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Income inequalities, productive structure and macroeconomic dynamics. A regional approach to the Russian case

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During the past decades, sustained economic growth in emerging countries (and among them, BRICS countries) has attracted much attention in the western world. Multinational companies have been lured by the growing purchasing power of a significant part of the population, often presented as the « promised land » of consumer spending in durable goods, high tech services and fashion products. Of course, increasing incomes imply also significant socio-economic changes within these countries as well. A growing number of studies have been carried in order to track the evolution of income distribution in BRICS countries, and the formation and composition of a social group usually called « middle class » in western countries (Kharas (2010), SIEMS (2010), Levada (2012), Ernst and Young (2013), Kochhar R., Oates R. (2015)).

In this paper we try to assess the impact of recent macroeconomic fluctuations on Russian households income levels. We analyse the Russian trajectory in three different ways. First, we compare the evolution of the « middle class » in Russia with other (B)RIC and western countries, using the wealth-based definition of this group proposed in the *Global Wealth Report* (Crédit Suisse Research Institute, 2015). Second, we go deeper into the Russian case in order to show how regional disparities regarding incomes distribution can be interpreted, considering the country's recent macroeconomic trajectory. For this purpose, we build a productive typology of the Russian regions and study the link between each type and the level of income inequalities, using the varying structures in sources of household's incomes as a possible explanation of regional variations. We conclude by an assessment of the remaining challenges for incomes policy in Russia.

1. A wealth-based definition of middle class

In the 2015 issue of its annual *Global Wealth Report*, the Credit Suisse Research Institute (2015) promotes a wealth-based definition of middle class. In this sense, the so-called "global middle class" is constituted by people who possess at least 50000 US \$ worth assets, and less than 500000 US \$. To justify this definition, the authors explain that in terms of economic behaviour and aspirations, wealth ownership has a unifying influence across the world, related to what we usually consider to be the middle-class' way of life. Moreover, contrary to an income-based definition, a wealth-based definition would account for the resilience and relative socio-economic stability of "global middle class" households, since their assets can be used as a buffer against a sudden drop of income and are therefore regarded as a form of insurance (Crédit Suisse Research Institute, 2015, p. 28). The authors chose the United States as the benchmark economy,

international comparison being carried using IMF PPP exchange rates. The main results of this comparison are summarised in Table 1.

Table 1. Wealth-based definition of middle class: an international comparison

	Wealth lower bound of middle class, US \$ (PPP)	Middle class, % of the population	Above middle class, % of the population
Brazil	28321	8,1	0,6
Russia	18737	4,1	0,5
India	13662	3,0	0,2
China	29245	10,7	0,6
USA	50000	37,7	12,3
France	46183	49,2	12,5

Sources: *Crédit Suisse Research Institute (2015a), p. 32, and (2015b), p. 120.*

As far as Russia is concerned, this definition poses several problems. First, the data on which the abovementioned analysis is conducted are questionable. Second, such an analysis seems to underestimate the size of the Russian middle class when compared to other countries. In relative terms, this group is presented as comparable to its Indian counterpart (resp. 4,1 % and 3 % of the population), whereas in terms of per capita GDP, real income and consumption expenditures, the share of middle-income Russian households is far higher. Therefore, in the following analysis we use these figures for time-series comparison (and not cross-sections analysis). Our aim is to compare the impact of recent economic fluctuations on the evolutions of income groups in BRICS population.

Table 2. Comparative wealth-defined middle class dynamics, 2000-2015

	2000-2007	2007-2008	2008-2015	Total 2000-2015	..of which middle class	..of which beyond middle class
Russia	11,1	-2,5	-9,2	-0,6	-0,7	0,1
India	12,5	-5,5	0,7	7,7	6,8	1
China	102	-67,3	8,5	43,3	38,5	4,8
<i>United States</i>	<i>11,9</i>	<i>-6,8</i>	<i>17</i>	<i>22</i>	<i>12,9</i>	<i>9,1</i>
<i>France</i>	<i>6,2</i>	<i>-0,2</i>	<i>1,2</i>	<i>7,2</i>	<i>3,6</i>	<i>3,7</i>

