

# Sources of long run economic growth in Russia before and after the global financial crisis

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## Abstract

Although productivity decline in the global economy was observed before 2008, the global financial crisis of 2008 stimulated study of its source. In this context, recent literature mentions inefficient investments in machinery, human capital, and organizational processes. This can include skill mismatch and the lack of technology diffusion from advanced to emerging industries and firms. To what extent is this global view helpful in understanding recent productivity decline in the Russian economy? The present study reports that at least some of these sources can be observed in Russia as well. Using conventional industry growth accounting, it compares pre- and post-crisis sources of growth for the Russian economy. Specifically, it presents aggregate labor productivity growth as the sum of capital intensity and total factor productivity (TFP) growth in industries, and the contribution of labor reallocation between industries. It shows that the stagnation of 2008–2014 is more the result of the TFP decline and the deterioration of the allocation of labor than the lack of capital input. Moreover, the TFP decline started in Russia a few years before the crisis, as it did in major global economies, such as the United States, OECD countries, China, and Brazil. At the same time, relatively stable capital intensity made the Russian pattern to some degree similar to resource abundant Australia and Canada. Furthermore, the contribution of information and communications technology capital to labor productivity growth in Russia declined after 2008, which could have also hampered technology diffusion. Finally, the structure of the flow of capital services in Russia changed after 2008. Before the crisis, the contribution of machinery and equipment dominated, while after the crisis, construction provided the lion's share of capital input.

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## 1. Introduction

Although the productivity slowdown of the world economy was observed and documented before 2008, the global financial crisis fueled the debate on its source and economic nature (McGowan et al., 2015). Ark et al. (2015) indicate that the causes of the global slowdown were inefficient investments in machinery, human capital, and organizational processes. This also included skill mismatch and the lack of technology diffusion from advanced to emerging firms and industries. To what extent is this global view helpful in understanding the productivity slowdown in Russia?

The present study considers a post-transition and resource abundant Russia and compares its pre- and post-crisis productivity patterns. The standard toolkit of Solow (1957) and Jorgenson et al. (1987, 2005), industry growth accounting decomposition, which represents output growth rates as the sum of contributions of *proximate* sources of growth—labor, capital, and total factor productivity (TFP)—can be used to answer the question above. The latter characterizes the ability of the economy to diminish real costs of production. Much of the current literature on growth accounting of the Russian economy at the macro level pays particular attention to TFP as the main source of growth. Using various sources of data on labor and capital,<sup>1</sup> paying special attention to such measurement aspects as capacity utilization (Entov and Lugovoy, 2013), terms of trade (Kaitila, 2016), or taking into account its natural capital (Brandt et al., 2016), TFP is identified as the main driver of Russian growth. Recent studies in this strand of the literature on Russia also report on the productivity slowdown after 2008 (Timmer and Voskoboynikov, 2016; World Bank, 2017), which can reflect the impact of both global and country-specific factors.

Thus far, however, there has been little discussion of changes in these proximate sources of long run growth for the Russian economy after the global crisis of 2008 from a comparative perspective. This study aims to address this gap with the new dataset from the Russia KLEMS, released in March 2017 (Russia KLEMS, 2017).

The present study reports that at least some of the origins of the global slowdown can be observed in Russia, comparing the pre- and post-crisis sources of growth of the Russian economy. Specifically, these sources are aggregate labor productivity growth as the sum of capital intensity and TFP growth in industries, and the contribution of labor reallocation between industries. It shows that the stagnation of 2009–2014 is more the outcome of a decline in TFP and the deterioration of the allocation of labor than a lack of capital input. Moreover, analysis shows that the TFP decline started in Russia a few years before the crisis, as it did in major global economies such as the United States, OECD countries, China, and Brazil. At the same time, relatively stable capital intensity makes the Russian patterns to some degree similar to resource abundant Australia and Canada, which raised investments in their mining sectors in response to the capital-intensive boom in China and India (McGowan et al., 2015). Additionally, the contribution of ICT capital to labor productivity growth in Russia declined after 2008, which hampered technology diffusion. Finally, the structure of capital services in Russia

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<sup>1</sup> See literature review in Timmer and Voskoboynikov (2016).

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