Prospective Impact of Pro-competition Reforms on Consumer Prices and Distribution of Welfare in the Russian Federation

This is a background paper for the World Bank’s Russian Federation Competition Study led by Ana Paula Cusolito. It has been prepared by Samuel Freije-Rodriguez, Rose Mungai and Mikhail Matytsin.
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I. Introduction

1. Poverty reduction has become an explicit public policy objective in Russia. President Putin’s Decree of May 17th, 2018 “On National Goals and Strategic Development Objectives of the Russian Federation for the Period until 2024” calls to achieve the goal of “for the period until 2024...reduce poverty in the Russian federation by one half”. Multiple policies, ranging from promotion of faster economic growth, development of social programs, are usually put forward to achieve this objective. Pro-market competition reforms are not what usually comes to mind of analysts and policy makers. However, classical and recent research shows the potential of pro-competition reform as a welfare enhancing -and poverty reducing- policy tool, because of its potential impact on consumer prices and wages.

2. This study aims to answer a simple question: what would be the impact on poverty rates due changes in consumer prices as a consequence of changes in market structure of selected goods in Russia. It uses WELCOM (Welfare and Competition), a statistical software interface for Stata-developed at the World Bank- that enables the estimation of potential distributional effects of changes in market competition through changes in consumer prices.

3. Section 2 gives a brief summary of the academic underpinnings of this analysis. Section 3 describes restrictions to market competition in Russia, while section 4 describes the methods and data used. Section 5 summarizes the results and section 6 concludes.

II. Academic literature and previous studies

4. The connection between lack of market competition and economic welfare is central to microeconomic analysis. Perfect competition is associated to maximum efficiency and lowest prices through the first fundamental welfare theorem of economics. The distributional impact of lack of competition, that is how different market structures affect different groups differently, is a more recent subject of research. For instance, (Dixit & Stern, 1982) model the connection between market concentration and welfare through estimates of deadweight loss This method only separates between welfare gains and losses of sellers and buyers in a given market but does not elaborate on other groups affected by lack of competition. Several other studies discuss on gains and losses due
to countervailing forces of lower costs because of efficiency gains -on the one hand- and higher prices because of market power -on the other. Yet others studies analyze the different position that firm owners, workers and general consumers face in terms of welfare changes due to lack of competitive markets.²

5. A more recent wave of studies adopt a more empirical focus to assess changes in welfare due to changes in market structure. Using extensive data on expenditures and prices from retailers in Mexico for a period of important changes in the market, (Atkin, Faber, & Gonzalez-Navarro, 2018) develop a decomposition of changes in welfare due to changes in output prices, labor and capital incomes. They find that most of the welfare gains are due to changes in consumer prices (i.e., changes in incomes play a minor role) and that price reduction due to a new market structure does render benefits to all, but benefits are larger -in percentage terms- for the richer part of the population. Using different data, a longer period of time, but again for the retail sector, (Rodriguez-Castelan & Rodriguez-Chamussy, forthcoming) find negative welfare effects of increased market concentration.

6. Other studies evaluate lack of competition in inputs markets, particularly the labor market. These studies connect the market share of some firms hiring certain types of occupations with the evolution of employment and wages in specific local markets. These studies -mostly for the USA, but some in other countries- find important monopsony power in the market of some occupations due to the presence of large firms in specific markets.³

7. Our study concentrates on the impact of changes in welfare due to changes in prices in goods markets. It selects a subset of markets that either have been signaled as having restrictive regulations that inhibit market competition, or represent an important share of household consumption expenditures and have thus potential welfare impact. We make use of the methodology adopted by (Rodríguez-Castelán, Araar, Malásquez, Olivieri, & Viswanath, 2019). The next section describes restrictions to market competition in Russia and the following describes the methodology adopted.

² Two representative studies in this literature are by (Lopez, Azzam, & Lirón-España, 2002) and (Blanchard & Gavazzi, 2001).
³ Some studies in this literature are (Benmelech, Bergman, & Kim, 2018) in the USA, (Commander, Nikoloski, & Plekhanov, 2011) in Russia, or (Rama & Scott, 1999) in Kazakhstan.
III. Restrictions to market competition in Russia

8. Product market regulations define the degree to which a country’s regulatory policies promote or inhibit competition where there is a likelihood of competition. This can affect innovative entrepreneurship by creating barriers to entry and growth of businesses. Regulations that affect the extent of product market competition include state control of enterprises, legal and administrative barriers to entrepreneurship, and barriers to international trade and investment.

9. The OECD has developed an economy-wide indicator of product market regulation (PMR) as a tool to assess how a country’s regulatory framework affects market competition. This indicator is updated every 5 years, covering years 1998, 2003, 2008, and 2013 to track reform progress over time. This section will discuss 2008 and 2013, which are only years with comparable data for Russia.

10. The PMR score summarizes many formal rules and regulations that affect competition. Two key characteristics of the PMR indicators differ from other business environment indicators in that: (a) it is a low-level indicators objective assessment about rules and regulations which allows comparability across time and countries, and (b) a bottom-up approach in which indicator values are related to specific underlying policies. The regulatory framework feeds into 18 low-level indicators that forms the PMR score.4

11. Despite some improvements, Russia has a restrictive regulatory framework and there is scope for gains by aligning regulation to international best practice. In 2008, Russia PMR was 2.69 compared to 2.22 in 2013, a 17.3 percent improvement. However, the country remains among the most restrictive countries in the sample included by the OECD study: ranked 42 out of the 47 countries in 2013 (see Figure 1). The improvement can be attributed not only to a shift from public to private ownership but also a structural and functional alignment affecting some institutions towards market-oriented competition. Larger gains are seen in reducing restrictions to entrepreneurship, an improvement of 32.2 percent, and some gains have also been attained in reduction to state control and barriers to trade, which declined moderately by 11.1 percent and 12.2 percent, respectively (Table 1). Despite these changes, the latter two components are still

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4 For a full description of the PMR score see (Koske, Wanner, Bitetti, & Barbiero, 2015).
among the two most restrictive across OECD’s study selection of countries (Figure 2). In terms of state control, only China, has a higher PMR score than Russia (Figure 3). In terms of barriers to trade, Russia is surpassed only by China, India and Brazil (Figure 4).

12. Other indexes show a similar picture of market regulations for Russia, both in terms of recent improvements and in terms of main remaining challenges. Low barriers to entrepreneurship are important for creating competitive market environment and Russia has performed well in some of the regulatory areas under this section. According to the Doing Business, Russia was one of the best performing BRIC economies that introduced reforms in 2012. For the period 2016-2019, Russia is the country with the highest percent increase in the “Ease of doing business” among OECD countries. It was surpassed in this index only by countries with much lower “Ease of doing business” index, such as Brazil, China and India (Figure 5).

13. On the other hand, barriers to trade remain an important restriction and Russia has made little progress in this area. For the period 2016-2019, the country had a low increase in the “Trading Across Border” score for the Doing Business Report, despite being one of the countries with the lowest scores and in contrast with BRIC countries that experienced much larger increases in this indicator (Figure 6). Trade is crucial to competitiveness and encourages economies to focus on areas of comparative advantage by capitalizing on economies of scale through boosting productivity and innovation. The explicit barriers to trade and investment index have declined, but some barriers prevail especially on differentiated treatment of foreign suppliers. The share of imports to GDP has remained flat since early 2000s stagnating between 21-24 percent.