Source: *Crédit Suisse Research Institute (2015a)*

During the 2000-2007 period, all countries enjoyed an increase of the population belonging to the wealth-defined middle class (Table 2). The most spectacular growth occurred in China, which managed to increase the group by more than 100 millions people. In Russia, with a population of 143 millions people, the increase was of 11 millions people, approximately the same amount as for United States (over 300 millions

people, of which more than a third was already part of the middle class) and India (with a total population of around 1 billion). The crisis period (identified by the author of the Credit Suisse Research Institute study as 2007-2008, although for number of countries like Russia, the most acute period of GDP drop was 2008-2009) provoked a sudden fall of the middle class population. In China 67 millions people were expelled from this category in only two years while in the United States and in India, the figures are of 6,8 and 5,5 millions respectively. In Russia, the fall was less acute (2,5 millions people quitted the group), a paradoxical results that should be explained by the period chosen for the comparison. Indeed, after 2008 Russia was the only country in which the drop of the middle class population continued. Russia's wealth-defined middle class lose 9,2 millions people when in China, it gained 8,5 millions, in the United States - 17 millions, and in India - 0,7 million. These contrasting evolutions confirm the "divergence hypothesis". According to this hypothesis, due to the varying growth models of BRICS countries their macroeconomic trajectories tended to diverge as soon as the financial crisis of 2007 began to affect the world economy (Vercueil (2015)).

Starting from these general comparative observations, we intend to dig into the possible explanations regarding these uneven vulnerability of income distribution in BRICS countries to the changing world macroeconomic conditions. We focus on Russia, whose growth model is qualitatively different from those of China or India. Russia's growth model can be characterizes broadly as "rent based", relying on energy exports to the rest of the world that contributes for a half to State budget earnings, while helping to stabilize the exchange rate of the rouble and providing the domestic economy with the necessary amount of foreign currency to import manufactured goods and equipments. In order to link the growth model with external vulnerability, we use the regional dataset provided by Rosstat (2015), featuring value added sectorial composition, incomes evolution, structure and distribution. Our main hypothesis is that the regional level of analysis can help us to understand the recent changes affecting income distribution at the macro-level.

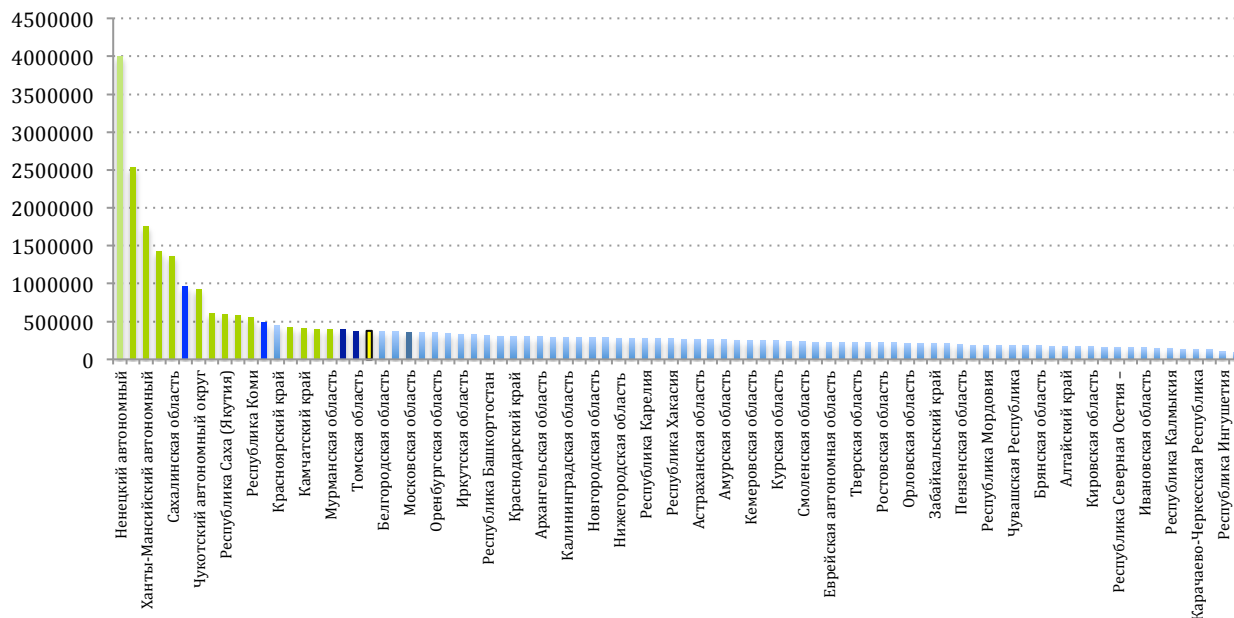
2. Inside Russia: regional development and productive structure

