

Geographical space as a mediator between population and economy

Andrey I. Treivish¹

¹ *Institute of Geography, Russian Academy of Science, Moscow, Russia*

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Abstract

The article covers a wide range of relations between the population and the economy through space (their spatial relations). The dynamics of quantitative proportions between the number of inhabitants, the volume of gross product and the size of the territory of the countries of the world and Russian regions are analyzed. Changes in the composition of the economy and population, production and consumption under globalization and post-industrial development, and their geographical effects, are revealed, including those in Russia. It is recognized, in particular, that the geography of society is today less dependent on fixed capital and more on the human capital. A distinction is made between types of activities by their demand for space with its resources and between types of places according to their supply. The role of space as an integrator or disintegrator of social phenomena, in terms of its accessibility is investigated. A review of some issues related to the growth of spatial mobility of people and property, flows and territorial shifts is carried out. The social value of mobility and its role in overcoming spatial barriers is shown.

Keywords

geographical space, population, economy, society, Russia, mobility, flow, shift

Jel codes: O18, P25, Y10, Y91, Z13

Introduction

The title of this article is somewhat provocative. In fact, do the population and the economy (human communities and their economic activities) need some kind of mediator? Historically, they are connected so closely that their conjugate analysis usually does not go beyond relations in society, while the typology and periodization of their development are based on ways of extraction of means of subsistence. However, such means are already intermediaries

between people and the economy. According to the known definition by L. Robbins (he himself referred to the scholars of the Vienna school, starting with K. Menger), economic science studies human behaviour as a relationship between goals and limited means that can have alternative application (Robbins 1935: 15).

Funds, which in this case are resources, are divided into natural, economic (labour, capital, including technological, etc.), administrative, information, time resources. Space beyond which population and the economy cannot exist is less often added here. Geographic space is the bearer of natural, partly economic, sociocultural, informational, political and legal resources and conditions, the whole environment of life. This enables considering geographical space as one of the mediators of various social relations. Before proceeding to their review in a given vein, we will make a number of comments clarifying the approach to the topic and the nature of its coverage in the format of this article.

Preconditions and task setting

First, we note the narrowness of the resource-production approach to the relations of people with the economy. The person in the economy is both a worker, the main productive force, and final consumer of the results of labour, while the economy is a source of income and benefits for the population. The higher the total labour productivity, the deeper its division, the better competition, the more excessive the market –, the higher the role of demand and consumption in price-setting and society, especially if it is J. Galbraith's affluent society or J. Baudrillard's consumer society (Galbraith 1958; Baudrillard 1970). The specificity of demographic processes, differences in factors of production, levels of development and the nature of the market, demand and supply do influence human wealth and their settlement on Earth.

Secondly, we will consider space as an external factor, not as a part of society, product of institutions, relations or representations as viewed by E. Durkheim, G. Zimmel, T. Parsons, A. Lefebvre, M. Foucault, P. Bourdieu. Such a product can do without the earthly basis and deny its meaning, reducing space to a metaphor, as stated by A.F. Philippov (Philippov 2002; 2008, etc.). The protest of geographers was expressed, for instance, by L.V. Smirnyagin (Smirnyagin 2016). Economic space is also usually interpreted as a casket of enterprises, networks, etc. with their connections, or as an environment of relations, implementation of needs, interests, factors of business activity (Granberg 2000; Chekmarev 2001; Ivanov 2015). Earth space, natural in its core, is at least technically more convenient for our tasks than complex multidimensional "special spaces".

It is obvious that the topic will not be widely disclosed in the journal article. However, it should hardly be reduced to a single task. Let's try to give at least a fragmented outline of the panorama, drawing the role of geospace for demo-economic relations and links. Their variation in time and space requires historical and geographical polyscale, but with an emphasis on the 20th and 21st centuries and on Russian realities taking into account the external background.

We will try to reveal both sides of the relationship between the two main "agents", resource and consumer, although there are so many direct and backward links between them that it is difficult to separate them. The main tasks are to identify trends of evolution and degree of diversity of studied relationships. At the same time, it is desirable to distinguish the reactions to space of each agent separately and their mediated mutual relations, that is,

spatial relations. This also expands the range of tasks, making it almost unforeseeable. Hence the variety of methods — qualitative and in some cases quantitative are applied.

Territory, population and economy: change of basic proportions

Geographical space, or rather land territory divided by States, to which the life of the vast majority of humanity and economic activity is timed, is not only their arena, the environment of society, but also an important factor of differentiation. More importantly, the significance of this factor does not diminish (no matter how someone tries to prove otherwise), but rather increases in the course of history.

B. Milanovich (Milanovich 2016), when studying the dynamics of global income inequality, found that in the 19th century it was more than 50% dependent on polarization of people by classes (hence the flourishing of Marxism). In the 21st century it is by 85% determined by the average level of income in the country of residence. In other words, class stratification was replaced by territorial, i.e. interstate inequality. Milanovich explains the demographic pressure of the poor world on the rich one, which has become a burning problem and the cause of conflicts and protests¹, with strengthening the link of income with country residence and simplifying its change via migration. Some countries have not yet received a demographic dividend, while in the “aging” nations there is a “besieged fortress” syndrome.

