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## Labour productivity management: factors of growth, the role of social and labour monitoring

**Abstract**

Labour productivity is among conventional tools of sustainable development and a subject of modern research in economic and social sciences. Systematic work to stimulate its growth is carried out through the centres of competence and labour productivity growth created in a number of countries (the overview of which is given in our paper). At the same time, recent research works frequently highlight the importance of social factors of growth along with technical ones. Attention is paid to the introduction of lean production practices and programmes for organizational culture transformation.

Estimation of labour productivity faces a number of difficulties at both macro and micro levels. They are investigated and addressed in the current paper.

The main purpose of the paper is to identify factors having the greatest impact on the level of labour productivity and the way of their estimation in different countries on the basis of a comparative analysis of their labour productivity management and monitoring policies.

As a part of the study, we conducted a comparative analysis of Russia and a number of foreign countries in terms of labour productivity (namely, USA, G7, European Union-28, Japan, and China). The dynamics of GDP per hour worked and GDP per employee as the indicators of labour productivity for our comparison has been used. It is calculated that labour productivity in Russia is about 2 times lower than in the developed countries. Models that allow different countries of the world to achieve a high level of labour productivity have been singled out based on the conducted research

It is concluded that with regard to the Russian national mentality, a rational model of labour relations should be based on three unified systems: the tariff, the resultant, and the profit-sharing one.

**Keywords:** Labour Productivity; Social and Labour Monitoring; Management; Economic Development; Factors Of Growth

**JEL Classification:** O1; O4; J24

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**Управління продуктивністю праці: чинники зростання, роль соціально-трудового моніторингу**

**Анотація.** Пошук інструментів сталого розвитку економічних систем є об'єктом дослідження багатьох учених-економістів. Одним із традиційних інструментів є продуктивність праці. Системна робота щодо стимулювання її зростання здійснюється через створені в ряді країн центри компетенцій, зростання продуктивності праці. При цьому в останніх дослідженнях все частіше відзначається важливість соціальних чинників зростання, поряд із технічними факторами приділяється увага впровадженню практик ощадного виробництва, розробляються програми трансформації організаційної культури.

Варто відзначити, що оцінка продуктивності праці пов'язана з низкою труднощів як на макро-, так і на мікрорівні. Це ускладнює проведення порівняльного аналізу, вимагає впровадження додаткових коригувань. У статті розкриваються особливості й труднощі оцінки продуктивності праці на макро- і мікрорівні.

Основна мета статті – виявити фактори, які чинять найбільший вплив на рівень продуктивності праці та способи його оцінки в різних країнах на основі порівняльного аналізу політики управління продуктивністю праці та моніторингу.

У рамках дослідження ми провели порівняльний аналіз Росії та ряду зарубіжних країн з точки зору продуктивності праці (а саме, США, G7, Євросоюз-28, Японія та Китай). Для порівняння використовувалися динаміка ВВП на відпрацьовану годину й ВВП на одного працівника в якості показників продуктивності праці. Підраховано, що продуктивність праці в Росії приблизно в 2 рази нижче, ніж у розвинених країнах.

На підставі проведеного дослідження виділено моделі, що дозволяють різним країнам світу досягти високого рівня продуктивності праці.

Авторами робиться висновок про те, що з урахуванням російського національного менталітету раціональна модель трудових відносин повинна ґрунтуватися на трьох поєднаних системах: тарифній, результативній і системі участі в прибутках.