Russia is a largely urbanized society: almost three quarters of the population live in urban area. The urbanization process is still at works, accompanied with a westernization of the population. Eastern regions are loosing people regularly, at a pace that is higher than the natural demographic trend, hence indicating an emigration trend. The largest western cities have benefitted from this trend. Since 2005 Moscow, St Petersburg and their region's population grew 20 times faster than the rest of the country. They now account for 18,3 % of the national population. More generally, the thirty-seven biggest cities (those that have more than 500000 habitants) gather about 30% of the country's population. Among them, 24 are situated in the European part of the territory.

However, this urbanization and westernization trend does not totally match the evolution of the overall production distribution. For instance, the regional repartition of per capita GDP doesn't show that big cities (dark blue bars in Chart 1) produce more wealth than some relatively remote, poorly populated regions (green bars). This is because some of the latter regions are well endowed with natural resources that require capital intensive, labour saving productions technologies. Hence, the amount of per

capita regional GDP can be very high since it largely reflects the level of productivity of extractive industries. More importantly, this productivity level is directly and positively tied to the world prices of raw materials that are exported by Russia.

Graph 1. Per capita regional output (2013, current roubles)

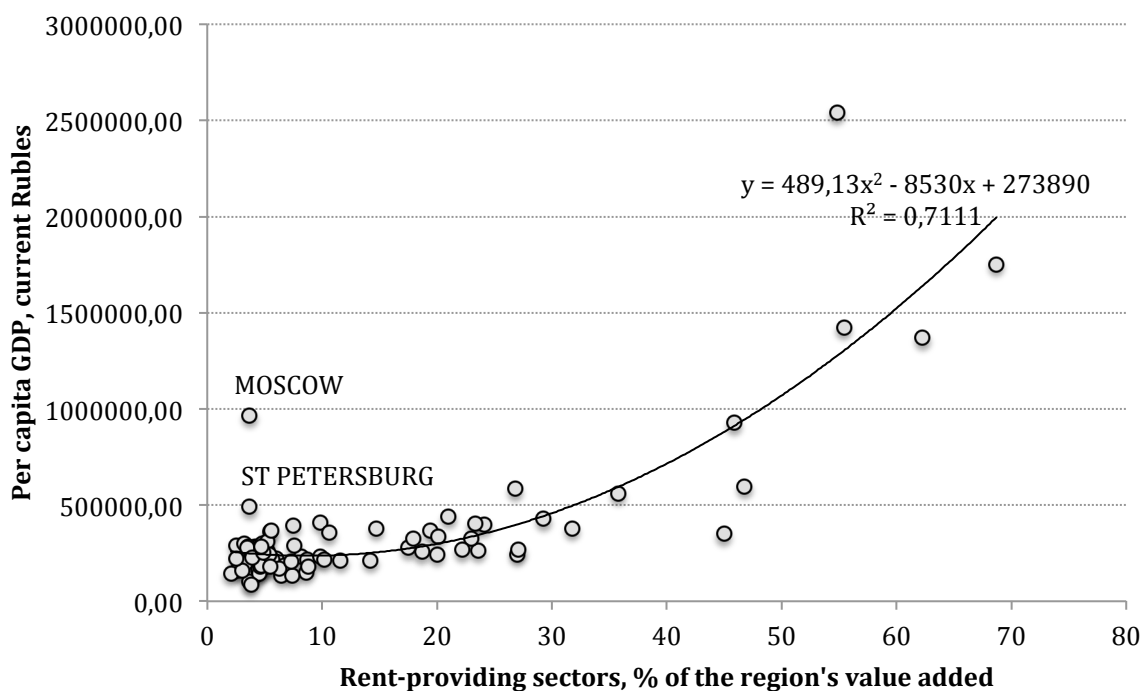


Source: Rosstat (2015)

3. A productive typology of regions

A first observation can illustrate the abovementioned link at the regional level: it shows a strong correlation between the intensity in raw materials production of the region and its per capita GDP (Graph 2). This correlation implies that, given the relatively modest number of regions that benefit from a rich natural resources endowment, strong fiscal and redistributive policies are needed to correct the consecutive distortion effects on household incomes.