Even the poor in rich countries are often richer than the rich of the poorest countries. Thus, with the percentile division of the inhabitants of India and the United States, the overlap is, according to Milanovich, 4% — this share of Indians has an income higher than that of the American poor. In India it is 50 million people, more than the population of an average country. But the number of poor there, like in a number of other highly-populated countries, is enormous. And the income gap between them and the poor members of rich societies, not to mention the middle and higher classes, is huge. The image of the world, where some people get richer and others get stuck for centuries, is enough to recognize the importance of a political map that mediates social contrasts. But the role of space in relations between the population and the economy is not limited to one aspect and scope.

There is a pattern according to which the demo-economic saturation of territories differs more than average income and labour productivity. This is confirmed by calculations of population density, per capita GDP and its “outcome” from an area unit of two hundred countries of the world in its modern and proximal composition (Table 1). The series of each indicator behaved differently, but per capita indicators varied by several times, and even substantially less than density indicators. For illustrative purposes, let us give the example of five large countries: India, China, Russia, Germany and the United States. Their per capita GDP, taking into account PPP, is correlated in the proportion of 1: 2: 3,5: 6,5: 8, whereas population density, but in the order of the Russia — USA — China — Germany — India, — as 1: 4: 18: 29: 50, and the density of the product is as 1: 18: 20: 21: 95 (Russia — USA — India — China — Germany).

¹ In the US and Europe, it is a split of society over D. Trump's policy, Brexit, the “yellow vests revolution,” reminiscent of proletarian movements of the past under slogans of social justice. It seems that this is an example of negative feedback in the societies of the “golden billion”, which met the challenge of spontaneous alignment of global contrasts with waves of migrants.

Table 1. Some signs of variation in population density, GDP/PPP per unit of territory and per capita, for 200 permanent countries of the world

Indicators	Population density			GDP per unit of territory			GDP per capita		
	1900	1950	2015	1900	1950	2015	1900	1950	2015
Span max — min	360166	131249	233152	221531	111355	323032	20.4	34.6	228.4
Variation index	1.94	2.11	2.66	2.78	2.43	6.41	0.88	0.98	1.14
Excesses of the series	37.6	57.8	132.4	29.1	27.2	181.9	5.0	4.3	3.7

Source: author's calculations based on international statistics for different years using retrospective estimates by A. Maddison (Maddison 1999) and other authors.

Approximately the same is observed within countries, albeit with smaller amplitudes, which, incidentally, depends on the fractiveness of territorial cells. Thus, in regions that are subjects of the Russian Federation (cities of federal rank merged with adjacent areas) the fall in GRP per capita without regard to differences in prices reached 37 times in 2000, and 55 times in 2016. The density of the population increased from 4,500 to 6,000 times, and the density of GRP decreased from 5,800 to 4,200 times due to the product's growth in some regions rich in natural resources. The levels of variation and asymmetry within the per capita series were also inferior to those in terms of GRP and population density, although the latter were less strongly so.

The more moderate contrasts of per capita indicators compared to densities reflect the interconnection of the population with the economy, which is mentioned at the beginning of the article. Per capita differences are growing, confirming the correctness of B. Milanovic, but clearly lag behind the extremely uneven productivity of the territories.

Let's compare the closeness of relationship between the three variables using paired correlations (table 2; where the smallest countries are excluded from the list). Interestingly, the correlation coefficients declined in 1950 and especially in 1973, when the map of the world had been changed by the process of decolonization (it could not directly influence the figures: countries are taken within their current borders) and the world energy crisis began. Later the conjugation of the size of the territory and population increased, but not to a modest level of the early twentieth century, whereas the connection of territory and GDP remained the same. It increased for population and GDP — along with the economy of such demographic giants as China, India, Indonesia, due to catch-up industrialization. Their breakthroughs caused a known convergence of the middle developed countries, which contradicts the general conclusions of Milanovich, but mainly within this group of economies.

Table 2. Correlation coefficients between territory, population size and GDP for 110 countries of the world of permanent composition and 80-82 regions of Russia

Indicator Pairs	Countries of the world						Regions of Russia	
	1900	1925	1950	1973	2000	2017	2000	2016
Territory — population	0.46	0.49	0.48	0.37	0.43	0.42	-0.04	-0.05

Table 2. Continued

Indicator Pairs		Countries of the world					Regions of Russia	
Territory — GDP	0.50	0.53	0.56	0.51	0.52	0.51	0.07	0.03
Population — GDP	0.75	0.65	0.54	0.52	0.63	0.80	0.89	0.94

Source: author's calculations according to international and Russian statistics.

Among regions of Russia, the correlation of the pair “population — GRP” is high and growing, and two pairs of signs with the participation of the territory are absent and even slightly negative. This may look strange in a resource-dependent country, somewhat distorted by statistics, but remember that the contribution of the natural resources sectors to GDP is less than to exports and budgets, and that the population and production, especially intangible sectors, have long been drawn to major urban nodes and relevant regions.

