

THE “SPACE OF FLOWS” IN POLAND AND EUROPE



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The socioeconomic status of cities and regions is nowadays determined by how they are positioned within the “space of flows.” On the continental scale, many types of such flows and linkages are developing most dynamically in Central-Eastern Europe – including in Poland

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In recent years we have become increasingly aware that our social and economic lives are driven by flows. The concept was explained in the 1990s by Manuel Castells, who wrote that the space we inhabit can no longer be described simply as a collection of locations (a “space of places”) but rather as a complex system of linkages (a “space of flows”). The role played by various cities and regions is now being determined by how they are situated within this system of interactions. The notion of linkages and flows was of course recognized far earlier; it has driven development and innovation since ancient times, via the period of great geographical discoveries and colonial conquest, all the way until the industrial revolution. However, never before has it exerted such a powerful impact on the fates of nations, cities, collectives, and individuals.

The current system of connections and flows overlaps with the historical distribution of socioeconomic features of territorial units. The rate of global processes resulting in flows such as delocalization, geopolitical instability, economic inequalities and climate change has been increasing rapidly in recent de-

CADES. Additionally, sudden, unexpected events, such as the COVID-19 pandemic and Russia's invasion of Ukraine, can be analyzed in terms of disruptions of existing systems of connections.

Some of the fundamental reasons behind the present reality include processes of integration (including increasingly open political borders), slashed customs barriers, reduced transport costs, increasing social mobility (migration, tourism, education) and rapid development of technologies (remote communication). Additionally, certain types of flows, such as migration, are increasingly affected by differences in economic development and standards of living. We can talk about flows on the local as well as global scales; flows are as much about our daily commute as they are about international trade.

Networks of connections

It would be extremely difficult to make a clear-cut assessment of Poland's position within this worldwide network. On one hand, global connection networks bring measurable benefits such as diffusion of innovation, technology, and experience; however, excessive dependence may in effect create threats, in particular in an event of recession or geopolitical conflict. In local terms, multidirectional flows frequently improve positioning on the employment market and increase choice, although we should remember that this could bring about environmental damage. The overall goal of adjusting our lives towards a circular economy in-



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volves reducing the geographical range of our network of connections.

Regardless of what we think about the growing significance of flows, we must take a fresh look at the space around us and the situation faced by individual cities and regions as being dependent on external pressures. Unless we analyze the flows, we are unable to accurately describe spatial and functional structures on the national and regional level. This is not easy, since public statistics systems on international, country, and Eurostat level tend to lag behind technological development and the rate of change. On one hand we are able to manipulate big data, but on the other researchers and public bodies do not generally have full access to it.