Graph 2. Raw materials intensity of value added and per capita GDP of the Russian regions, 2014



Source: author's elaboration based on Rosstat database (2015)

In order to examine the relation between the productive structure of Russian regions and their characteristics in terms of income distribution, we construct a simple regional productive typology. For this purpose we use the *Rosstat* regional dataset presenting the structure of the value added by sectors. Starting from the 15 different sectors distinguished by *Rosstat*, we divide them according to their relation to world markets and competition. “Rent-providing” sectors are those that can directly benefit from the rise of raw materials prices. When world prices are high, they provide a rent for producers who enjoy the positive outcomes of an oligopolistic situation as they have an exclusive access to deposits. We include financial services (representing only 1,5 % of the total value added) into this category because of the existing links between oil and gas majors companies and some Russian banks. “Non tradable” sectors are sheltered from the world competition either because of their very nature (some services cannot be imported), either because of national regulation regarding their activities (public services). On the contrary, “tradable” sectors’ products can be exported or imported. Firms belonging to these sectors are exposed to foreign competition even if, in some cases, a varying degree of protection is provided by the Government. Table 2 presents the result of our re-arranging of these sectors according to this typology.

Table 2. Recombination of sectors according to their relation to foreign competition

Extractive industries		Production and distribution of water, gas and power			Financial services			
Rent-providing sectors								
Construction	Retail trade	Hostels and restaurants	Transports	Communication	Central administration	Health care	Education	Local administration
Non tradable sectors								
Manufacturing industry			Agriculture			Fishery		
Tradable sectors								

Source: author's elaboration

At the national level, the Russian economy exhibits the following structure: rent-providing sectors represents 15,2% of the domestic value added; non tradable sectors, 63%; tradable sectors, 28%. We use this distribution of weight and the national average per capita income as benchmarks for the regional analysis. Starting from this, we distribute Russian regions among the 3 following types:

Type 1. Outward oriented, rent-providing regions: this type regroups regions in which rent-providing sectors accounts for more than 25% of the regional value added (that is, almost the double than the national average).

Type 2. Non-tradables intensive regions: in these regions, non-tradable sectors account for at least 60% of the value added (equal to, or higher than the national average).

Type 3. Exposed regions: in these regions, tradable sectors represent more than 30% of the national value added (more than the national average).

Analysing 84 Russian regions with these criteria, we end up with a regional typology presented in Table 3. Sixteen regions fall into the “rent providing” group, 36 are considered as “non-tradables intensive” ones and 32 are of the “exposed” type. It can be noted that the first group is composed of some of the richest regions in terms of GDP. Its 2014 average per capita GDP is two times higher than the national average, and three times higher than in the two other groups.