Therefore, the third pair of indicators from Table 2 is really the strongest in our country and in the world. Its strengthening in the most developed countries and in many other countries is associated with post-industrial shifts that require separate consideration.

Composition and geography of society in the conditions of structural changes

At the turn of the 19th and 21st centuries the society was either industrial or (more often) agrarian. It was dominated by peasants, workers, and servants of propertied classes. In this regard, A.S. Fetisov cited the criteria of the British census of 1910, which referred the household to the middle class in the presence of three or more domestic servants (Fetisov 2007). In the Russian Empire, a country of medium development, half of the masters-breadwinners in 1897 were farmers, 15–17% were factory workers, craftsmen and servants together with their main employers: officials, “professionals”, rich rentier. But there was only 1.5 times less of them here than servants and day labourers (Mendelev 1906: 65–118).²

The majority of labourers were rigidly linked to the place of work - field, workshop, factory, farm house, which did not exclude mobility in the mode of seasonal work, especially among class peasantry (80% of the inhabitants of the Empire), and there were plenty of them among workers and masters' servants. The limitations of solvent demand, especially in the countryside under semi-natural economy, made industrialization difficult before and after the revolution, in the years of “New Economic Policy”.

In the 1960s, after the period of steady raising of the heavy and defense industry, the industrial and construction sector of the Soviet economy gained 40% of all employed, and the primary agrarian lost to the tertiary and quaternal, service and information sectors. But the latter grew less confidently than in the West, it was restrained in fear of deproletarianization of society. Expansion of the area of wage labour and accompanying economic changes of

² By the way, it was D.I. Mendelev, not A. Fisher and K. Clark, 30 years later (as is considered in the West), who singled out the primary, secondary and tertiary areas of activity of “miners who take raw materials from nature”, “industrialists who process these raw materials” and “persons carrying out public duties or giving society something completely different than daily bread”.

urbanization called for better supply of goods and services, with which the USSR, unlike its competitors, failed. There were attempts — not very successful — to slow down the growth of cities and geographical mobility of the population.

The post-Soviet period is distinguished by a combination of a number of radical transformations. In the 2010s, 2/3 of Russians, according to labour statistics, appeared in the area of trade and services. 7-11% from this area belonged to the primary sector, 20- 27% to the secondary; the “gap” was created by uncoordinated accounting in a number of sectors in extractive industry, construction, and commercial subsidiary farms. Russia is distinguished from developed countries by an increased share of the agricultural sector and a reduced service sector; by this indicator, Russia stands between the countries of the “first” and “third” world. The country has many state employees and few entrepreneurs (employers), small businesses. With high formal indicators of education, innovative and creative links of the economy are clearly weak.

It would seem that mass employment in the area of personal services has fallen into oblivion, replaced by hiring in service firms and networks. But in Russia, the number of domestic servants, guards, caregivers, cleaners, personal drivers, etc., is estimated at about 4 million — more than in 1897 (however, the proportion is twice lower). According to A.S. Fetisov, their quantity directly depends on the depth of stratification and polarization of income. And in Russia they are much higher than in other post-socialist countries or in all foreign Europe. This is one of the tokens of paradoxical combinations of modernization with archaization, characteristic for modern Russia.

How does all this affect the geography of post-industrial societies? In principle, when compared to industrial society, it is less dependent on localization of fixed capital and more so on human capital. The growth of life expectancy and social guarantees, free time of workers (in Russia until the twentieth century working hours were almost not normalized, and the transition to a five-day 40-hour week in 1967 came about later than in a number of countries), flexible labour hours, its remote forms increased the demand for leisure, mobility of people and industries as “consumers of geospace”. Technological chains are split, their links are divided by thousands of miles, but most important is the place where international capital controls innovation and financial flows.

The post-industrial era coincided with another wave of globalization under the auspices of TNCs. They widely place enterprises, while headquarters and minds are left in old core centers. They have their own networks, but they are quite amicably attracted to global cities, agglomerations and mega-cities (urban mega-regions). ICTs help to manage dispersed businesses, and services and human capital are less dispersed and mobile. The share of services in world trade is 2-3 times lower than in the global GDP. Tourist, many social, educational, medical services are “non-traded”, or their export is “invisible”. People travel for these services, while utilities tied to real estate keep them home. Anyway, they’re more immobile than customers. The concentration of high-quality human capital is high and stable. Thus, R. Florida allocated 40 mega-regions in the world, where 18% of the population produced 2/3 of global GDP by the beginning of the 21st century, where 88% of distinguished scientists lived, where 86% of all patents were made (Florida 2008). Mobility easily coexists with concentration of the population and the creative economy.

In fact, the demands of people and businesses for space are different: the former seek favourable natural and social conditions, the latter - the best combinations of factors, opportunities for profit. But the economy is heterogeneous. It is no secret that companies operating large reserves of valuable natural resources are ready to go to distant and non-sheltered

places, to take any barriers, to implement shift methods of labour organization and territory development. And there are types of business (more and more of them), the requests of which are close to social, they seek “human ant-hills” as reservoirs of labour and markets. Such places grow according to the demo-economic snowball scheme: more population — more activity, and vice versa — until the apparent costs of overconcentration for business or citizens begin to limit it in any way.