14. Overall, the regulation regime is highly diverse across sectors in Russia and is comparable to OECD and non-OECD countries but this masks important sector sub-component differences. In this background paper -based on the description of market regulations of previous paragraphs- we focus on two sectors: network sector (including telecommunications, transportation and utilities) and the retail trade. We choose this sectors because of their influence upon OECD measures of market competition. The energy sectors (electricity and gas) show a PMR index above the OECD average, with both sectors showing equal importance (Figure 7). Similarly, the transport sector has an index above the OECD average, mostly due to restriction in air travel industry which is much more regulated than in most OECD countries, although train services seem
to be as regulated as any other European country (Figure 8). Finally, we will also include the retail trade industry because it also shows a PMR index well above the OECD average and above most countries in the region (Figure 9). As a contrast, we also include the telecommunications sector which has experienced an improvement in its PMR index and is not currently very different from the OECD average ad is actually quite low when compared to other European countries.

(a) Network sectors

15. Overall regulation of the energy sector (gas and electricity) PMR index is about 3. In 2012, there has been greater regulation on electricity than gas compared to 2008. Around 230 companies are engaged in gas production, but Gazprom dominance is prevalent accounting for around two-thirds of the country’s gas production in 2016. Gazprom sells gas to domestic retail and wholesale customers at regulated tariffs while other producers call to wholesale industrial customers at nonregulated process. But gas prices for household customers is tightly regulated and the price level is significantly lower than that for industrial customers. Reforms of wholesale price regulation has been discussed without much success over the years.

16. Electric power supply is still a strong state control despite the liberalization strategy that included unbundling and privatizing the Unified Energy System of Russia (RAO UES) company that has since ceased to exist. The government still owns a quarter to a third of generation capacity and a 100 percent ownership of all nuclear plants. Despite considerable geothermal, wind and wave resources, renewable energy production accounts for less than one percent of total electricity production.

17. The energy sector monopolistic structure is regularly associated to state control and to subsidies, particularly to household consumption, rather than above equilibrium price markups. Hence, pro-competition reforms are usually justified for different reasons. That is because of financial constraints of state firms or because general fiscal reform needs. These reforms may

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5 Before 2009, Gazprom share was about 85% but production has been limited by a decline in gas export demand and greater domestic competition for business customers. While domestic market share has fallen, consumption by sector is varied; electricity plants 40%, industry 19%, other 16%, heat plants 14% and household consumption is about 11% (IEA 2014).

6 Recent research by (Kuzmin, Volkova, & Fomina, 2019) state: “...Russian electricity market is classified as a diffused oligopoly with a tendency to monopolistic competition. The market is dominated by 9 significant players, who control more than 70% of electricity generation collectively. An important feature of the market is the absence of participants independent of the state and not affiliated with large industrial groups”
involve higher-rather than lower-prices for household consumers and hence social compensation policies are needed to avoid poorer segments of the population to be worse off because of the reform in the energy sector. The importance and size of energy subsidies in Russia, and potential remedial policies, has been studied elsewhere. In this sense, although highly non-competitive, pro-competition reforms in the energy sector do not necessarily imply welfare gains through price reductions, (on the contrary, it may lead to welfare losses due to price increases, unless specific transfers are implemented). Therefore it will not be part of the analysis in this document.

18. The communication sector (telecommunications and post) has least restrictive regulations compared to the energy sector and is highly competitive. The price competition in the long-distance segment has increased since mobile operators began implementing promotional tariffs to stimulate voice traffic growth. Long-distance traffic is predominantly built by corporate clients. The mobile telecom market is well regulated with minimal barriers to entry and predominantly comprises the private sector with some foreign. But the fixed-line market remains under the state control. In spite of having commercial mailing companies, the post sector is still restrictive compared to telecoms.

19. In terms of telecommunications, Russia shows positive results. The mobile phone penetration is one of the highest among leading countries. With 152 subscribers per 100 inhabitants, it is close to Italy (the world leader with 158) and higher than Germany (112), UK (124), Germany (119), Japan (115) and USA (95). In terms of internet, around 72 percent of the population has access, similar to the US, but lower than leading countries such as Norway (96%), UK (92%), Korea (91%) or Germany (86%). Competition in the sector is considered quite high. There are three major players in mobile telephony (MTS, Vimpelcom, and Megafon) with approximately one third of the market. The Herfindahl index for this market in Russia is one of the lowest (2009 in 2013) among comparison countries (3839 in Korea, 3413 in Japan, 2839 in

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7 For a review of energy reforms and compensatory social policy that ensued in many countries of the World see (Vagliasindi, 2013).
8 In the case of subsidies to gas (Aune, Golombeck, Hallre, Moe, & Rosendahl, 2017), find that a competitive scenario with removal of subsidies would lead to higher prices, and welfare losses, for consumers. In the case of subsidies for heating (Topfer, 2004) argues that, for technical and social reasons, energy efficiency improvements would be preferable to price adjustments and social policy. (Orlov, 2017) using a computable general equilibrium model also calls for energy efficiency of buildings as a pro-poor policy measure in the gas sector. In the case of residential electricity (Ruggieri Landerchi, Caterina, Olivier, & Trimble, 2013) estimate that, due to the large share of electricity and gas expenditures within household budgets and the wide gap between tariffs and cost recovery prices, poverty in Russia could increase from 10 to 14 percent (pages 88-90).
UK and 2501 in USA). Broadband services, however, are less extended. About one out of three mobiles subscribes have broadband, and the service has a state-controlled company providing nearly half the market. However, prices are very affordable, with one of the lowest mobile broadband price basket among comparison countries. Estimates show that fixed and mobile broadband services are less than 5 percent of income for most households -with the exception of Far eastern districts.\(^9\)

According to Russian Longitudinal Monitoring Survey, the proportion of expenditures in these items is around 2.5 percent of total expenditures in 2017, on average.

20. Compared to the other sectors (energy and telecommunication), transport, which includes rail, road and air travel, is a highly restricted sector with an average of PMR 3.5 (higher than the OECD and non-OECD averages). Competition problems remain compared to the 2008 PMR assessment and is predominantly in the train and air transport industries. The passenger rail enjoys a monopoly and accounts for about 3 percent of the national GDP, 85 percent of freight volume and 40 percent of long distance passenger travel. The road sector is the least restrictive but suffers from safety concerns with a road accident rate higher than Europe or the United States. Developing the transport sector would eliminate barriers to intraregional trade and expand markets. Air transport is not contestable as new entrants are highly disadvantaged in terms of technology and quality with respect to the dominant firm.

21. The core east-west transport network has a single-corridor structure, stretching along the southern border and connecting important industrial and trade centers as well as largest transportation hubs. Rail is the primary mode of transport infrastructure that connects east and north with the western part and is mainly used for long-haul cargo traffic. Highways and national roads complement the freight and passenger railway links. This road-plus-railway connections are very uneven: while the western side of the country has a complex and sophisticated transport network, the Far East has very little, due to stark economic and demographic differences. The state company Russian Railways (RZD) almost fully controls passenger rail network.\(^{10}\)

22. In terms of air transport, there is also wide regional dispersion. Western regions are more interconnected, with a high density of short, regional flights, while eastern cities are much less so.

\(^9\) Data from (Rosotto, Gelvanovska, Hohlov, Maciule, & Shaposhnik, 2015). Most figures refer to year 2013 or 2014. More recent data taken from World Development Indicators.