Table 3. A productive typology of Russian regions

RENT PROVIDING REGIONS (16)	NON TRADABLES INTENSIVE REGIONS (36)	EXPOSED REGIONS (32)
ARKHANGELSK	ADYGUES	ALTAI KRAI
CHUKOTKA	ALTAI R.	BACHKORTOSTAN
IRKUTSK	AMUR	BELGOROD
KEMEROVO	ASTRAKHAN	CHELYABINSK
KHANTI MANSIISK	BRIANSK	CHUVACHIA
KOMI	BURIATIA	KABARDINO-BALKARIA
MAGADAN	CHECHNYA	KALMYKIA
MURMANSK	DAGHESTAN	KALOUGA
ORENBURG	EVREI	KARACHAEVO-TCHERKESSIA
SAKHA-YAKUTIA	INGOUCHETYA	KIROV
SAKHALINE	IVANOVO	KOSTROMA
TATARSTAN	KAKHASSIA	KOURGAN
TOMSK	KALININGRAD	KOURSK
TYUMEN	KAMTCHATKA	KRASNOĪARSK
UDMURTIA	KARELIA	LIPETSK
YAMALO-NENETS	KHABAROVSK	MARII-EL
	KRASNODAR	MORDOVIA
	LENINGRAD O	NIJEGOROD
	MAGADAN	NOVGOROD
	MOSCOW	OMSK
	MOSCOW O.	ORENBURG
	NORTH OSSETIA	ORLOV
	NOVOSIBIRSK	PENZA
	PRIMORIE	PERM
	PSKOV	RIAZAN
	ROSTOV	SAMARA
	SMOLENSK	SARATOV
	ST PETERSBURG	TAMBOV
	STAVROPOL	TOULA
	SVERDLOVSK	VLADIMIR
	TVER	VOLGOGRAD
	TYVA	VOLOGDA
	ULIANOVSK	
	VORONEJ	
	YAROSLAVL	
	ZABAIKALSKI	

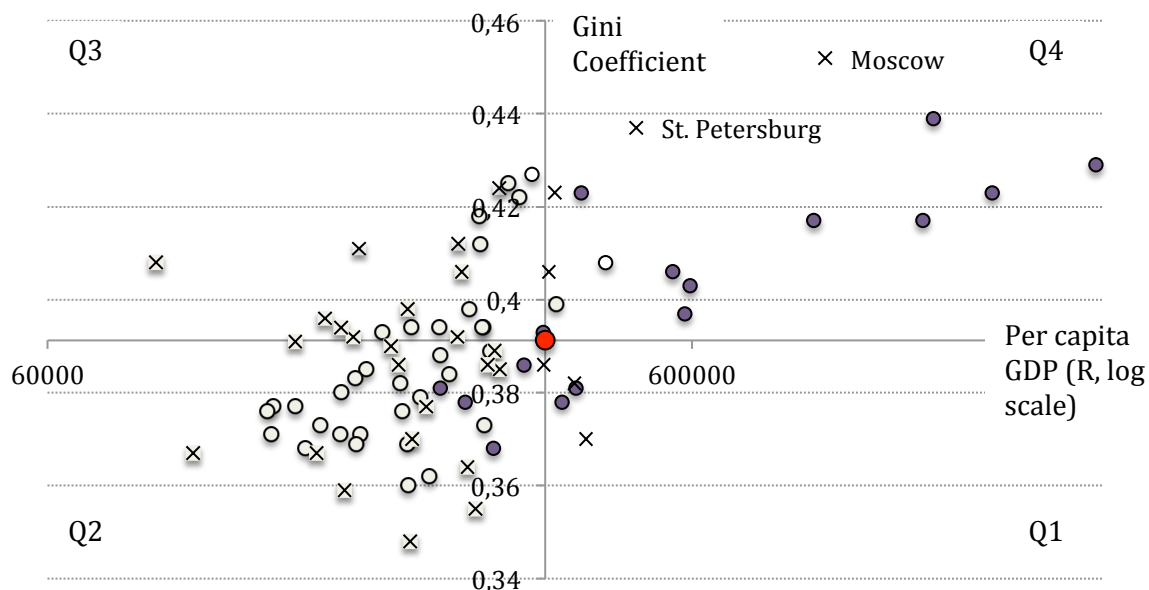
Source: author's elaboration

4. From productive structure to income distribution: a first look into Russian regions

According to Rosstat statistics and using implied PPP exchange rates of the IMF, at the national level 16% of the population earn more than 2000 US \$ per month, a result that tend to confirm the limits abovementioned of the Credit Suisse Research Institute's indicator for defining the middle class, that lead to the underestimation of the size of the Russian "middle class" (only 4% according to the wealth-based criteria, *cf. supra*). On the other hand, like in other emerging countries, income distribution in Russia is strongly concentrated: less than 37% of the population earn more than the national average. This leads us to ask whether the productive type of region can be associated with a specific pattern of income distribution.