**Ключові слова:** продуктивність праці; соціально-трудова моніторинг; економічний розвиток; фактори росту.

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**Управление производительностью труда: факторы роста, роль социально-трудоваго мониторинга**

**Аннотация.** Поиск инструментов устойчивого развития экономических систем является объектом исследования многих ученых-экономистов. Одним из традиционных инструментов является производительность труда. Системная работа по стимулированию ее роста осуществляется через созданные в ряде стран центры компетенций, роста производительности труда. При этом в последних исследованиях всё чаще отмечается важность социальных факторов роста и наряду с техническими факторами уделяется внимание внедрению практик бережливого производства, разрабатываются программы трансформации организационной культуры. Стоит отметить, что оценка производительности труда сопряжена с рядом трудностей как на макро-, так и на микроуровне, что требует внедрения дополнительных корректировок при проведении сравнительного анализа. В статье раскрываются особенности и трудности оценки производительности труда на макро- и микроуровне. Основная цель статьи – выявить факторы, оказывающие наибольшее влияние на уровень производительности труда и способы их оценки в разных странах на основе сравнительного анализа политики управления производительностью труда и мониторинга.

В рамках исследования мы провели сравнительный анализ России и ряда зарубежных стран с точки зрения производительности труда (а именно, США, G7, Евросоюз-28, Япония и Китай). Для сравнения использовалась динамика ВВП на отработанный час и ВВП на одного работника в качестве показателей производительности труда. Подсчитано, что производительность труда в России примерно в 2 раза ниже, чем в развитых странах.

На основании проведенного исследования выделены модели, позволяющие различным странам мира достичь высокого уровня производительности труда.

Делается вывод о том, что в отношении российского национального менталитета рациональная модель трудовых отношений должна основываться на трех унифицированных системах: тарифной, результирующей и системе участия в прибылях.

**Ключевые слова:** производительность труда; социально-трудовой мониторинг; экономическое развитие; факторы роста.

## 1. Introduction

Economic globalization and expansion of the influence of multinational companies on social and economic development narrows the list of effective tools that allow countries to maintain a high level of competitiveness, ensuring the stability and independence of their economic systems. One of these tools is the growth of labour productivity. That is why most countries have been developing and implementing a set of measures aimed at improving its level. Most often, this set of measures is fixed in state target programmes, national projects, and social and economic development strategies. Some previous research conducted by the authors showed that the labour productivity and global competitiveness of the country are closely interrelated, and the level of productivity also affects population wellbeing (Vertakova & Maltseva, 2015). However, the state policy in the field of labour productivity regulation does not always ensure the achievement of the target results. In particular, in Russia, despite the existence of some incentive programmes, the level of labour productivity according to some scientists is three times lower than in Europe. This necessitates the analysis of the target programmes for labour productivity growth in the leading countries. The study of foreign practices will help to identify tools that can be effectively used for managing productivity in Russia, as well as identify factors that contribute to its growth and, conversely, hinder it.

## 2. Brief Literature Review

Labour productivity is significantly different in the context of a country-by-country basis. According to the most commonly used indicator of the OECD methodology, Ireland, Luxembourg and Norway are the leaders in labour productivity. Many economists agree that the existing indicator does not clearly characterize the picture related to labour productivity. In particular, in Ireland, its high level is ensured by low tax rates, and due to that many multinational corporations have moved their financial operations to this country without large-scale involvement of labour. Paul Krugman who called the Irish economy a «leprechaun economy» (cit. by FT, Boland, 2016). and Joseph Stiglitz criticize the implementation of such policies and question the high level of labour productivity there.

The dynamics of labour productivity is uneven not only across countries, but also across industries. M. Brill, C. Holman, Ch. Morris, R. Raichoudhary and N. Yosif (2017) conducted a study aimed at identifying industries in the USA where labour share decline occurs faster. The authors distinguish some industries but the cause of such changes are not clear yet.

The development of stable conditions and reduction of uncertainty are noted as key factors of productivity growth by E. V. Burmistrova and E. L. Popchenko (2017).

Capital investments are often considered by researchers as a source of productivity growth. However, N. V. Spasskaya and V. E. Kireev (2015) argue that investments affect labour productivity only indirectly through a number of steps.