Interregional connections

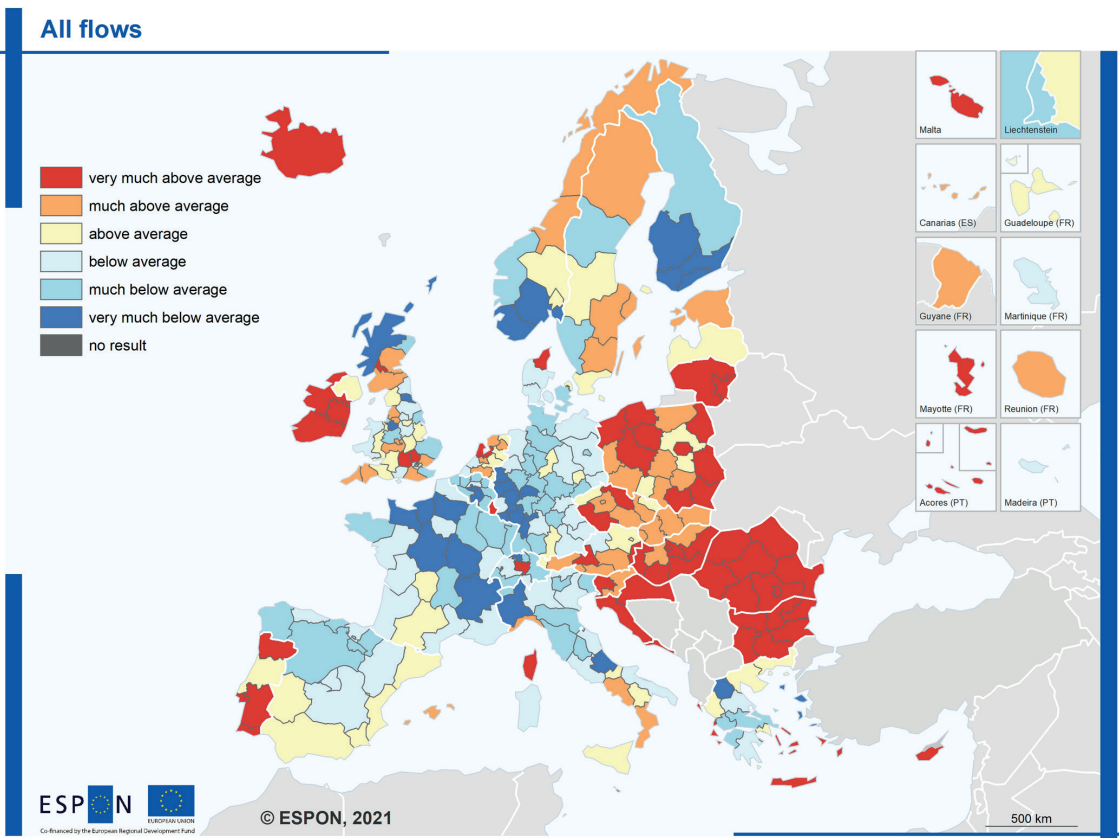
The ESPON IRIe (Interregional Relations in Europe, espon.eu) project attempted to assess the interregional flows of people, capital, goods, services and knowledge in Europe. The project was likely the first to analyze several kinds of interregional connections at the same time. The study covered capital investment, international trade, migration, tourism, knowledge transfer, student exchanges and transport flows. Each relationship was presented in a 297×297 matrix, corresponding to the number of NUTS2 regions (each roughly the size of a Polish voivodeship) across the entire European Union, as well as the UK, Switzerland, Norway, Iceland and Liechtenstein. Wherever

possible, observed data was used; in the remaining cases the researchers utilized modelling.

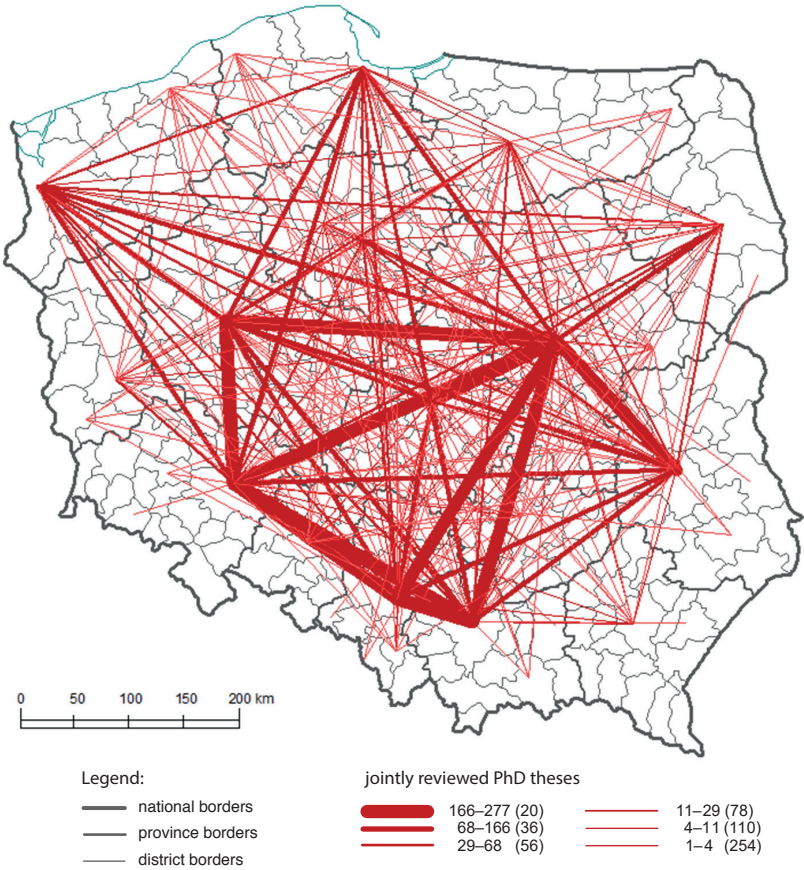
The full results of the project have yet to be published. However, it is almost certain that they will reveal that the “flow” map of Europe is rather different from the image we are used to, complete with the Blue Banana. In contrast to GDP distribution, the core of European flows is shifted somewhat northwards. Interregional relationships are more dynamic in Scandinavia than in Southern Europe. Many indicators based on flows (e.g. on their balance) depict the map of Europe as a mosaic. Closely related regions neighbor those which are less open to external input. This applies both to the hardcore center of Western Europe and to the peripheries. It can be said that flows have a powerful effect on Europe’s socioeconomic space, making it considerably more complex than some politicians believe.