As we combine the Gini coefficient with per capita GDP, we obtain a picture that confirms our first findings (Graph 2): rent-providing regions are more productive than the others, but also more unequal. The Graph 4 distributes Russian regions in four quadrants. Nine of them are situated in Q4, in which both per capita GDP and Gini coefficient are higher than national average. On the opposite side, only two exposed regions (out of 32) enjoy a relatively high level of per capita GDP. They are both situated in Q4 and have a share of rent-providing sectors in their value added that, while being inferior to the 30 % limit, is superior to the national average. Most (more than twenty) of the remaining exposed regions are situated in Q2, where Gini coefficient and per capita GDP levels are lower than the national average. As regards per capita GDP, only seven non-tradables intensive regions are equal or above the average. Among them are Moscow, St Petersburg and the oblast of Leningrad.

Graph 4. Types of regions, per capita GDP and Gini coefficient



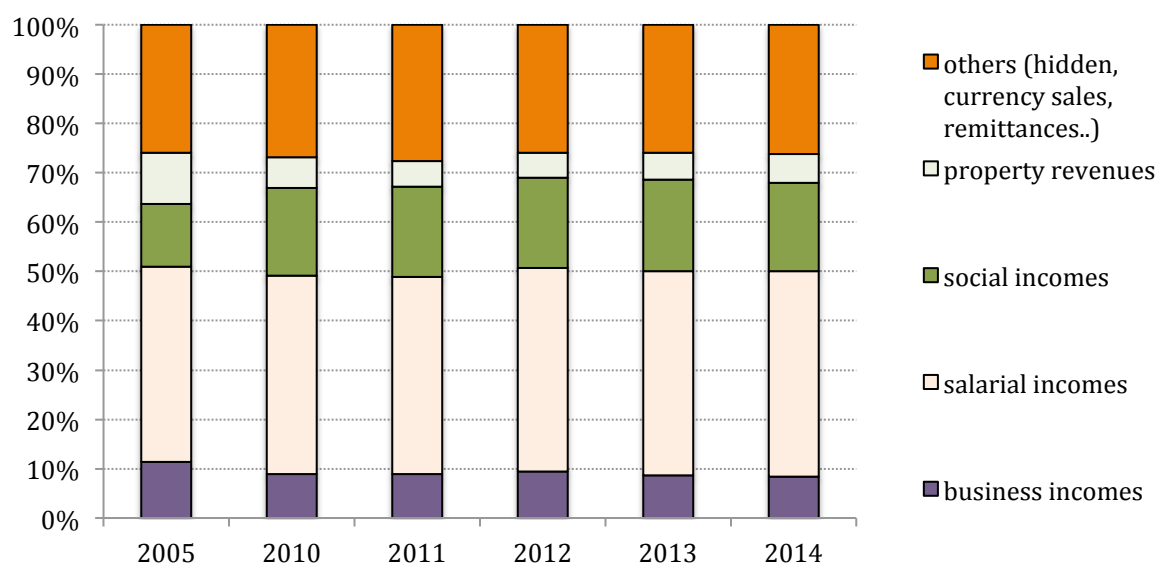
● : rent-providing regions ✕ : non-tradable intensive regions ○ : exposed regions

Source: author's elaboration based on Rosstat (2015)

5. Who earns what? Sources of income and productive types of region

In the last step of this study, we use *Rosstat* data on households' income sources to shed more light on our typology of Russian regions. The data set distinguishes five sources of revenues: salaries, business incomes, property revenues, social transfers and other sources. This last category is composed of hidden revenues, remittances and currency sales. During the last decade, the fundamental structure of households' incomes sources did not change. Salaries remained the main source of income, accounting for more than 40% of the total. Two other important sources are social transfers and other sources. Put together, they represented almost 45% of total revenues in 2014, showing a slightly rising tendency since 2005. The remaining 14-15% are divided into business incomes (8-9%) and property revenues (little less than 6%) (Graph 5).

Graph 5. Structure of households' revenues, 2005-2014



Source: Rosstat (2015)

At the regional level, the distribution of incomes sources varies largely. For instance, salaries represent 80% of the total in Chukotka, against less than 12% in the Daghestan Republic. Conversely, in the Tyva Republic, social transfers amount to a third of the average income of households, whereas in the Yamalo-Nenets Okrug, they represent only 12%. Other revenues show even wider variations across regions: in Daghestan and Adygues republics, they represent more than 50% of the total revenues, whereas in Yamalo-Nenets Okrug, Chukotka and Magadan the proportion is not higher than 2%.