Researchers pay much attention to methods and factors of labour productivity growth, a significant part of which is associated with the introduction of scientific labour organization and lean production. At the same time, transformations usually affect not only production but also managerial business processes. G. Ostapovich (2018), Director of the Centre for Business Tendencies Studies of the National Research University of the Higher School of Economics (Moscow, Russia) mentions that scientific organization of labour and the renewal of fixed assets are important factors of labour productivity growth in the modern economy. D. Pishchalnikov, Chairman of the Board of Directors at the Krasnokamensky Metal Grid Plant, focuses on modern methods of scientific organization of labour. In his opinion, it is possible to achieve significant results with proper management of labour productivity (Pishchalnikov, Bodrunov, & Ostapovich, 2018).

The application of environmental systems theory to personnel assessment (Cleveland et al., 2015), proposed by J. N. Cleveland, Z. S. Byrne and T. M. Cavanagh (2015) in the paper «The future

of HR is RH: Respect for humanity at work», is quite innovative. The topic of «green» technologies of human resource management was further developed in the works of D. Renwick et al. (2016), in particular, in «Contemporary developments in green (environmental) HRM scholarship». In our opinion, the term «green» does not reflect the aspects raised by the authors properly; a more neutral term «eco-friendly» would be more appropriate.

D. R. Jamali, A. M. E. Dirani, and I. A. Harwood (2014) in the paper «Exploring human resource management roles in corporate social responsibility: the CSR-HRM co-creation model» consider social and labour monitoring in the context of corporate social responsibility. In our opinion, the significant role assigned to it is fully justified. The importance of institutional transformations was mentioned by V. A. Tsvetkov et al. (2017).

Despite the fact that labour productivity is well studied, and methods of its estimation and factors influencing its growth are analyzed, there remains the question whether labour productivity is a source, or, on the contrary, arises as a consequence of the structural changes in the economy.

**3. The purpose** of the paper is to identify factors having the greatest impact on the level of labour productivity and the way of their estimation in different countries on the basis of a comparative analysis of their labour productivity management and monitoring policies.

#### 4. Results

There are various indicators to measure productivity. Their choice for specific research is determined by the policy vector, as well as the availability of data. The ratio used to estimate labour productivity makes it possible to estimate the efficiency of using resources to produce goods and services. In this case, both the total employment and the total number of hours worked can be considered as the indicator of the resource utilization.

One of the most widely used approaches at the country level is the measurement of labour productivity as gross domestic product (GDP) per hour of work. Productivity that takes into account hours of work is more indicative in terms of reflecting labour costs than that that takes into account the number of employees (OECD, 2019). If you rely on the number of employees, the study will miss the impact of the development of underemployment and overtime work.

The disadvantage of using the number of hours worked in the formula denominator is the difficulty of obtaining statistical data and their reliability. Even in developed countries, working hours are most often recorded in terms of the number of hours paid rather than actual hours worked. Accordingly, no adjustment is made for such out of work time as paid annual leave, sick leave, pregnancy leave, child care leave, etc. There is a common situation when statistical data are collected only for certain categories of workers (only for employees) or for certain categories of enterprises (belonging to key sectors of the economy or having a fairly large size) (ILO, 2015). For underdeveloped countries, these problems are exacerbated.

In their study, A. Ward, M. Zinni and P. Mariana (OECD, 2018) demonstrated the impact of significant adjustments in calculating the number of hours worked on the productivity indicator. In Figure 1, the difference between official national data regarding the annual number of working hours per employee in OECD countries and their estimate after a certain adjustment by OECD itself is presented.

The result of overestimating hours worked is the underestimation of labour productivity levels. For some countries, the adjustment reduced the relative productivity gap (compared to the US) by about 10 percentage points.

In the Russian Federation, in accordance with the order of the Ministry of Economic Development No. 748, of December 28, 2018, the productivity of an enterprise is defined as value added per unit of labour costs, where labour costs are the average monthly number of insured persons. For an industry or a constituent entity of the Russian Federation, the calculation is based on individual enterprises data.