Russia is not an exception, and its specificity is contradictory. The raw bias gave rise to large businesses of the first type, which are almost indifferent to local conditions. On the other hand, the emergence of a consumer society in conditions of rigid centralization, typical for the country, has led to the consolidation of population, demand, trade, ordinary and business services to a few centers and regions. This reflects the displacement of calculated centers of gravity, or centroids, of different “masses”. In the RSFSR such centers of population, volumes of retail trade and products of industrial industries smoothly drifted to the east, to the Belaya river in Bashkir Republic (Fig. 1). Since 1990, the population has moved to the southwest, in the direction of migration and in connection with the demography of the southern republics. Trade moved to the west-northwest, towards Moscow — the focus of consumption and distribution of goods. The industrial center first rushed to the east, to raw materials (to the Chelyabinsk region), but then turned to the north-west. They dispersed hundreds of kilometers, farther than in Soviet times, and got to different regions. They were influenced by different games of statistics, the accession of Crimea in 2014, but more often by real internal shifts.

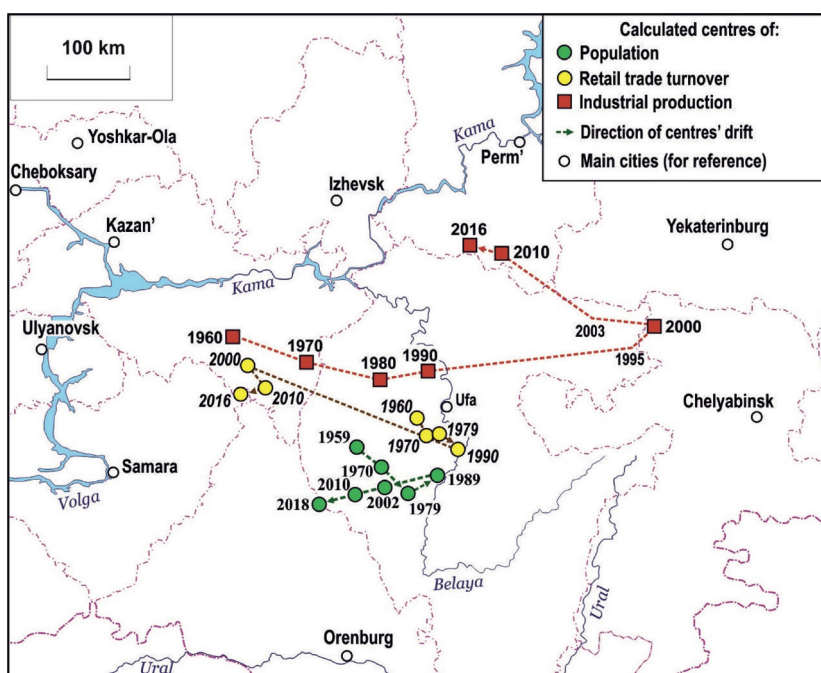


Figure 1. Centers of gravity (centroids) of population, retail trade turnover and industrial production of RSFSR — Russia within borders, prices and according to the accounting methodologies of the respective years. Calculated and compiled by the author

Usually, geographers see the integrator of phenomena in space, being aware of the formation of complex natural and social complexes in it. But it can also divide, disconnect the same population and economy. Let's look at these functions in more detail.

Space as an integrator and disintegrator of social phenomena

Primitive people, when dispersing around the Earth, lost bonds with their motherlands and forgot about them, but their communities perfectly fit into their new habitat. This fragmented world has been rediscovered and reunited through the millennia. Local worlds with their customs, economy, etc. were keeping their peculiarities. For example, in France at the turn of the 20th century it was written that the country was crumbling into a multitude of individual Frances, willing to separate with peace of mind; already in 1981 one writer called it “unified and divisible”, and F. Brodel considered France absurdly motley, different, mosaic, where each village, valley, district has its own identity (Brodel 1994). And this is about the country which was considered a model of unitarianism and centralism, and not about Germany, Italy and other countries that emerged on the world map much later!

Among them, Russia looks rather cohesive, at least within an array of ethnically Russian regions. And yet the specifics of the local population and culture, traces of the traditional economy are visible here after a long work of the all-nation and then global market. One scale or layer of the economy often interacts with others and feeds them. This was demonstrated by the history of the Netherlands, where persistent collective struggle with the sea and “union” with it on spongy, rather scarce lands forged a national character with a craving for agreement and cooperation. For a time the country became a leader of world trade, having alongside achieved various other successes. In the 20th century, the breakthrough of industrial “tigers” and “dragons” of Asia was partly due to the heritage of “rice” economies driven by collectivism, hard work and the habits of dense co-residence, which at the same time facilitated the steps of urbanization.

In these examples space helped to develop through its beneficial properties of society and culture. This is also true for Russia. At the dawn of its industrialization, capitalist peasants, especially the Old Believers, had a significant role. Their diligence, initiative, and austerity were similar to Lutheran, although they were not religious innovators. They were related to early Protestants rather in the sense of excommunication. The higher, at those times, literacy and mobilizing status of persecuted sufficed that their mark remained in many old industrial centres of the country.