\(^{10}\) For a detailed description of the transport network and its productivity, see (World Bank, 2017)
because of few short-to-medium-range flights to other eastern cities and most flights are long-haul trips to Moscow. Another factor that affects prices and competition of air travel is the lack of competition in airports, which leads to fuel and other airport services leading to air travel being less efficient and more expensive. A survey of experts opinions on market contestability of air travel in Russia found that most experts think that newcomer firms face serious difficulties to contest incumbents in this industry. For instance: “...94% noted that it is too complicated to get licenses to conduct periodic servicing of aircraft...” and “...97% concluded confidently that there are significant administrative entry barriers in the industry. Particularly, high transaction costs restrict the market competition, for instance unofficial payments to functionaries (bribes) for permission to operate in the market, providing for landing slots at airports (time schedules of take-offs/arrivals) and so on.... ” This study also finds high concentration of small regional companies servicing the local markets and with control of both airline and airport services, while at the same time large national companies represent a larger share of the long-haul air travel market. The authors conclude that despite apparent free entry, the market for air travel services in Russia is not contestable.

(b) Retail trade

23. Overall PMR retail index does not compares favorably with both OECD and non-OECD countries. But the sub-components show a great divergence, with licenses and permits, specific regulation of large outlets and price controls being very restrictive. This introduces, according to the OECD, an unfavorable market competition making new incumbents entry extremely difficult. Protection of existing firms and opening hours (with an index 0) operate freely without any regulations from the government (see Table 2).

24. However, over the last decade, the Russian retail market has seen an influx of national and international firms. In the decade of 2000s, retail trade grew rapidly and many international brands entered the market, particularly in first tier cities, and then in second tier cities. Competition in smaller cities, however, is less likely because of local regulations. On the other hand, further competition in larger cities is showing signs of saturation. The AT Kearny Global Retail

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11 See (World Bank, 2017), page 37.
12 See (Lukyanov, Tyssen, & Kyslyak, 2009), page 32
13 (Volgina, 2008)
Development Index, measures the top 30 emerging countries in terms of opportunities for development and expansion of the retail industry. In 2003 and 2004, Russia was at the top of the list, basically because low saturation. That is most national and international brands were just starting to venture beyond large cities. By 2016 and 2017, Russia had fallen to place 22 (out of the 30), mostly because of saturation. Namely, Russian consumers already reached a high level consumer spending, are more used to modern retailing and competition from local and international brands is more intense.¹⁴

25. A more detailed study of grocery retail markets in Russia indicate that, despite signs of growing modernization and competition, the market is still dominated by a few leader firms. Groceries represent approximately half of total turnover in retailing. Traditional stores still represent the bulk of grocery retailing: independent grocery stores, specialist stores, corner stores, market places, online sales and other small points of sale account for 70 percent of distribution channels. But in terms of total sales, the two largest retailer groups (Magnit and X5 Retail Group, both Russian owned), with multiple discount stores and hypermarkets, represent 11 percent of total grocery sales. The third largest retailer, the French group Auchan represents only 2.8 percent.¹⁵ This seems to indicate a market structure with one or two leaders and large number of small and micro firm followers.

IV. Methodology

26. We measure the impact of pro-competition policies on economic wellbeing by simulating what would be the price change if the market structure of a given product or service were to change from a non-competitive to a more competitive organization. The academic literature has adopted complex research designs to scrutinize this impact.¹⁶ Instead, we adopt a simpler approach that predicts “direct likely” distributional impacts exploiting information readily at hand, which is not a substitute of the more detailed analysis but it is extremely useful for informing discussions and policy design.

¹⁵ Data for year 2014, taken from (USDA Foreign Agricultural Service, 2015).
¹⁶ See, for instance (Atkin, Faber, & Gonzalez-Navarro, 2018).
27. The WELCOM (Welfare and Competition) tool -developed at the World Bank- is a statistical software interface that enables the estimation of distributional effects of changes in market competition through the price mechanism. WELCOM tool renders estimates of welfare distribution impacts of changes in market structure from three specific types of non-competitive markets: monopoly, oligopoly and partial collusive oligopoly. The impact of these three market structures towards a competitive market on prices -and through changes in prices on welfare- are based on three money-metric measures of welfare. These three money-metric measures are the Laspeyres index, the equivalent gain and the compensating gain. In this study we concentrate on measures using the Laspayres index, which is the most intuitive and hence the most commonly used in the literature. The tool produces average monetary gains (or losses) for population groups defined in terms of quintiles in initial income/expenditure per capita, which allows for an assessment of which groups gain relatively more or less of a given market change.

28. In addition, WELCOM produces estimates of poverty and inequality. This gives precise estimates about the impact in terms of poverty rate (i.e., percentage of people below a pre-defined poverty line) and the Gini coefficient (i.e., a measure of inequality defined as the average difference between any two people as a proportion of average consumption) due to changes in prices.

The case of Monopoly:

29. The monopolist decision problem consists in choosing the level of output that it desires to sell in order to maximize its profits, \( Q_{\text{MONO}} \geq 0 \), given an inverse demand function \( P(Q) \) —i.e., the price that must be charged to sell \( Q \) units of output— and a known cost function \( C(Q) \). It can be proven that the change in the price (in percentage) resulting from moving from a monopoly equilibrium to a competitive structure is equivalent to:

\[
dP = \frac{P_{\text{mono}} - P_{\text{comp}}}{P_{\text{comp}}}
\]

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17 For a description of the tool, see (Rodríguez-Castelán, Araar, Malásquez, Olivieri, & Viswanath, 2019).
18 For a discussion on how changes in prices affect different measures of welfare see (Araar & Verme, 2016).
19 For a discussion on the poverty effects of market concentration, see (Rodríguez-Castelán, The Poverty Effects of Market Concentration, 2015)
\[ dP = -\frac{1}{1 + \eta} \]

where \( \eta \) represents the price-elasticity of demand.

**The case of Oligopoly:**

30. In this case a few firms interact strategically to define either quantities (called a Cournot-type of oligopoly) or prices (called a Bertrand-type of oligopoly). This strategic interaction is due to each firm understanding that its optimal level of production (the level that maximizes profits) depends on the production decisions of other firms. It can be proven that the change in the price (in percentage) resulting from moving from a oligopoly equilibrium to a competitive structure is equivalent to:
\[
dP = \frac{P_{oli} - P_{comp}}{P_{comp}}
\]
\[
dP = -\frac{1}{1 + \eta \cdot N}
\]

where \( \eta \) represents the price-elasticity of demand, and \( N \) the number of firms that interact in this oligopoly.

**The case of Partial Collusion Oligopoly:**

31. In this case on or few firms with significant market share coexist with multiple smaller firms with small market shares and no market power (i.e., this large number of small firms can contribute in the provision of the good, but are not able to individually influence prices). Several additional conditions characterize this type of market, particularly that the small firms cannot easily update the production and basically follow prices set by the leader. On the other hand, the leaders coordinate or collude to maximize profits given a predefined market share. It can be proven that the change in the price (in percentage) resulting from moving from a partial collusion oligopoly equilibrium to a competitive structure is equivalent to:
\[
dP = \frac{P_{coll} - P_{comp}}{P_{comp}}
\]
\[
dP = -\frac{\phi}{\phi + \eta}
\]
where \( \eta \) represents the price-elasticity of demand and \( \phi \) represents the market share the collusive firms.