A productivity-related indicator, unit labour cost, is also used to estimate the international competitiveness of countries. However, the use of this indicator for policy formation requires caution, since it does not take into account trends in international production location.

The cause of the distortion of country productivity indicators is the desire of multinational corporations to optimize taxation burden and risks. It is common for a company to move its headquarters (and assets) to jurisdictions that have lower corporate tax rates (Efremov & Vladimirova, 2018). At the same time, the specifics of the company's activities may not require the relocation of the labour force.

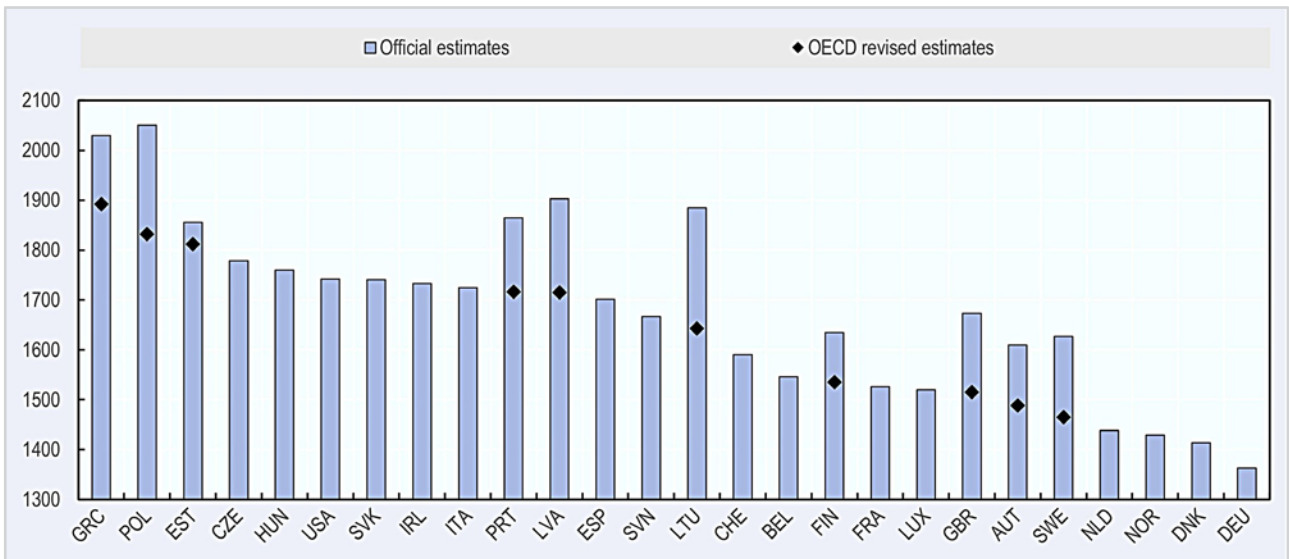


Figure 1:  
**Average annual hours worked per worker, selected OECD countries, 2016**  
 Source: OECD (2019a)

A striking example of the scheme used by large companies is the combination of «Double Irish» and «Dutch Sandwich» (Figure 2).

The first of the registered subsidiaries is a tax resident of Ireland. It works with real consumers, but most of its revenue (about 90-95%) is spent on paying for the sublicense of the company that is a tax resident of the Netherlands. The Dutch company, in its turn, pays for a sublicense to another Irish company that is a tax resident (for corporate taxation) of an offshore zone. When paying royalties from Ireland to the Netherlands and from the Netherlands to Ireland, for the source no tax is charged (in accordance with the double taxation avoidance agreement). As a