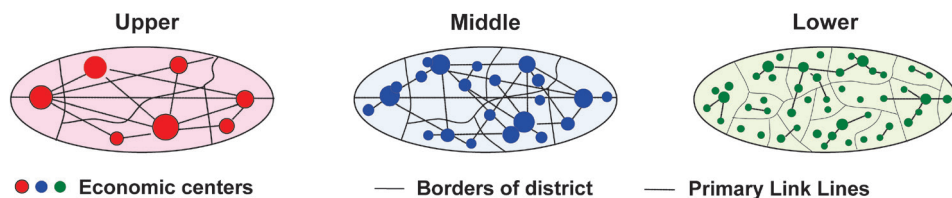


Figure 2. Conditional schemes of territorial organization of three layers of the economy according to F. Brodel. The illustrations are suggested by the author of this article

The aforesaid F. Brodel identified three formations, or layers: the upper, middle and lower, or underlining (Fig. 2). First, the level of supercorporations, banking and trading houses rules the world through exchange markets and exchange rates. It's the youngest, and only it, according to Brodel, is truly capitalist. The average layer of industry and national markets is transparent; it is a subject to the classical laws of "Economics" textbooks. The bottom layer of small natural, often handcrafted and informal infrastructure has since ancient times covered the entire Oecumene with a network of its cells.

The similarity of Brodel layers with macro-, meso- and microeconomic ones are external, they are not identical. All three layers are not expressed everywhere, but they can get along in one place. Thus, under the skyscrapers and other symbols of global cities, there is often quite a local life, small businesses offer goods and services with national and local flavour. Producers, sellers and consumers of products of the two polar economies differ in wealth, qualifications, etc.

Not only economics and population of megacities are multilayered. The number and composition of the inhabitants of the lower levels of settlement are also contrasting and, in addition, unstable. It is most easy for the author to give an example of the Kostroma village, where his family has owned a house since 2007, spending part of the summer period in it. There, 550 km from Moscow, in winter there are four to five local residents in two permanently inhabited houses; some of the elderly people are taken away from the cold to cities by their relatives. In warm seasons there are 3–4 times more people thanks to summer residents from the city, and in the years and days of holding international conferences here under the auspices of the Community of professional sociologists the population suddenly increases dramatically.

So, how many people live in the village? Clearly, the answer requires timelines and statuses to be taken into account: depending on the time and type. The "indigenous" inhabitants and summer dwellers (even in ancestral homes) are different, although suburban communities in the distant areas are more homogeneous and, by the way, more integrated than those located close to cities. Intellectuals and persons of liberal professions with average income, at senior and middle age, small family, with grandchildren, more often go over into the back-country. In summer houses and other places closer to urban centers, the contingent is more mottled: from oligarchs to the lower classes of society. Their level of awareness of common interests and social cohesion is, of course, lower.

At the same time, space and distances served and still serve as disintegrators, demanding efforts to overcome them. Only at first glance they gave up under the pressure of publicly available means of communication. Yes, digital communication is fast and inexpensive, and people and cargo move slower, but a passenger whose weight with his baggage is approximately 100 kg moves faster than a 100-kg cargo. It is more difficult, and more expensive to transport a worker to the place of work than goods to the place of sale, although there have been and there still are anomalies, sometimes absurd.³

Delivery time and price depend on the transport network and logistics. Communication accelerated as the messenger separated from mankind as the carrier of messages. The limit of medieval mail was achieved by the realm of the Chingissid. News was delivered from district

³ In the Soviet anecdote of the era of deficiency, N.S. Khrushchev, making a report on the imminent communism, promised everyone a personal plane and replied to the question "Why?" as follows: "Well, you are a Siberian, but sausages are found in Moscow." And is it not absurd that in the forest or river (lake) Russian region you will find local products on the market, while in the catering menu there are standard dishes of imported mushrooms and frozen ocean fish?

to district on relay of messengers with horse shift at pits in three weeks at speeds of up to 250 km per day. Messages now fly almost instantaneously. For a passenger, it is 7 hours of net flight from Beijing to Moscow (the journey actually takes all day), for air cargo — 2-7 days. It takes 35-55 days by sea, 25-35 by railway. Finally, multimodal schemes take from 10 to 45 days depending on the route and tariff (figures are taken from carriers' websites).

Nature, settlement and development of territories influence the accessibility of cities. The Joint Research Centre attached to the European Commission drew up a detailed world map of the time spent on the journey to the nearest city of a size no smaller than average, by on-land routes — from minutes to weeks (Fig. 3).