**The welfare measures**

32. Given the estimated price changes from a non-competitive market structure to a competitive market structure, the change in welfare is a function of the price change, the share of the given product in total household expenditures and the utility the household derives from consumption. In the case of the Laspeyres index, the change in wellbeing from price changes is equal to change in total expenditures with initial quantities maintained:

\[
dW_{hk}^{Laspeyres} = -e_{hk} \times dP_k
\]

where \( dW_{hk} \) represents the change in welfare of household \( h \) due to price changes in product \( k \), \( e_{hk} \) represent household \( h \) per capita expenditures in product/service \( k \), and \( dP_k \) represents the price change in product/service \( k \) due to one of the changes in market structures described in forgoing paragraphs.

33. From the previous it is clear that the larger either the share of a given product within total expenditures or the larger the price change due to movement towards competitive markets, the larger the welfare gains will be. In other words, pro-competition reforms may lead to significant welfare gains if adopted in sectors whose products represent an important share of household expenditures or when the mark-up due to market power is important.

**Theoretical Caveats**

34. There are three main limitations to the welfare analysis described in the former paragraphs. In the first place, the formulas of price change assume a constant elasticity of demand across all household types independently of their level of income. This implies a certain type of preferences among agents which would lead to the specific good having the same share of consumption expenditures across different income groups. Namely, both rich and poor household would allocate the same share of consumption expenditures to the product under study. Second, price reductions may induce new consumer to participate in the market. However, the Laspayres formula described above, would render welfare changes only for those with a positive consumption share, namely only for those who are currently purchasing the good. The welfare gains of new consumers entering
the market are not included. Third, competition may lead to changes in quality, rather than prices, and hence welfare gains of consumers are not observed in terms of affordability of an item but in terms of increased quality of the good at the same price. The current version of the WELCOM tool does not take into consideration these wider theoretical possibilities in demand theory. In the next sections we explore how robust are our current results to these potential extensions.20

Data

35. The key data source necessary to use WELCOM is a representative household expenditure survey. In the case of the sectors studied, the share of expenditures on transportation, mobile telecommunications, internet services and home utilities (e.g., electricity, gas and heating) within total per capita household expenditures are calculated using the Russian Longitudinal Monitoring Survey (RLMS) for 2017. Furthermore, the per capita consumption expenditures (welfare aggregate adopted in this case) is measured using the monthly household expenditure and number of household members, is also calculated from the RLMS. WELCOM requires the poverty line as a variable in the dataset to provide insights on impacts on poverty levels. The poverty line used in this case is based on a consumption-based poverty line that replicates the official poverty rate for 2017 (i.e., 13.2 percent).

36. The RLMS is a series of nationally representative surveys designed to monitor the effects of Russian reforms on the health and economic welfare of Russians. The project is run jointly by the National Research University Higher School of Economics and ZAO Demoscope, together with the Carolina Population Center at the University of North Carolina, Chapel Hill. The RLMS is a panel survey with annual data available starting in 1994 and is representative at the national level. Data is available through 2017 which maintained a sample size of 7000 households. The survey includes very detailed information on health status, household expenditure and service utilization, as well as community-level data.

37. Despite its well known quality, the RLMS has some limitations. On the one hand, it is a national survey and it has no regional representativeness. In this case, given the vastness of the country, the inequality in incomes and consumption, and the dispersion in market density in different parts of the country, regionally representative survey data would be preferable. On the

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20 At the moment of finalizing this draft, the authors of WELCOM are working on introducing extensions for non-constant elasticities and entrance of new consumers.
other hand, the expenditure data, although quite detailed, is not as granular as would be desired. There is information on total expenditures in transportation, but not a separation between motorized, train and air travel. Something similar happens with expenditures in household utilities: they are combined and no distinction between expenditures in electricity, gas and heating is available in this survey. On the other hand there is quite detailed information on food items, retail products and telecommunications services.

38. As indicated in previous sections, we choose to study sectors that are associated with important restrictions to open market competition. In addition, some of these sectors represent a large share of total household expenditures and thus pro-competition reform can represent an important change of household welfare (Figure 10). Expenditures in utilities represent between 7 and 10 percent of total household expenditures which implies a potentially large welfare impact of price changes but, as indicated in the previous section, although this is a highly non-competitive sector, pro-competition reforms would not necessarily imply price reductions and may lead to welfare losses unless specific transfers are implemented. Therefore it will not be part of the analysis in this document. Welfare gains would not be attained in this sector through pro-competition reforms alone, it will require compensating social policy.

39. According to RLMS data, food and clothing (which constitute the most important components of retail trade) can represent up to 25 and 15 percent, respectively, of total expenditures. Being a highly restrictive sector - according to OCED’s PMR index - and representing a large share of total consumption, hints that retail sector can provide potentially high welfare gains upon the population. Despite advances in retail competition in recent years, we assess further gains in price reductions from deregulation leading towards to a more competitive market.

40. On the other hand, transport represents only 1.9 percent of expenditures on average so, although very regulated further competition gains in this sector will be more moderate at the national level although, as will be shown, these gains can be significant at the regional level. Moreover, RLMS data does not separate between road, train and air travel, so our estimate is based
on a ad-hoc assumption of a third of expenditures in transport are allocated to air travel (the sector singled out as most restrictive according to OECD’s PMR index).\textsuperscript{21}

41. Finally, telecommunications (i.e., mobile telephone and internet services), represent 1.6 and 0.9 percent of total households expenditures which together with a less regulated and with few firms but a contestable market would lead to the least sizeable welfare gains from further deregulation (Figure 11).

42. The share of expenditures for each of these consumption items, show some differences across income groups (see Table 3). In the case of food consumption the differences across income groups are noticeable. While the poorest quintile of households allocate 40 percent of their budget to food, the richest only allocate 16 percent, nearly a 3-to-1 ratio. Interestingly, the case of clothing shows an inverted U-shaped pattern. The poorest and richest households spend a similar share of budget in clothing, but the middle income groups spend nearly 50 percent more. The cases of mobile, internet and air transport services show large differences across groups (again 3-to-1, or even large, ratios), but the expenditure shares are much smaller and thus potential welfare gains are also commensurately smaller.

43. In terms of access to the market, almost all households purchase food and mobile phone services. Clothing and internet services have quite pervasive access, with positive purchases ranging from 50 percent of households in the bottom quintile, to 80 percent or more in the top quintile (see Table 3). Similar figures are seen in purchase of air-transport, but these are ad-hoc assumptions adopted due to lack of granular data in our sources (see previous footnote). It does not seem -given these market participation numbers- that welfare gains due to expanded access

\textsuperscript{21} As a better approximation to the impact of deregulation on air travel alone we adopt some back-of the envelope simplifications to calculate the share of expenditures in air travel. This is, we assume that 1/3 of transport expenditures are, on average, allocated to air travel. This is based on data from (Millard-Ball & Schipper, 2011) who show the evolution of the distribution by modes of transportation in eight OECD countries. It shows that in large countries with limited train network (e.g., USA and Australia) air travel represents 12-17 percent of total travel measured in passenger km per capita per year. In countries with a dense train network (e.g., Japan and Western Europe) train travel represents between 10 and 40 percent of passenger km per capita per year. Given the much higher unit prices of air travel, assuming a 30% budget share of air travel within total transportation expenditures in Russia seems plausible. Of course, assuming an equal proportion of air-travel shares across income groups is not credible. Assuming zero consumption of air-travel at the bottom of the distribution would seem more plausible, but would lead, given the current structure of WELCOM tool, no gains at the bottom of the distribution.
from non-purchasers are an important component into these consumption items, with the exception of air travel.