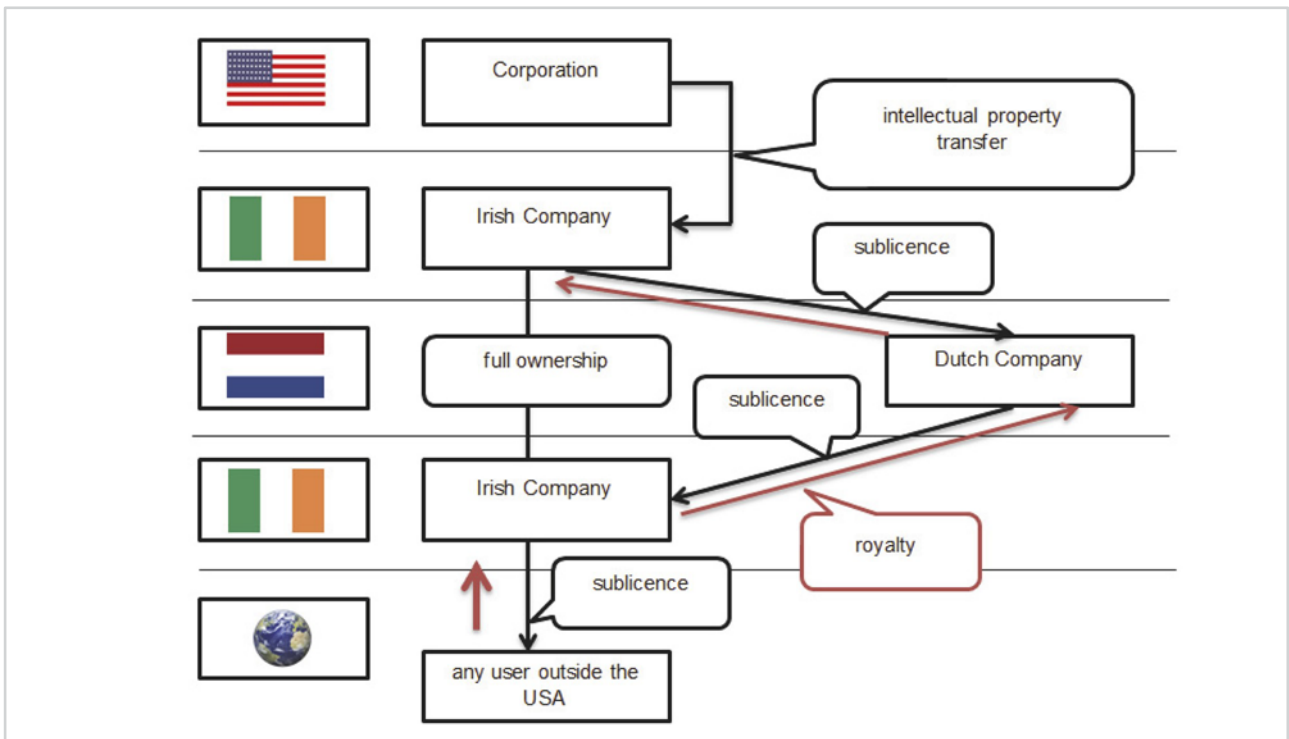


Figure 2:  
**Scheme of combination of «Double Irish» and «Dutch Sandwich» for taxation burden and risks optimization without labour force relocation**  
 Source: Russian Tax Portal (2012)

result, corporate taxes are paid only for the portion of income remaining in the possession of the first of the Irish companies after the payment of royalties.

For example, the entire European (and largely middle Eastern and African) turnover of Google Corporation goes through a subsidiary Google Ireland Ltd., registered in Dublin. The number of employees of this company is about 7,000, including about 3,500 permanent employees (the rest are contract employees) (RTÉ, 2017). Most of this company's revenue is spent on paying license fees transmitting to Google Netherlands Holding B. V., a company registered in Amsterdam, having no employees (as of 2018). This company, in its turn, transfers most of the money to Google Ireland Holdings, a company with dual jurisdiction (Ireland and Bermudas) which was, for example, EUR 19.9 billion in 2017 (cit. by Bloomberg Tax, Kassam, 2019).