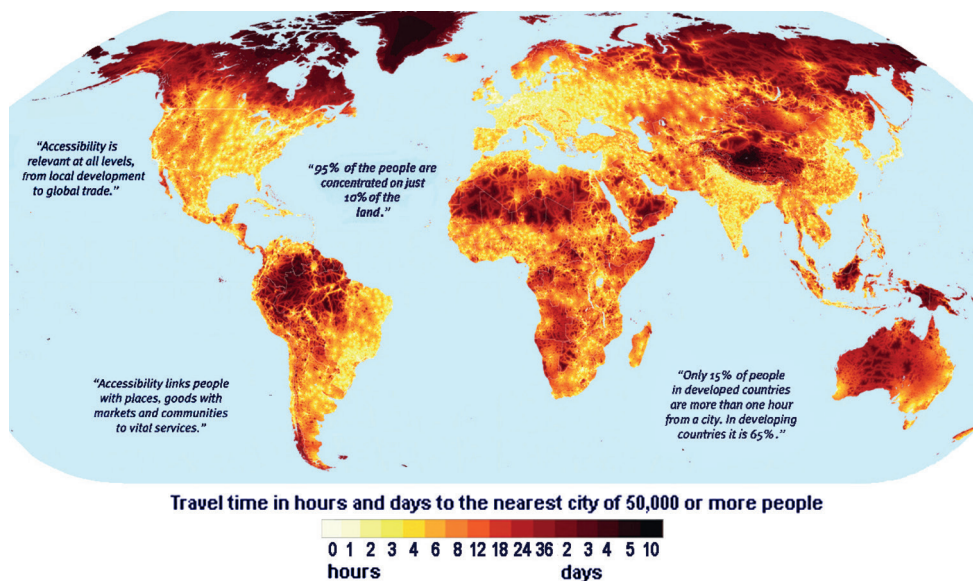


Figure 3. Transport accessibility of cities of 50,000 or more residents in hours and days

Source: [World Development Report, 2009]

Dark zones of low accessibility cover a large part of Russia. They are even darker in Greenland, the Amazon and the core of the Tibetan Highlands (Antarctica is not shown here). By the way, the areas of reliable reception for cell phones are not omnipresent even in the heart of Russia, and behind the Urals they look like specks on the background of lack of stable communication (Treivish 2012). Comments in the field of the map — selected theses of the report of the World Bank for which the map was created are interesting. Some indicate the importance of accessibility, others indicate the sharp difference between the two groups of countries and the territorial concentration of the population (95% on 10% of the land area).

The population and economy of any territory are interdependent, connected in one way or another. Connections can be direct and indirect, positive and negative. The latter (conflicts of interest between layers of economy, business and population) are associated with standard locational collisions. The best choice of country, district, city for a new economic object is irrational in the absence of free space there and rejection of the decision by the local community. The situation is reflected in the English expression *not in my backyard*: place it wherever you want, but not here in my yard. After all, few people will like unexpected

neighborhood with the landfill of Municipal solid waste (MSW), incinerator or any other smoky plant, pig farm, or simply long-lasting construction. Conflicts of local damage with national and global effects arise around existing facilities. And vice versa: a breadwinning enterprise of vital importance for the place of its residence, becomes unnecessary for the external market and the owner. It is closed, and people protest, complain to all authorities, without tolerating inexorable economic logic.

Theoretically, any event, act of spatial development or its absence is the result of meeting or, on the contrary, mismatch between demand for resources and conditions from their local supply. Sometimes this match is awaited for years, decades, and even centuries: there seems to be supply, but many places do not find demand. At the same time, other places (more often megacities, agglomerations) impose bans and restrictions due to excess demand, taking into account the scarcity of their lands and other resources. The challenges and problems of development in these types of places are different.

Similar discrepancy occurs between groups of “indigenous” people and strangers. The usual position of the former conveys the universal Russian cry “those fobs (fresh off the boat)!”, and anyone can fob — poor and rich, non-residents, foreigners, investors, temporary builders, summer residents, tourists. It is important that strangers bearing problems along with some benefits that disturb the way, peace, identity, and harmony of the place, as they are understood by the old inhabitants.

In all these cases, the former space changes, breaks, separates the economy and society or parts of them. The main violator and provocator of change is usually widely understood geographical mobility, which is devoted to the next and last section of the article.

Spatial mobility of people and things, flows and shifts

‘People and things’ is F. Brodel’s favourite pair of terms: the second volume of his book about France is named with these words, as well as some others works. He wrote: “material life is people and things, things and people”; their number divides the world, organizes it (Brodel 1994–1997). Things and people are geographically mobile, and this concerns movables and real estate, although its mobility — transfer of buildings, structures, entire settlements — is not so regular and fast. Formally permanent, attributed to a settlement population is also mobile in fact.

Geographers are used to calling mobility of people and movable properties “flows”, and relocation of immovables (direct relocations, but more often changes in spatial proportions due to growth and development in some places and loss, decline in others) — “shifts”. They have a lot in common, and for a philosopher any movement, as any change and transformation, embraces all options. They all have speed, direction, rhythm and frequency. Shifts on many signs are closer to spatial development, while flows rather reveal the functioning of society. Their particles are inferior in mass and size to those on which shifts are judged, and exceed them in speed and frequency. Partly due to this they are usually investigated separately in research.