44. The price-elasticities of demand, which are crucial for the estimates derived from the WELCOM tool, come from secondary sources. In the case of air transport, there is a vast literature dedicated to the estimation of price-elasticity of demand for air travel. We assume a price elasticity of -0.9, which is the mid point of elasticity estimates of long-haul and short-haul national air travel in North America, Europe and Asia which vary within the range [-0.8, -1.1].22 In the case of mobile phone and internet services, we adopt a elasticity of -0.5 which is the mid-point of price-elasticity estimates for these services from studies using cross-country data from OECD countries which vary within the range [-0.358, -0.757].23 Finally, in the case of retail we adopt own-price elasticities for food (-0.82) and clothing (-0.87) recently estimated for Russia. The authors of these estimates recognize that structural changes as well as the vastness of the country and the diversity of income levels lead to changes in elasticity over time, and by region and socio-economic status. The numbers we adopt for our estimates are national average, and tend to be (as in previous cases) in the middle of the range of estimates.24

45. For the market structure parameters, and based on the description of each sector from previous paragraphs, we assume the market structure of the chosen sectors is the following:

   a. The air transport sector is characterized by a leader firm with 30 percent of the market and a series of smaller, “follower” firms;

   b. The mobile telecommunications and the internet services markets is characterized by a three-firm oligopoly; and

   c. The retail sector is characterized by leader firm with 10 percent of the market and a series of smaller, “follower” firms;

46. These secondary sources of price-elasticity of demand and market structures allow us to assess whether the assumption of constant elasticity of demand is too restrictive. When assuming

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22 Data from (Intervistas, 2007) and (IATA, 2008). Other air-travel elasticity estimates are by (Mumbower, Garrow, & Higgins, 2014) and
23 Elasticity estimates from (Goel, Hsieh, Nelson, & Ram, 2006) and (Cadman & Dineen, 2008).
24 See (Staudigel & Schrock, 2015).
constant-elasticity of demand, changes in welfare gains (as measured by the Laspeyres index) are exclusively associated to differences in expenditures shares. Since expenditure shares are not supposed to vary under constant elasticity of demand, one may wonder the size of elasticity difference that would be needed to change the difference in welfare gains across groups. More formally, the welfare change of the poor is larger than the welfare change of the rich, when

\[ dW_{h=\text{poor},k}^{\text{Laspeyres}} = -e_{h=\text{poor},k} * dP_k > dW_{h=\text{rich},k}^{\text{Laspeyres}} = -e_{h=\text{rich},k} * dP_k \]

because

\[ e_{h=\text{poor},k} > e_{h=\text{rich},k} \]

But if price-elasticities vary by income group, this basic inequality (and the conclusion of the analysis) could change direction if elasticities are sufficiently different across groups. Given that data shows that food shares are 3 times larger for the poor than for the rich, then the condition for altering conclusions would be:

\[ dW_{h=\text{poor},k}^{\text{Laspeyres}} = -3e_{h=\text{rich},k} * dP_{\text{poor},k} < dW_{h=\text{rich},k}^{\text{Laspeyres}} = -e_{h=\text{rich},k} * dP_{\text{rich},k} \]

\[ 3dP_{\text{poor},k} < dP_{\text{rich},k} \]

and if retail market is characterized by a few leaders coping about 10 percent of total sales, then the price changes should be:

\[ 3dP_{\text{poor},k} = (3) * \left( \frac{0.10}{0.10 + \eta_{\text{poor}}} \right) < dP_{\text{rich},k} = \left( \frac{0.10}{0.10 + \eta_{\text{rich}}} \right) \]

\[ 0.2 + 3\eta_{\text{rich}} < \eta_{\text{poor}} \]

That is, the elasticity of the poor would have to be more than three times larger than the elasticity of the rich. In other words, much larger price changes would need to be observed among the rich than among the poor (which would happen if these are much more inelastic to price changes than the poor) in order to compensate for the large share on food of the latter. Our source for estimates
of price-elasticity of food does not show evidence of such a large difference. (Staudigel & Schrock, 2015) show that price elasticities across consumer groups (using Russian data for the period 1995-2010) ranges from -0.87 for “rural home producers” (poorer) to -0.71 for “urban elite” (richer), nowhere near the difference needed to compensate for the large differences in consumption shares and reverse the direction of results. Data from the same authors about expenditures on clothing show a similar result. In the case of other consumption items (telecommunication and air-transport), the range of price-elasticity estimates reported in secondary sources do not give reasons to believe that welfare change estimates resulting from assuming constant price-elasticity would be reversed. Therefore, we postulate that this theoretical simplification does not lead to deceptive results and provide illustrative guidance about the distribution of welfare gains.

V. Main results

In terms of monetary gains

47. When using a Laspeyres index to gauge welfare gains, we simply compute the changes in expenditures that would occur as a consequence of changes in prices, keeping initial distribution and volume of expenditures constant. These gains are measured in terms of expenditures gains (in Rubles) or in terms of share of total expenditures (in percentage). For each product/industry we compute both monetary and percentage gains along the distribution of the population. The population is grouped into quintiles of household consumption per capita. In addition, changes in poverty rate and in Gini coefficient are included (Table 4).

48. In the case of transport services (particularly air travel), it is assumed that the industry is characterized by a partial collusion oligopoly where a dominant firm (say Aeroflot) provides a large share of the market (approximately 30 percent) and price-elasticity of demand is -0.90. Transitioning into a fully competitive market would render gains of RUB 42 for households in the poorest quintile of the distribution (representing a 0.4 percentage gain with respect to the average consumption of the quintile) up to gains of RUB 164 for households at the top of the distribution (representing 0.2 percentage gain). These gains would bring about a reduction in poverty rate of only 0.1 percentage points and an almost null fall of only 0.05 Gini points, not even a one percent fall in inequality (}
49. Table 3: Distribution of consumption expenditures by quintile and consumption item

<table>
<thead>
<tr>
<th>Quintile</th>
<th>Food proportion of consumption expenditures</th>
<th>Clothing proportion of consumption expenditures</th>
<th>Mobile proportion of consumption expenditures</th>
<th>Intern</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom quintile</td>
<td>42.24</td>
<td>13.09</td>
<td>2.49</td>
<td>91.00</td>
<td>1.28</td>
</tr>
<tr>
<td>2nd quintile</td>
<td>38.40</td>
<td>16.74</td>
<td>1.84</td>
<td>94.51</td>
<td>1.03</td>
</tr>
<tr>
<td>3rd quintile</td>
<td>34.14</td>
<td>18.21</td>
<td>1.57</td>
<td>93.95</td>
<td>0.86</td>
</tr>
<tr>
<td>4th quintile</td>
<td>31.40</td>
<td>17.08</td>
<td>1.29</td>
<td>96.49</td>
<td>0.70</td>
</tr>
<tr>
<td>Top quintile</td>
<td>16.15</td>
<td>12.05</td>
<td>0.67</td>
<td>96.92</td>
<td>0.33</td>
</tr>
<tr>
<td>Total</td>
<td>25.34</td>
<td>14.41</td>
<td>1.14</td>
<td>94.57</td>
<td>0.60</td>
</tr>
</tbody>
</table>

Source: Note: (1) Changes in RUB of monthly household consumption per capita but it refers to percentage points in the case of Poverty rate and Gini coefficient; (2) it refers to changes only among those who actually spend in transport (between 50 and 60% of the households in each decile)

50. Table 4, first and second rows). This very small numbers are partly the result of not only a small share of transportation expenditures within the total, but also a short number of market participants: only 50 percent of those in the first quintile report expenditures in transport, and only 69 percent of those in the top quintile. This contrasts starkly with 100 percent participants in food retail or 95 percent in mobile phone services.