Thus, assets are transferred within the corporation between different countries, and are included in the GDP not of the country where the product is actually produced or sold, but to the one with more favourable tax conditions (in particular, Ireland, Luxembourg, the Netherlands and Switzerland) (UNCTAD, 2018). Various methods are used to correct such data: for example, under the guidance of the Central Bank of Ireland, a modified gross national income indicator was developed that should exclude the effects of globalization from economic data (Boland & Romei, 2017).

According to the research conducted By McKinsey Global Institute (Remes et al., 2018), most developed economies have a potential for productivity growth of 2%, and the fulfilment of the potential largely depends on how correct the made decisions will be. McKinsey Global Institute experts propose focusing on stimulating demand and digitalization. Digitalization, in their opinion, can become the basis of a new wave of productivity growth.

Many countries, realizing the importance of regulating productivity issues, create special structures that can systematize best practices and encourage their development within the country (Table. 1).

Our analysis has led us to the conclusion that most countries consider it most rational to support small and medium businesses. Large businesses tend to be more resilient, have significant assets, and easier access to cheap resources, so targeted financial support for large businesses is not as relevant as for medium and small ones. Most researchers agree that supporting effective enterprises with direct subsidies is not rational. In this case, you can use indicative planning tools to encourage leading companies.

As a part of the study, we conducted a comparative analysis of Russia and a number of foreign countries in terms of labour productivity. The dynamics of GDP per hour worked as an indicator of labour productivity for our comparison is presented in Table 2.

The indicators of the Russian Federation are significantly lower than those of other subjects under consideration. Thus, in 2018, GDP per hour worked in the Russian Federation was 2.64 times lower than in the USA, 2.31 times lower than in G7, 2.02 times lower than in the European Union, and 1.65 times lower than in Japan. However, due to the higher growth rate, the gap was narrowed.

Table 1:  
**Labour productivity growth centres in the world**

Country/Region	Name	Year of foundation	Activity
Germany	German Labour Productivity Centre (Rationalisierungs-Kuratorium der Deutschen Wirtschaft – RKW)	1921	Includes the national centre, advisory councils and working groups for productivity issues. The focus is on improving competitiveness and labour productivity in small and medium businesses.
Singapore	National Productivity Council – NPC	2010	Includes the national council, information centre and business community, national and regional centres for small and medium businesses support. Programmes are aimed at the development of small and medium businesses of priority sectors.
Europe	European Association of National Productivity Centres	1966	Besides labour productivity growth programmes realization, combats unfair competition and supports environmental protection.
Asia	Asian Productivity Organization	1961	Shares experience, research and development of best practices of labour productivity growth among the member countries.
Russia	Federal Competence Centre for Labour Productivity	2017	Focuses on losses elimination and introduction of best labour productivity management practices at medium and large enterprises.
Japan	Japan Productivity Centre (JPC)	1955	Includes Academy of Management, Japan political council, Japan forum for economic growth, etc. Much attention is paid to training and development of human resources.

Source: Compiled by the authors on the basis of: Belostotskaya (2019); Improvement of labour productivity in the Republic of Tatarstan (2015); Japan Productivity Center (2019); Federal Competence Centre for Labour productivity (2019); German Labour Productivity Centre (2019) and others

Table 2:  
**GDP per hour worked (USD, in current prices)**

Country	2016	2017	2018	Growth rate 2018/2016, %
USA	70.0	72.2	74.7	106.71
G7	62.0	64.0	65.6	105.81
European Union (28 countries)	53.8	56.3	57.3	106.51
Japan	45.6	46.1	46.8	102.63
Russian Federation	24.7	26.5	28.3	114.57

Source: OECD (2019b)

In 2016, the corresponding figures were even worse: 2.83 times for the USA, 2.51 times for G7, 2.18 times for the European Union, and 1.85 times for Japan.