The results are likely to include positive news from the Polish perspective. The increase in the majority of flows (2010–2018) is the highest in Central-Eastern Europe, including in Poland. As such we can talk about flow convergence. Europe is also becoming more polycentric. In the 1990s, Professors Kunzmann and Wegener from the University of Dortmund suggested that the EU should support selected centers on the peripheries to counterbalance the concentrated economy of the Blue Banana. The latest flow analysis reveals that this is exactly what is happening. It is possible to identify locations known as gateways; their structure and rate of flows is similar to that found in the core

Dynamics of flows in Europe 2010–2018 (source: Interregional Relations in Europe, 2022, ESPON)



Collaboration among PhD reviewers in Poland (source: Komornicki et al., 2013)



of Europe. Such gateways serve to gradually level out developmental inequalities. Statistically, they are all a single type, and they include locations such as Madrid, Lisbon, Athens, Warsaw, and Bucharest.

Unfortunately not all results are as encouraging. The dynamics of different kinds of flows vary greatly across Europe. Capital flows increase at a notably faster rate than trade flows, and even more so than knowledge flows (such as collaboration on new patents). This means that integration of financial markets is not always backed by other kinds of integration. This leads to a kind of imbalance and certain threats; therefore, accurate assessment of the rate and structure of flows also involves assessing how regions are resistant to global threats. Threats include excessive thematic and geographic concentration of flows. Many regions base their external relations on just a few or even a single type of connection. Not only that, but the partnership may be with just a single country. Similarly to financial investment, it is better if the flows are diversified across sectors and geography. For the majority of Poland's provinces (voivodeships), the most powerful external connection is transport of goods, and the most important partners are German regions. In part, this means that the international position of our regions is based on cheap labor. In the German regions (Lands), relatively the most important kind of

connections are flows of knowledge (joint patents), meaning their position is built on R&D.