51. An important factor to consider regarding further competition in air travel is not only price reductions for those who already travel, but also cheaper access for those who do not travel. As indicated in previous paragraphs, the proportion of expenditures in transport in the Russian federation is remarkably low. There are also some studies that indicate that the country has a
relatively low density of air travelers (i.e., proportion of total passengers carried to total population) and slow passenger growth, when compared to other middle income countries. More recent data shows that air travel has grown rapidly in recent years (2009-2017), but still the Russian Federation shows a small proportion of passengers to population when compared to other large countries or countries with similar income levels (Figure 12). Assuming a reduction in prices of up to 50 percent and an average increase in air-travel expenditures for those who currently do not travel equal to the share of expenditures of those with current access, we could estimate additional monetary gains of RUB 82 per month per capita, on average (a relative welfare gain of about 0.8 percent). That is about double the initial estimates.

The case of telecommunication services, is characterized by a oligopoly type of organization with three firms that dominate a contestable market. Each product (mobile phones and internet services) is assumed to have low price-elasticity of demand (i.e., -0.5) and survey data shows that both represent less than 2 percent of average household consumption expenditures. Consequently, these two services show small impacts, although together these are bigger than the welfare gains from air transport. In the case of mobile phone, moving from a three-firm oligopoly to a fully competitive market would involve monetary gains of up to RUB 61 for the bottom quintile households in the bottom quintile and RUB 143 for those at the top quintile. IN relative

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25 See (Valdes, 2015), referring to data for the first decade of this century.
26 This is assuming a welfare gain for new participants equivalent to the average share of consumption among those who actually participate in the market, times the expected decline in prices. This approach to estimate welfare gains to access is suggested by (McKenzie & Mookherjee, 2005) drawing from (Neary & Roberts, 1980). More precise estimates would require a household survey that identifies expenditures in air-travel with a panel structure to identify the type of households that start purchasing air-tickets as a result of lower prices.
terms these are 1.0 and 0.3 percent, respectively. The poverty rate would decline nearly a third of a percentage point (0.3) and the Gini would remain almost unchanged.

### Table 3: Distribution of consumption expenditures by quintile and consumption item

<table>
<thead>
<tr>
<th></th>
<th>Food</th>
<th>Clothing</th>
<th>Mobile</th>
<th>Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>proportion of</td>
<td>proportion of</td>
<td>proportion of</td>
<td>proportion of</td>
</tr>
<tr>
<td>share of</td>
<td>share of</td>
<td>share of</td>
<td>share of</td>
<td>share of</td>
</tr>
<tr>
<td>population</td>
<td>population</td>
<td>population</td>
<td>population</td>
<td>population</td>
</tr>
<tr>
<td>consumption</td>
<td>positive</td>
<td>positive</td>
<td>positive</td>
<td>positive</td>
</tr>
<tr>
<td>expenditures</td>
<td>expenditures</td>
<td>expenditures</td>
<td>expenditures</td>
<td>expenditures</td>
</tr>
<tr>
<td>Bottom quintile</td>
<td>42.24</td>
<td>99.81</td>
<td>13.09</td>
<td>51.80</td>
</tr>
<tr>
<td>2nd quintile</td>
<td>38.40</td>
<td>99.80</td>
<td>16.74</td>
<td>69.10</td>
</tr>
<tr>
<td>3rd quintile</td>
<td>34.14</td>
<td>99.96</td>
<td>18.21</td>
<td>78.54</td>
</tr>
<tr>
<td>4th quintile</td>
<td>31.40</td>
<td>100.00</td>
<td>17.08</td>
<td>80.57</td>
</tr>
<tr>
<td>Top quintile</td>
<td>16.15</td>
<td>100.00</td>
<td>12.05</td>
<td>84.81</td>
</tr>
<tr>
<td>Total</td>
<td>25.34</td>
<td>99.91</td>
<td>14.41</td>
<td>72.96</td>
</tr>
</tbody>
</table>

Source:
Note: (1) Changes in RUB of monthly household consumption per capita but it refers to percentage points in the case of Poverty rate and Gini coefficient; (2) it refers to changes only among those who actually spend in transport (between 50 and 60% of the households in each decile).

### Table 4, third and fourth rows). Estimates for the same exercise in the case of internet services are similar in terms of distribution, but about half in size. Namely, monetary gains of RUB 31 for those in the first quintile of the distribution and RUB 70 for those in the fifth quintile. In relative terms these represent 0.5 and 0.1 percent of consumption, respectively. Because of these small monetary gains, poverty rate
would fall only a 0.1 percentage point. Together, these two sectors could theoretically lead to a reduction of little more than half a percentage points in the poverty rate and only 0.2 Gini points.

Table 3: Distribution of consumption expenditures by quintile and consumption item

<table>
<thead>
<tr>
<th></th>
<th>Food</th>
<th>Clothing</th>
<th>Mobile</th>
<th>Intern</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>proportion of</td>
<td>proportion of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>share of</td>
<td>population</td>
<td>share of</td>
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<td>consumption</td>
<td>expenditures</td>
<td>positive</td>
<td>consumption</td>
<td>positive</td>
</tr>
<tr>
<td>Bottom quintile</td>
<td>42.24</td>
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</tr>
<tr>
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<td>84.81</td>
</tr>
<tr>
<td>Total</td>
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<td>99.91</td>
<td>14.41</td>
<td>72.96</td>
</tr>
</tbody>
</table>

Source:
Note: (1) Changes in RUB of monthly household consumption per capita but it refers to percentage points in the case of Poverty rate and Gini coefficient; (2) it refers to changes only among those who actually spend in transport (between 50 and 60% of the households in each decile)

Table 4, rows five and six).

52. In the case of retailing, despite of being a more competitive market, the large share of household expenditures allocated to this sector involves potentially large monetary welfare gains. As explained before clothing represents nearly 15% of household expenditures and further competition would lead to monetary gains of up to RUB 111 for households in the first quintile of the distribution and up to RUB 889 in the fifth quintile. Interestingly, these gains are larger in absolute terms among the richest segments of the population, but the middle classes (i.e., 2nd, 3rd and 4th quintiles of the distribution) have proportionally larger gains: up to 2.5 percent in the middle versus 1.8 percent gains in the extremes of the distribution.
54. Table 3: Distribution of consumption expenditures by quintile and consumption item

<table>
<thead>
<tr>
<th></th>
<th>Food</th>
<th>Clothing</th>
<th>Mobile</th>
<th>Intern</th>
</tr>
</thead>
<tbody>
<tr>
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<td>42.24</td>
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<td>78.54</td>
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<tr>
<td>Top quintile</td>
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</tr>
<tr>
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<td>14.41</td>
<td>72.96</td>
</tr>
</tbody>
</table>

Source: (1) Changes in RUB of monthly household consumption per capita but it refers to percentage points in the case of Poverty rate and Gini coefficient; (2) it refers to changes only among those who actually spend in transport (between 50 and 60\% of the households in each decile)

55. Table 4, rows seven and eight). These changes would lead to a reduction of up to a half percentage point in the national poverty rate. Again, changes in inequality as per the Gini coefficient would be almost negligible (0.1 Gini points).