Mobility in general and of man in particular has become a sign of the century and a fashionable subject in different sciences. It grows according to the forecast of the American geographer Wilbur Zelinsky, the author of the hypothesis of mobile transition (Zelinsky 1971). By analogy with demographic transition, interpreting the stages of natural movement, he explained the shift from traditional “sedentary” life to mobile life of new societies, and also

promised accelerated growth of various regular-return (circular) flows in comparison with conventional migrations. In the 21st century, the British J. Urri came to special “sociology of mobility” and the Frenchman J. Amar came to a special kind of *Homo mobilis* (Amar 2010; Urry 2007; 2012). Return flows have recently attracted the attention of researchers in Russia (Plyusnin et al. 2013; Nefedova et al. 2016).

People move in space, overcoming distances, both natural barriers and those arranged by them themselves, in different ways. Sociologists distinguish vertical mobility, which changes the position of the individual in the hierarchy of society, from horizontal: change of faith, family, party, place of work and residence to equal levels. This includes migration, however, it is easily combined with upward or downward vertical mobility, especially since the social space is also arranged hierarchically. On the other hand, not all types of mobility require geospatial movement. And not all inhabitants move between countries, districts and cities. Similarly, not all goods and services produced in any place are delivered to some other place.

The frequency of movements generally decreases with their distance, duration and irreversibility. There were 258 million international migrants on permanent residence in 2017, 3.4% of the world population, and this is anyone who had ever changed the country of residence, not in one year (Shcherbakova 2017). According to UN WTO, there are already over 1.3 billion international tourists per year. The number of intra-countries movements between settlements, including movements for employment and private purposes, is much more, but their accounting is not well-organized or unreliable. But it is easy to calculate that a modest 5 km one way every weekday will over 30 years accumulate 100,000 km of track, equal to 2-3 world tours on the equator. And 90 km trips, normal for a summer out-of-city resident, with half of all weekends and holidays, will accumulate three “round-the-world trips” within the same 30 years. For 55 km labour trips, which is real for a suburban labour migrant, there will be 19 circles. Many of us are partly nomads, eternal travelers.

In the modern, almost everywhere permeable world mobility is concentrated in the same place as its carriers: in urban hubs. Author’s estimates for Moscow showed that there are more mobile people (excluding those driving only within the city and transit through it) than officially registered population. And migrants for permanent residence, with a significant distance covered, are negligible among others (Table 3). Commuter pendulum migrants travel most often, foreign migrant workers travel most far, and the longest annual journey is made by the Russian seasonal workers. The figures in the table are conditional and may be controversial, but the scale of flows is impressive in any case.

Table 3. Calculated parameters of population mobility in Moscow, 2012-2013

Category	Number of participants, million people	Average number of trips *	Total number of trips, million	Average trip distance, km *	Total per 1 participant, thousand km **
Migrants for permanent residence	0.3	1	0.3	1900	1.9
Commuters	1.0	230	230	55	25.3
Seasonal workers	1.5	20	30	900	36.0
Migrant workers	1.5	3	4.5	2500	15.0

Table 3. Continued

Category	Number of participants, million people	Average number of trips *	Total number of trips, million	Average trip distance, km *	Total per 1 participant, thousand km **
Summer residents	5	25	125	90	4.5
Other***	5	4	20	500	4.0
Total	14.3	28.7	410	177.4	86.7

* In a year one way

** In a year one way (permanent migrants) or two way (return)

*** Tourist, business, guest visits (excluding transit passengers)

Compiled by the author according to various data and estimates

The shifts have a different characteristic time. The population of the megalopolis will not change in a year, they will not transfer it to another place. However, if shifts include changes in borders, they can be drastic, like the expansion of Moscow city by 2.4 times in 2011–2012 (formally from July 1, 2012). For the past 115 years, this has happened to Moscow on average every 12 years. Among such changes are disintegration and appearance of States, cases of redrawing of their borders, transfers of capital cities.

Economic shifts are slower, but they change the picture of the world more radically. Thus, the takeoff of China on the path of industrialization led it over the course of 30–40 years to the first place in the world in terms of GDP, taking into account PPP. The country entered the stability zone after a series of shocks and was able to fit into the wave of global mobility of capitals. Free economic zones (FEZ), from which the leap began, were aimed at capital, technology, experience and communications of Taiwan, Hong Kong, Macao, as evidenced by the geography of FEZ: counterpart with them. But they grew in huge cities not at the expense of returnees, but their citizens (with all control of their mobility). The FEZ effect, perhaps, is exhausted, and then it was important that different flows meet. This is a good example of their interaction with shifts. And like any interaction it consists of direct and backward links, positive and negative. Let's show how they can look, at least schematically and in a general way.

With positive feedback, flows of people and things between territorial objects contribute to their growth, and that increases the flows. Let's imagine two centers and the flow between them, growing together (Fig. 4A). The centres themselves lack resources, including human resources, and need external support. Subcenters may grow, which turns the centers into nodes, as well as transit points between them, but rather small, as, for example, in the Russian metropolitan area, on the routes from Moscow to St. Petersburg (Travel... 2015). Exchange with donors of resources is either bilateral or not: they only lose. Then the more active the centers and their exchange, the worse it is for the donors.

