistics and industrial employment growth" categories). These municipalities form a "productive belt" that brings together a poorer population, less-skilled jobs and less-desirable activities due to the nuisances that they generate and the low employment density they provide in relation to the space used.

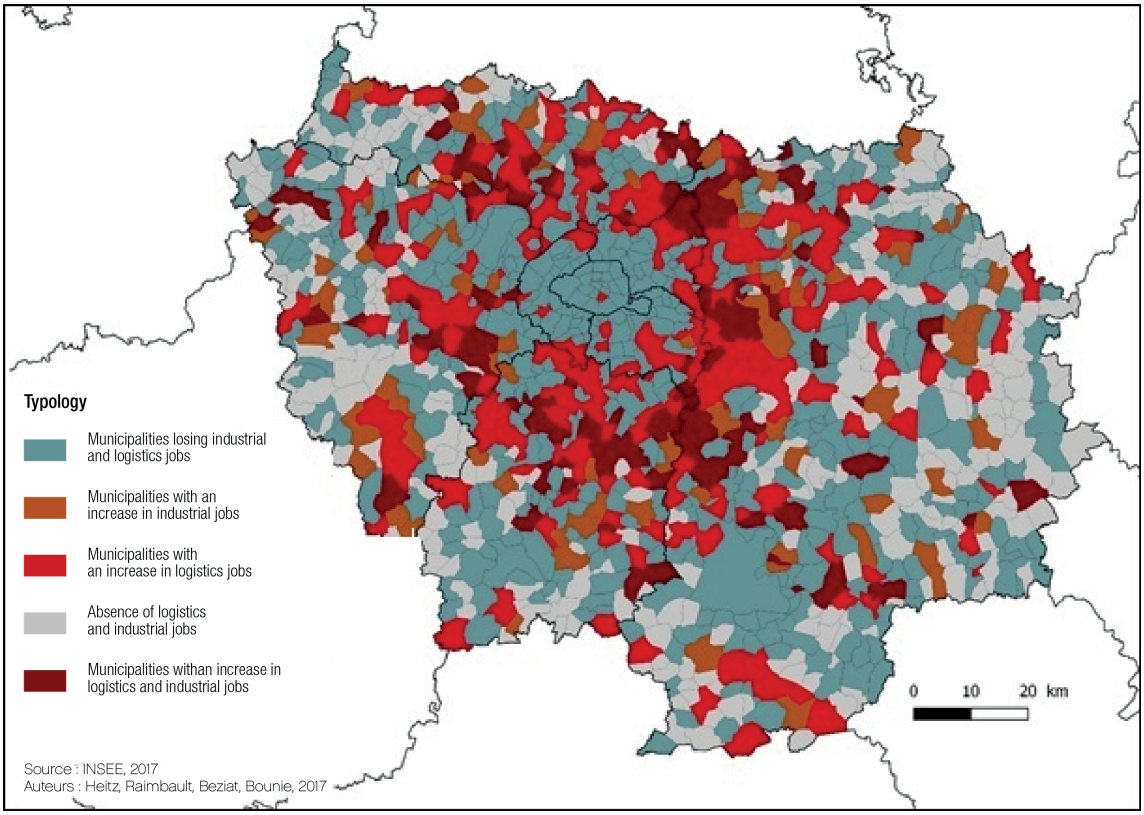
Between 1982 and 2012, the decline in the number of industrial blue-collar jobs in Ile-de-France was only partly compensated by blue-collar jobs in the logistics sector. Rationalisation of work, productivity gains and

4. Number of inhabitants, number of jobs and average per capita income a year in 1990 and 2012

recourse to interim work all contribute to explaining this low compensation. In addition, municipalities that had lost industrial jobs were not necessarily winners during the rise of logistics.

Hence, municipalities at the heart of the Parisian agglomeration and residential municipalities in the outer suburbs that were widely affected by deindustrialisation are only seeing low-levels of logistics development today. These municipalities are marked by a gentrification process, in particular in the centre of the Parisian region. However, a partial deindustrialisation compensation effect can be observed in a productive belt farther away, which has witnessed mild growth in industrial employment and strong growth in logistics employment. These municipalities have relatively working-class social profiles with average income below the regional average.

Hence, there is a form of partial compensation of industrial jobs by logistics jobs, with location of logistics blue-collar jobs mapping a relatively new productive geography which is progressively emancipating itself from the industrial geography it inherited. The fringes of the Parisian agglomeration, between the inner and outer suburbs, now constitute a new industrial and logistics belt.



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