56. Food is the item representing the largest share of households expenditures. Consequently, even small reductions in mark-up can lead to important monetary gains for consumers. Our estimates show potential gains of further competition in food retailing of up to RUB 335 for households in the first quintile of the distribution, an of up to RUB 1114 for households in the fifth quintile. Again, monetary gains are larger for richer households than poorer households in absolute terms (}
57. Table 3: Distribution of consumption expenditures by quintile and consumption item

<table>
<thead>
<tr>
<th>quintile</th>
<th>Food</th>
<th>Clothing</th>
<th>Mobile</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>proportion of share of consumption expenditures</td>
<td>proportion of share of consumption expenditures</td>
<td>proportion of share of consumption expenditures</td>
<td>proportion of share of consumption expenditures</td>
<td>proportion of share of consumption expenditures</td>
<td></td>
</tr>
<tr>
<td>Bottom</td>
<td>42.24</td>
<td>99.81</td>
<td>13.09</td>
<td>51.80</td>
<td>2.49</td>
<td>91.00</td>
</tr>
<tr>
<td>2nd</td>
<td>38.40</td>
<td>99.80</td>
<td>16.74</td>
<td>69.10</td>
<td>1.84</td>
<td>94.51</td>
</tr>
<tr>
<td>3rd</td>
<td>34.14</td>
<td>99.96</td>
<td>18.21</td>
<td>78.54</td>
<td>1.57</td>
<td>93.95</td>
</tr>
<tr>
<td>4th</td>
<td>31.40</td>
<td>100.00</td>
<td>17.08</td>
<td>80.57</td>
<td>1.29</td>
<td>96.49</td>
</tr>
<tr>
<td>Top</td>
<td>16.15</td>
<td>100.00</td>
<td>12.05</td>
<td>84.81</td>
<td>0.67</td>
<td>96.92</td>
</tr>
<tr>
<td>Total</td>
<td>25.34</td>
<td>99.91</td>
<td>14.41</td>
<td>72.96</td>
<td>1.14</td>
<td>94.57</td>
</tr>
</tbody>
</table>

Source: (1) Changes in RUB of monthly household consumption per capita but it refers to percentage points in the case of Poverty rate and Gini coefficient; (2) it refers to changes only among those who actually spend in transport (between 50 and 60% of the households in each decile)

58. Table 4, rows nine and ten). But in relative terms, poorer households see a larger proportional gain (of up to 5.5 percent of their initial consumption per capita) than richer households (only 2.1 percent). More competition in food retailing can lead to up to 1.4 percentage points reduction in the national poverty rate. Inequality as measured by the Gini coefficient renders a larger reduction than in previous cases (0.7 Gini points), but still too little to bring a meaningful reduction of inequality.
VI. Conclusion

59. The main message from this study is that moving towards a more competitive market organization can bring modest but noticeable welfare gains in Russia, particularly in terms of increased monetary consumption levels and reduced poverty rates. Changes in inequality, however, as measured by the Gini coefficient, are negligible. There are three basic findings of this study that further characterize this main message.

60. First, monetary gains in absolute terms are larger for more affluent groups of the population. This is mostly the consequence the fact that these groups actually spend more in these products than other groups of the population. However, the relative gains - that is in terms of proportions of standard of living - these monetary gains tend to be larger for the poorer groups of the population, which indicates that these reforms could have special benefits to the poor. This is particularly true for the case of retailing in food and telecommunication services, but less so in the case of clothing retail (where middle classes would benefit proportionately more).

61. Second, further competition in the sectors under study can bring a reduction in poverty rates of up to 2.4 percentage points in total, which out of a base of 13.2 in 2017 would represent a reduction of up to a fifth in national poverty rate. Most of this reduction would come from pro-competition reforms in the retail sector, into which the population in general, and the poor in particular, spends a larger proportion of their budget.

62. Third, out of the four sectors discussed in this study (i.e., air transport, utilities, telecommunications and retail services), retail services and air-transport seem to be the most promising for monetary welfare gains for consumers and poverty reduction. All the sectors are characterized by some form of restrictive regulation - as per OECD characterization using the PMR index - and for some form of non-competitive market structure (i.e., public sector monopoly, oligopoly or dominant market leader). But the telecommunication services are seen as efficient - despite its oligopoly structure - and prices are recognized as very low in international comparison; while liberalization of utilities industry could lead to higher, not lower, prices and hence protection of the poorest segments of the population would require further social policy, beyond and apart pro-competition regulation. These leaves air-transport and retail as potential areas of reform for welfare gains through consumer price reductions.
63. In the case of air-transport, the potential monetary gains to current consumers are very limited (only 0.1 percentage points), because of the relatively small share of this type of expenditures. But the expansion of the use of service to levels of countries similar in geography or standards of living, could bring important welfare gains to the Russian population. Finally, retail services can bring further welfare gains because of its large share within household budgets and, although the sector has seen some increased competition in recent years, still further opening and expansion of modern retailing into the rest of the country (beyond the large metropolitan areas) could bring additional benefits.

64. This study calls for further research to refine these initial results. The use of more complex models would allow to assess the size of welfare gains due to expanded market participation from groups that are excluded due to limited supply (or unaffordable prices). This is particularly true in the case of air transport. More complex models, particularly regarding non-constant elasticity of demand could improve the size of welfare estimates, both in terms of monetary gains and in terms of poverty reduction, although the relative progressivity observed in this study is likely to be robust to methodological changes. Finally, an assessment of welfare gains due to changes in the quality of services provided would necessitate a more detailed study of changes in the quality of goods and services purchased before and after changes in market organization due to pro-competition policy.
REFERENCES


Annex 1: Tables

**Table 1: Russia PMR, 2008 and 2013**

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2013</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall PMR</td>
<td>2.69</td>
<td>2.22</td>
<td>17.3</td>
</tr>
<tr>
<td>State control</td>
<td>3.84</td>
<td>3.41</td>
<td>11.1</td>
</tr>
<tr>
<td>Barriers to entrepreneurship</td>
<td>2.28</td>
<td>1.54</td>
<td>32.2</td>
</tr>
<tr>
<td>Barriers to trade and investment</td>
<td>1.94</td>
<td>1.71</td>
<td>12.2</td>
</tr>
</tbody>
</table>

Source: OECD, Product Market Regulation Database for OECD.