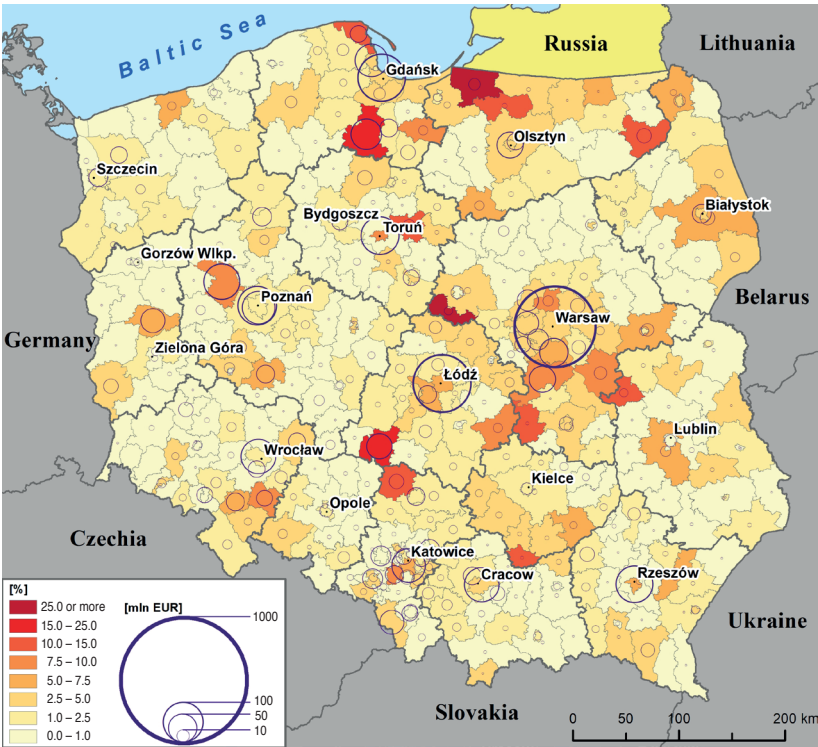
External shocks

Another element of the ESPON project was evaluating external threats which distribute across Europe along the network of flows. It cannot be denied that the study happened to be conducted during an unexpectedly revealing period. The project was launched in winter 2020 before the outbreak of the COVID-19 pandemic, and considerably before Russia's invasion of Ukraine. The researchers worked hard to include these events in their analysis. They also analyzed spatial effects of other shocks such as Brexit and the introduction of the European Green Deal. The studies included quantitative (input-output analysis defining financial flows between regions and between industries, and migration modelling including from Ukraine) and qualitative analysis (interviews and workshops in selected regions). For the European Green Deal, changes in the system of connections were tested for reducing the extraction of coal and its use in power generation. Unsurprisingly, several Polish regions, the Śląskie Voivodeship in particular, turned out to be under greatest threat, but the list also included several regions from Western Europe. These include locations supplying machinery essential in Poland's coal power stations.

Awareness of interregional relationships means being able to predict potential threats and act to introduce preventive measures and appropriate public intervention. If we know which Polish regions had Russia as a major recipient of exports, we can forecast where to direct aid when trade with the country is covered by sanctions.

Polycentrism

The systems of flows shape the spatial structure of Europe as well as individual countries and regions. Sustainable development of individual countries is supported by the polycentrism of the network of cities. Alongside Germany, Poland is one of the most polycentric countries in Europe: Warsaw does not dominate over the country in the way that Paris does over France or Budapest does over Hungary. However, polycentrism is not just about the size ranking of cities and their distribution: the other important criterion is connectivity. A polycentric system is marked by linkages and flows in many directions among the most important centers, and this is where Poland does not fare as well. The period of political and economic transformation has clearly favored Warsaw. Many migrants from rural regions chose to move directly to the capital, and the degree of migration between other major cities is relatively low. The Central Statistical



Office of Poland's reports on marriage consider the place of origin of both spouses, and it turns out that there is very little intermarriage between residents of cities which are relatively close together (for example Wrocław and Poznań, or Gdańsk and Szczecin). On the flip side, residents of all these cities frequently marry residents of Warsaw. This is indirect evidence that social and economic relations between smaller cities and towns are weak and local residents have few opportunities to meet.

The situation is not much better in the economic sphere. Major companies are headquartered in Warsaw and only maintain branches outside of the capital, with the reverse situation being almost non-existent. As academics, we are relieved to report that academia is in a rather healthier situation. Statistics on PhD reviewers indicate that there are close ties between universities outside Warsaw, for example between Poznań and Kraków or Wrocław and Poznań.

In summary, the spatial policies of the EU, individual countries and regions must take into account the latest understanding of the "space of flows." They should also serve to help spread this understanding among the broader public. In fact, this could be at the foundations of effective transport policies, as well as supporting specific activities in many sectors of the economy and providing an opportunity to forecast threats on the territorial scale. This would provide answers to the growing spatial polarity, which cannot be opposed by public intervention without understanding the system of interactions. ■

Threats resulting from sanctions on exports from Poland to Russia on the district level (2018; source: report of the PAS Institute of Geography and Spatial Organization, P. Duma, B. Szejgiec-Kolenda, based on data of the Polish Ministry of Finance)

Further reading:

Castells M., *The Rise of the Network Society, The Information Age: Economy, Society and Culture* Vol. I, 1996.

Interregional Relations in Europe, 2022, ESPON, <https://www.espon.eu/programme/projects/espon-2020/applied-research/interregional-relations-europe>

Komornicki T., Korcelli P., Siłka P., Śleszyński P., Świątek D., *Powiązania funkcjonalne pomiędzy polskimi metropoliami* [Functional Linkages Between Poland's Metropolises], 2013.