The connection can also be negative for one of the poles of this “barbell shaped” system, which makes it asymmetrical (Fig. 4B, where links with the periphery are not shown). An example here is Moscow and St. Petersburg, which have experienced transfers of capital functions changing their ratios, and the disasters of 1812 and 1941–43. Moscow itself exceeds St. Petersburg in population by 2.3 times, almost as in the 1730s,

when the “window to Europe” was built at the expense of Moscow and the entire country. The Moscow agglomeration is more crowded than the St. Petersburg one, by 2.6 — 2.7 times. Yet the ties of the two capitals are still amplified, and they become communicationally closer.

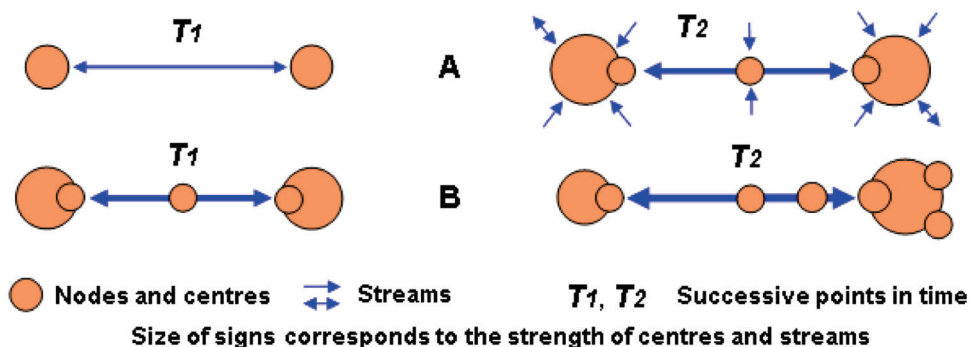


Figure 4. Two-way (A) and one-way (B) positive feedback between flows and shifts.
 Symbolic schemes compiled by the author

Flows quickly react to shifts in the real and event world. War, a terrorist attack or natural disaster occur, and the inflow there will turn into outflow, the outflow will increase or the entire turnover will fall. When everything calms down, the inflow grows again. Mobility has disadvantages: asymmetrical exchange and trade wars, migrant crowds, brain drain. But people’s desire to change or alternate places for a better and diverse life is hardly removable. Mobility helps to correct errors of spatial behaviour, fatal in the past, and valuable to the economy, which does not require much evidence, but may be in conflict with the interests of the population.

Shifts in resettlement and those material, economic shifts, by which it is customary to judge the development of territories, can be progressive and reciprocal (backward). Hence the effect of pulsation of territorial structures, their stretching and compression. At the same time, flows play the role of compensators of losses, for example, “reconquest” of empty lands with new waves of development. In countries such as Russia, the question of their fate is one of the key to knowledge and strategies of spatial development. This, in turn, affects shifts, requiring new approaches to their research.

Conclusion

As has been said from the outset, this article does not purport to have a comprehensive disclosure of a topic that is too broad and fundamental. Many of its aspects are dealt with in passing and are subject to detailed analysis. At the same time, the author nevertheless sought to comprehensively cover the relations between the population and the economy through space. At any rate, that was his plan. What have we managed to clarify?

1. The value of space does not diminish over time, as it is explicitly and implicitly assumed, but changes and even increases. This was shown by comparison of absolute and specific indicators of population, GDP, area of countries and regions of Russia. The

relationship between the number of population and the size of the economy is closer than that of both phenomena to the territory *per se*, including the fact that population and efficiency of the territory vary more widely than labour productivity. Moreover, this main bundle grows stronger even with raw material orientation in a country like Russia.

2. Spatial structures of the post-industrial society are less dependent on the geography of fixed capital and more on human capital, than those of industrial society. The demand of the population and business for space is different, but both phenomena are heterogeneous, internally stratified, and in the economy types of activities, the locational requirements of which are close to the needs of people, are multiplying. Hence the concentration of both in super-powerful foci, reinforced in Russia by a number of its stable properties. However, the result of all post-Soviet years (due to the 1990s) was divergence of population, industrial production and market consumption in the country's space.
3. Geographic space is still capable of performing two functions: to unite and integrate society within a given territory, combining its elements into systems (complexes), and to divide the same elements putting obstacles and barriers to their interaction. These integrator or disintegrator roles are critically related to the category of communication accessibility of places. It also differs in various types of communication and activity. Spatial development is the result of meeting demand for resources and conditions with their supply. Some places cannot wait for such a meeting, others suffer from excess demand and shortage of supply.
4. The mediator function of space between the population and the economy facilitates growth of their mobility, characteristic of our times. People, movable and immovable things move at different speed, frequency and costs. Thus, to deliver an employee to the place of work is usually more difficult and expensive than of goods to the place of sale, although passengers are transported faster than goods. But neither of them can compare with the availability and speed of modern communication and transmission of information. Movements, called flows and shifts, are also different and interact differently. Flows, especially return ones (circular), seem to be leading. Mobility, with its social and economic value, expands the freedom of choice for both sides of the interacting pair discussed in the article.

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Authors information

- **Andrey I. Treivish**. Institute of Geography of the Russian Academy of Sciences 119017, Moscow, 29 Staromonetny lane. <http://www.igras.ru/contacts>