**Table 2: Russia Retail trade sub-components PMR**

<table>
<thead>
<tr>
<th>Retail indicator</th>
<th>2008</th>
<th>2013</th>
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</thead>
<tbody>
<tr>
<td>Licenses or permits needed to engage in commercial activity</td>
<td>5.40</td>
<td>5.40</td>
</tr>
<tr>
<td>Specific regulation of large outlet</td>
<td>5.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Protection of existing firms</td>
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<td>0.00</td>
</tr>
<tr>
<td>Regulation of shop opening hours</td>
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<tr>
<td>Price controls</td>
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<td>4.00</td>
</tr>
<tr>
<td>Promotions/ discounts</td>
<td>3.00</td>
<td>2.00</td>
</tr>
</tbody>
</table>

Source: (Koske, Wanner, Bitetti, & Barbiero, 2015)

Note:
### Table 3: Distribution of consumption expenditures by quintile and consumption item

<table>
<thead>
<tr>
<th>Decile</th>
<th>Food</th>
<th>Clothing</th>
<th>Mobile</th>
<th>Intern</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>proportion of share of population with consumption expenditures</td>
<td>proportion of share of population with consumption expenditures</td>
<td>proportion of share of population with consumption expenditures</td>
<td>proportion of share of population with consumption expenditures</td>
<td>p</td>
</tr>
<tr>
<td>Bottom quintile</td>
<td>42.24</td>
<td>99.81</td>
<td>13.09</td>
<td>51.80</td>
<td>2.49</td>
</tr>
<tr>
<td>2nd quintile</td>
<td>38.40</td>
<td>99.80</td>
<td>16.74</td>
<td>69.10</td>
<td>1.84</td>
</tr>
<tr>
<td>3rd quintile</td>
<td>34.14</td>
<td>99.96</td>
<td>18.21</td>
<td>78.54</td>
<td>1.57</td>
</tr>
<tr>
<td>4th quintile</td>
<td>31.40</td>
<td>100.00</td>
<td>17.08</td>
<td>80.57</td>
<td>1.29</td>
</tr>
<tr>
<td>Top quintile</td>
<td>16.15</td>
<td>100.00</td>
<td>12.05</td>
<td>84.81</td>
<td>0.67</td>
</tr>
<tr>
<td>Total</td>
<td>25.34</td>
<td>99.91</td>
<td>14.41</td>
<td>72.96</td>
<td>1.14</td>
</tr>
</tbody>
</table>

Source: Changes in RUB of monthly household consumption per capita but it refers to percentage points in the case of Poverty rate and Gini coefficient; (2) it refers to changes only among those who actually spend in transport (between 50 and 60% of the households in each decile)
### Table 4: Distribution of welfare gains from price changes due to transition to competitive markets

<table>
<thead>
<tr>
<th></th>
<th>Welfare gains</th>
<th>1st quintile</th>
<th>2nd quintile</th>
<th>3rd quintile</th>
<th>4th quintile</th>
<th>5th quintile</th>
<th>poverty rate</th>
<th>Gini index</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Air Transport</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>absolute</td>
<td>42.3</td>
<td>57.9</td>
<td>60.9</td>
<td>75.8</td>
<td>163.8</td>
<td>-0.1</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>relative (%)</td>
<td>0.4</td>
<td>0.4</td>
<td>0.3</td>
<td>0.3</td>
<td>0.2</td>
<td>-0.9</td>
<td>-0.1</td>
<td></td>
</tr>
<tr>
<td><strong>Mobile phone</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>absolute</td>
<td>61.0</td>
<td>75.5</td>
<td>90.3</td>
<td>106.0</td>
<td>142.9</td>
<td>-0.3</td>
<td>-0.1</td>
<td></td>
</tr>
<tr>
<td>relative (%)</td>
<td>1.0</td>
<td>0.7</td>
<td>0.6</td>
<td>0.5</td>
<td>0.3</td>
<td>-1.9</td>
<td>-0.3</td>
<td></td>
</tr>
<tr>
<td><strong>Internet services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>absolute</td>
<td>31.3</td>
<td>42.2</td>
<td>49.6</td>
<td>57.8</td>
<td>70.3</td>
<td>-0.1</td>
<td>-0.1</td>
<td></td>
</tr>
<tr>
<td>relative (%)</td>
<td>0.5</td>
<td>0.4</td>
<td>0.3</td>
<td>0.3</td>
<td>0.1</td>
<td>-1.1</td>
<td>-0.2</td>
<td></td>
</tr>
<tr>
<td><strong>Retail (clothing purchases)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>absolute</td>
<td>111.1</td>
<td>238.0</td>
<td>362.9</td>
<td>487.5</td>
<td>888.9</td>
<td>-0.5</td>
<td>-0.1</td>
<td></td>
</tr>
<tr>
<td>relative (%)</td>
<td>1.8</td>
<td>2.3</td>
<td>2.5</td>
<td>2.4</td>
<td>1.7</td>
<td>-3.7</td>
<td>-0.3</td>
<td></td>
</tr>
<tr>
<td><strong>Retail (food purchases)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>absolute</td>
<td>335.2</td>
<td>510.7</td>
<td>636.4</td>
<td>838.1</td>
<td>1113.8</td>
<td>-1.4</td>
<td>-0.7</td>
<td></td>
</tr>
<tr>
<td>relative (%)</td>
<td>5.5</td>
<td>5.0</td>
<td>4.4</td>
<td>4.1</td>
<td>2.1</td>
<td>-10.9</td>
<td>-1.5</td>
<td></td>
</tr>
</tbody>
</table>

Source:
Note: (1) Changes in RUB of monthly household consumption per capita but it refers to percentage points in the case of Poverty rate and Gini coefficient; (2) it refers to changes only among those who actually spend in transport (between 50 and 60% of the households in each decile)
Annex 2: Figures

Figure 1: Economy-wide PMR score, 2008 and 2013

Source: OECD, Product Market Regulation Database

Figure 2: Components of PMR score and distribution, OECD countries and Russia, 2013

Source: OECD, Product Market Regulation Database and (Koske, Wanner, Bitetti, & Barbiero, 2015).
Figure 3: State control remains pervasive in Russia

Source: OECD, Product Market Regulation Database for OECD
Note:

Figure 4: Barriers to trade and international trade are pervasive in Russia

Source: OECD, Product Market Regulation Database for OECD
Note:
Figure 5: Ease of Doing Business, OECD and BRICS, 2016-2019


Figure 6: Trading across borders, OECD and BRICS, 2016-2019

Figure 7: OECD index of regulation in Energy Sectors

Source: (Koske, Wanner, Bitetti, & Barbiero, 2015)
Note:
Figure 8: OECD index of regulation in Transport Sectors

Source: (Koske, Wanner, Bitetti, & Barbiero, 2015)
Note:
Figure 9: OECD index of regulation in Retail trade

Panel A. OECD countries

Panel B. Non-OECD countries

Source: (Koske, Wanner, Bitetti, & Barbiero, 2015)

Note:
Figure 10: Share of total expenditures by main consumption groups

Source: Author’s calculation using RLMS 2015-2017
Note: Percentages correspond to average share of each group for years 2015 through 2017.

Figure 11: Transport and telecommunication within total expenditures

Source: Author’s calculation using RLMS 2015-2017
Note: Percentages correspond to average share of each group for years 2015 through 2017.
Figure 12: Levels and growth of air-travel passengers in selected countries.

Source: Author’s calculation using World Development Indicators (https://datacatalog.worldbank.org/dataset/world-development-indicators accessed on May 14th, 2019)

Note: In the left-hand vertical axis, bars represent passengers carried as a proportion of total population. Air passengers carried include both domestic and international aircraft passengers of air carriers registered in the country (International Civil Aviation Organization, Civil Aviation Statistics of the World and ICAO staff estimates). In the right-hand vertical axis, dots represent average annual growth of passengers carried for the period 2009-2017.