

Spatial dynamics of intra-European outward FDI: Analysis at the regional level

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ABSTRACT

Europe is gradually moving from a “space of States” to a “State of spaces” and from a “space of places” to a “space of flows”. In a nutshell, the pure essence of the European economic integration process is the gradual “thinning” and “melting” of (the artificial) border impediments. As the process of European economic integration is in full swing, European territories have been experiencing a period of unprecedented change, being transformed into integral parts of the European economic space. Yet, although economic integration has greatly enhanced the mobility of products, people, and money this does not imply the ubiquity of economic activity. In fact, such “stickiness” may even reinforce spatial externalities. Thus, it becomes apparent why geography “matters” so much. The emerging European reality necessitates the thorough understanding of the spatial dynamics that are generated and / or reproduced within the framework of the European economic integration process. Apparently, access to (high-quality) data is a necessary condition for undertaking the required analyses and deriving the corresponding conclusions on the interrelations among European regions. Unfortunately, data on flows is scarce and in most of the cases only at the national level. Data on interregional flows, practically, do not exist. Thus, due to this limitation, important issues regarding the success and the impact of the European economic integration process and policies remain unexplored and unsolved, for both scholars and policymakers. This is an important drawback, especially in the light of the global mega-trends (such as trade wars, energy transition, climate change, peripheral geopolitical tensions, and artificial intelligence) that are currently taking place.

The paper offers a new understanding of the interrelations among regional economies in Europe, examining the spatial dynamics of intra-European outward foreign direct investment (FDI) across European NUTS-2 regions and over the period 2010-2018 (i.e., from the beginnings of the economic crisis to the outbreak of the COVID-19 pandemic). There is a growing consensus that patterns of economic growth are associated with structural change (i.e., capital deepening). This turns the discussion to FDI. Is it possible for FDI to act as carriers for diffusing technology (know-how) to the host (recipient) countries? The mobility of capital and its spatial implications for the recipient countries has long ago received the attention of specialized research. The neoclassical theory would expect capital

movements, and in particular FDI, to play a major role in the convergence process through their location in cost-attractive regions, technology transfer and diffusion of knowledge. However, this may not, always, be the case. In economics, investment refers to the amount of assets purchased and accumulated with the goal of generating income or appreciation (i.e., productive investment). Gross investment (i.e., net investment plus depreciation) is a fundamental component of GDP, along with consumption, government spending and net exports (i.e., exports minus imports). By and large, international organizations define FDI as “an investment involving a long-term relationship and reflecting a lasting interest and control by a foreign direct investor (i.e., an entity resident in one economy) in an FDI enterprise (i.e., an enterprise resident in an economy other than that of the foreign direct investor)”. This definition of FDI implies that the foreign direct investor exerts a significant degree of influence on the management of the FDI enterprise. Within the framework of the paper, the term “FDI” acquires an expansive interpretation. This means that under the “FDI” term, the intra-regional and the interregional intra-national investment flows are, also, analyzed. Scientifically, such an interpretation allows for the study of the “border” effect (i.e., the comparison of domestic direct investment flows to the corresponding foreign direct investment flows) with respect to investment flows. The term “FDI” is used throughout the text, for the sake of simplicity. Thus, on the basis of the aforementioned theorization, a triad of FDI flows types may define: a) intra-regional flows; b) inter-regional intra-national flows; and c) international flows.

DIRECT INVESTMENT FLOWS	INCOMING	$\sum_{i=1}^n INC_{j,i,t} = \sum_{i=j}^j INC_{j,i,t} + \sum_{i=k1}^{kn} INC_{j,i,t} + \sum_{i=\varphi1}^{\varphi n} INC_{j,i,t}$ $j \notin \{k1, \dots, kn\}, j \notin \{\varphi1, \dots, \varphi n\}, \{k1, \dots, kn\} \neq \{\varphi1, \dots, \varphi n\}$ INC = incoming FDI flows, j = destination region, i = origin region, t = time, $\{k1, \dots, kn\}$ = regions that belong to the same country with j, $\{\varphi1, \dots, \varphi n\}$ = regions that do not belong to the same country with j
	OUTGOING	$\sum_{j=1}^n OUTG_{i,j,t} = \sum_{j=i}^i OUTG_{i,j,t} + \sum_{j=k1}^{kn} OUTG_{i,j,t} + \sum_{j=\varphi1}^{\varphi n} OUTG_{i,j,t}$ $i \notin \{k1, \dots, kn\}, i \notin \{\varphi1, \dots, \varphi n\}, \{k1, \dots, kn\} \neq \{\varphi1, \dots, \varphi n\}$ $OUTG$ = outgoing FDI flows, j = destination region, i = origin region, t = time, $\{k1, \dots, kn\}$ = regions that belong to the same country with i, $\{\varphi1, \dots, \varphi n\}$ = regions that do not belong to the same country with i

Usually, FDI data come either as flows data or as stock data. FDI flows are the current transactions taking place in a certain period and comprise of equity capital, reinvested earnings, and other capital (i.e., inter-company debt transactions). FDI inflows, in particular, are the corresponding net inward FDI transactions (i.e., inward investments minus disinvestments). FDI stocks are the (revalued) cumulation of past flows and comprises of the value of foreign investors’ equity and the net loans to the enterprises. Within the framework of the paper, however, for the measurement of interregional FDI flows, the main unit is shareholders’ funds. Shareholders’ funds represent the values of the foreign shareholders owing (each one) 10 or more percent of the equity funds in a company and reflect the difference between assets

and liabilities in a company's balance sheet. In other words, the shareholders' funds unit of measurement yields an approximation of how much the shareholders would receive if a business were to liquidate.

For the needs of the empirical analysis, the paper compiles region-to-region (R2R) origin-destination (O-D) matrices. The compilation is based on the utilization is based on the aggregation of firm-level data obtained from AMADEUS database. AMADEUS offers high-quality data and may guarantee the quality of results obtained from data elaboration. In any case, and in order to be on the safe side, AMADEUS data have been evaluated for a) relevance; b) accuracy; c) timeliness; d) punctuality; e1) accessibility; e2) clarity; f) comparability; and g) coherence. During the evaluation process, AMADEUS data have been cleaned from firms with missing information either on country (or region) characteristics or on shareholders' funds over time as well as from firms that exhibit negative values of shareholders' funds. The size of the matrices is 329 X 329 and the matrices refer to outgoing FDI data. The matrices provided are both economy-wide and sector-specific (NACE 1 level).

The paper integrates a Poisson Pseudo-Maximum Likelihood (PPML) gravity framework with spatial Markov chain analysis. Particularly, using high-dimensional fixed effects, the paper recovers region-specific outward FDI capacity (i.e., exporter fixed effects) and assesses both its spatial clustering and its mobility across relative performance states. Moving beyond static views of regional attractiveness, the paper models transitions across four pooled performance states and conditions them on local neighborhood regimes, thus capturing how spatial context shapes persistence, upgrading and downgrading. The results of the paper point to pronounced spatial dependence: regions embedded in high-performing neighborhoods display markedly higher state persistence, while upward mobility does not differ systematically across neighborhood regimes. These findings underscore the role of spatial context in shaping regional FDI trajectories and motivate place-based investment and cohesion policies that account for persistent neighborhood regimes. The findings of the paper ease the provision of specific, tailor-made, policy recommendations for the EU regions.