In order to link these regional variations to the structure of income inequality in Russia, we study the relation between the productive typology of regions and their main sources of incomes. We find that rent-providing regions are associated with a higher share of salaries in the total income. This can be attributed to the role played in the local economy by the main raw materials extracting companies that dominates the local economy: they usually represent a high proportion of local employment and distribute attractive wages in order to retain workers in these remote, desert and harsh-climate regions. At the same time, exposed regions tend to benefit more than the average from social transfers. Some of them – notably the poorest ones, in which the agricultural sector is prominent – rely also to other sources of revenues (remittances, currency sales and revenue from the grey economy). Finally, within the non-tradable intensive regions, two sub-groups must be distinguished: in the first one, salaries are the main source of revenues, far above the national average as for rent-providing regions. These regions (Kamtchatka, Moscow city, St Petersburg among others) are also the wealthiest of their category. They have managed to benefit from the development of non-tradable sectors (services, construction and real estate mainly) by attracting part of the revenues produced by the rent-providing regions, with whom they are closely linked. It is in these regions that a large part of the Russian middle class is living. The second sub-group is constituted of the poorest non-tradable intensive regions, in which other activities – grey economy, remittances, currency sales - provide the main source of income for local

households. Geographically, these regions are mainly situated in the North Caucasus, one of the most problematic areas in Russia in terms of poverty, unemployment, inequality, various traffics and criminal economy (Table 4).

Table 4. Productive typology and main sources of income

	Rent-providing regions	Non-tradables intensive regions	Exposed regions
Salary (national average: 42 %)	Chukotka (80%), Yamalo-N (79%), Khanti-M (72%), Magadan (71%), Tyumen (65%), Murmansk (61%), Komi (59%), Sakha (59%), Irkutsk (55%), Sakhalin (51%)	Kamtchatka (63%), Khabarovsk (57%) Moscow C. (52%) St. Petersburg (50%)	Krasnoïarsk (55%)
Social transfers (national average: 18%)	Kemerovo (25%)	Tyva (33%), Carelia (30%), Altaï R. (27%), Ingushetya (26%), Pskov (25%)	Kalmykia (30%), Kurgan (27%) Marii-El (27%), Mordovia (26%) Kostroma (26%) Orlov (26%) Altaï K. (25%)
Other revenues (national average: 26%)		Daghestan (51%) Adygues (50%) Chechnya (43%) Ingushetya (42%) Moscow R. (42%) Krasnodar (40%)	Kabardino-B. (41%), Bachkiria (36%) Omsk (36%) Karachaevo-C (36%) Nijni-Novg. (36%)

Source: author's elaboration based on Rosstat (2015)

Conclusion: the productive structure as a challenge for redistribution policies

Albeit very preliminary, this study provides several interesting empirical findings regarding the link between the productive structure of Russia and the income distribution.

First, it shows that the Russian middle class has suffered more than its counterparts of BRICS countries from the recent crises. One of the reasons of this impact is the dependence of the Russian economy on raw material prices, which reveals the role of the productive structure and the growth model of the economy in the income distribution.

Second, it shows that, at the regional level, income inequalities remain important in Russia. Part of these inequalities can be explained by the uneven natural resources endowment of regions in Russia.

Third, a simple productive typology of regions permits to shed light upon the forces that tend to drive income distribution in Russia. Rent-providing regions are not only wealthier than others: they are also associated with a higher share of salaries in households' income. But this source of income can prove vulnerable since world raw material prices are unstable and largely beyond the control of the Russian firms that produce them. Moreover, relatively poor non-tradable intensive and exposed regions rely more extensively on remittances and hidden revenues that are particularly vulnerable to the macroeconomic conjuncture.

Fourth, social transfers can theoretically buffer these vulnerabilities. But they depend on the ability of the State to lesser the dependency of the budgetary resources from the price of raw materials. This has not been done in Russia during the past quarter of century. Therefore, as world oil prices are bound to be subject to high uncertainty in the next decade, fiscal and redistributive policy will remain one of the most pressing challenges of economic policy in Russia.

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