

# Labor Productivity Growth and Structural Change in the Union Republics of the USSR in 1966-1990<sup>1</sup>

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What are consequences of the planned economy period for long run growth? The textbook example for empirical investigations of this is the economy of the Soviet Union. Although high growth rates of the Soviet economy until early 1960-s inspired debates in the literature concerning perspectives of the big push approach for developing economies, which was by Lin (2010) as one of the revolutions in development thinking, later studies revealed multiple distortions in its structure and extensive nature of its growth (Ofer 1987; Krugman 1994; Easterly and Fischer 1995), assessing this growth pattern negatively. Eventually, one would think that the collapse of the Soviet Union in 1991 brings this debate to the end.

However, Allen (2003) raised this issue of high relative performance of the Soviet economy again, pointing out that the development pattern of the Soviet Union in 1928-1989 was better than that of major non-OECD countries with the exception of Taiwan and South Korea (Allen 2003, 7–11). Supporting this argument, Allen compared development of the Union republics of Soviet Central Asia and the North Caucasus with the adjoining parts of the Middle East and South Asia, which caught up by 1989 the most developed countries of the region (e.g. Turkey). Eventually, he came up with the question, if the slowdown of the Soviet economy in last two decades of its history indicates the fundamental fault of the planned economy system or it was just the outcome of some external shocks and domestic errors in economic policy that might be eluded.

In this context it is worth noticing that the command economy period could influence differently to such territories with the different level of development, as the Union republics. Indeed, they varied a lot. In 1973 GDP per capita in these republics varied from 3.7 thousand 1990 Int. GK\$ in Kyrgyzstan to 8.7 thousand 1990 Int. GK\$ in Estonia (Maddison's project database, release of January 2013). Their development patterns also differed over the wide range. As can be seen in Figure 1, GDP per capita grew in the European part of the Soviet Union with the slowly growing population, and declined in Soviet Central Asia and Caucasus (Georgia is an exception) with the soaring population. In turn, performance of the Soviet Union at large is predictably close to its largest part, Russia, and masks this variety. Because of this results of the old literature, focused on the Soviet Union at large, seem less general and convincing,

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because conclusions made for its economy are much more relevant for its largest republic, Russia (53% of population and 58% of GDP of the Soviet Union in 1973), than, say, for Estonia (0.6% of population and 0.8% of GDP). One more advantage of the shift of attention from the level of the Soviet Union to its former republics is the opportunity of their performance before and after transition.

So far, however, there has been little discussion about economic growth and structural change in Soviet republics before the collapse of the Soviet Union<sup>2</sup> because of the lack of data, especially at the level of industries within the Union republics. At the same time economies of Soviet republics were well documented in the Soviet statistics framework, including statistics classifications, and the unified system of fixed prices. The level of harmonization of this data grew in late 1950-s - early 1960-s, when Soviet statistics started compilations of balances of the economy and input-output tables (IOT's) for each of its fifteen republics. This creates new opportunities for the analysis of performance of the Union republics in the comparative perspective at the level of industries.

The present study addresses this gap, considering for the first time the dataset of more than two hundred official IOT's of the Soviet Union and its republics, starting from 1959 for the Soviet Union and from 1966 for most of the Union republics. Almost all IOT's are accompanied with the supplementary data on the average number of workers and the volume of capital stock in each industry. This data provides opportunities to address the question of the role of the structural bonus in growth of Soviet republics, which can be answered with the conventional shift-share analysis (see, e.g., McMillan and Rodrik (2011)). On the one hand, labour reallocation in the command economy should be lower than in a market economy of the same level of development, because in the former workers do not have such clear signals of differences in productivity in industries, as in the latter. Also there were more restrictions for them to change jobs. On the other hand, the planned economy government could stimulate and even enforce labour reallocation mobilizing resources to projects of high priority. An example of the largest project of the period in question is the Baikal-Amur Mainline Railway.

Dealing with the official statistics of the Soviet period its well-known limitations should be taken into account. The first one is a concept of national accounts, the material products system (MPS), which differed from the conventional system of national accounts (SNA). In contrast with SNA, MPS treats some services as non-productive, which makes its production frontier more narrow in comparison with SNA (Ivanov 1987). For the first approximation, estimations can be obtained within the MPS production frontier. At the same time, although the problem cannot be resolved in full, the approach to provide the MPS-SNA correspondence of MPS-based output measures was suggested in (Ivanov 1981). The second problem is non-market prices. There are two approaches in the literature. The first one is the Adjusted Factor Cost Method, which ascends to studies of Bergson and used in the CIA estimations of Soviet GDP.

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<sup>2</sup> Exceptions are studies of De Broek and Koen (2000) with the growth accounting of the republics, starting from 1970 at the aggregate level and some case studies, such as the case study of Latvia in 1966 (Bond 1977).

The alternative is to stick on official prices, following (Kuboniwa and Ponomarenko 2000; Ponomarenko 2002)

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