The leaders among the OECD countries are Ireland (USD 102.3 per hour worked in 2018) and Luxembourg (USD 101.9 per hour worked in 2018), which is largely due to the fact that these countries are used by multinational corporations for tax optimization, rather than the unique tools that are actually applied to increase productivity.

The comparison of productivity by GDP per employee is presented in Table 3.

According to GDP per employee indicator, Russia in 2018 is 2.33 times behind the USA, 1.94 times behind the G7, 1.68 times behind the European Union, and 1.41 times behind Japan. At the same time, Russia's indicator is 1.72 times higher than that of China. Although the overall picture is similar to that observed when analyzing the dynamics of GDP per hour worked, the gap between the countries' data is somewhat smaller.

So, a high country's GDP is not a guarantee of a high GDP per employee (or per hour worked). For example, in China, which is firmly ranked first in the world in terms of GDP, labour productivity is significantly lower than in the leading countries. This is due to the large population and high percentage of employees.

Models that allow a country to achieve a high level of labour productivity are:

- 1) low cost of the final product with a large production output and a low percentage of employees (typical for Arab countries that specialize in oil production);
- 2) production of the high-cost products with a high (or at least average) percentage of employed people (typical for the United States and most Western European countries);
- 3) production of the high-cost products with a low percentage of employed people.

Labour productivity in a broad sense includes the productivity of materialized labour (characterized by return on capital investments) and the productivity of living labour (characterized by output). Shaping a labour productivity management policy, a special attention is paid to the technicality of the issue - new equipment purchasing, introduction of resource saving technologies, modernization of production lines, etc. All these related to investment activities require additional costs. Under the conditions of limited resources, more and more companies resolute to activate their internal reserves and develop measures aimed at increasing labour productivity by properly organizing the work space, business processes, and implementing lean production techniques.

In previously published works (Shulgina & Maltseva, 2019; Shulgina, Maltseva, & Stepanova, 2019), we have highlighted that output estimation is difficult when it is required to estimate the productivity of white-collar workers. Firstly, it is often impossible to set specific quantitative indicators; secondly, it is difficult to estimate the efficiency of working time utilization. Inappropriate use of working time for viewing personal mail, news, social media on personal topics, etc. on average takes from 30 minutes to 1.5 hours per day. The introduction of an effective system of social and labour monitoring allows us to partially solve this problem and helps reduce losses. However, in our

Table 3:  
**GDP per employee (USD, in current prices)**

Country	2016	2017	2018	Growth rate 2018/2016, %
USA	121,853.8	125,537.3	130,300.3	106.93
G7	102,768.0	105,920.2	108,345.0	105.43
European Union (28 countries)	88,370.9	92,213.7	93,598.5	105.92
Japan	78,109.4	78,810.7	78,621.7	100.66
Russian Federation	48,789.5	52,465.0	55,867.6	114.51
China	27,460.3	29,780.3	32,553.2	118.55

Source: OECD (2019b)

opinion, building a system of social and labour monitoring that allows estimating the performance should be accompanied by a transformation of the organizational culture. It can be in favour of developmental, rational or hierarchical corporate culture and, as a result, the culture of production (see, for example, Warner, 2013). Building a systematic work in this direction requires considerable time: a complete change of organizational culture takes about 3 years. The formation of rational and strong organizational culture when employees understand their role in the company and area of responsibility, make innovative proposals, work to improve the quality of products and services, increase customer satisfaction - all these can, according to various estimates, lead to the increase of productivity by 40-60%.

Recognized in the world practice tools for improving productivity can be divided into two big categories: workforce management and talent management (employee development management).

In terms of solving the problem of increasing labour productivity in modern conditions in the Russian Federation, we regard justified to resort effective methods rejected during the first years of market reforms. In the 1920s, based on the ideas of F. W. Taylor and his followers in the USSR, the concept of scientific organization of labour was developed. In the 1930s, the development of this area of research was interrupted, but in the 1960s it was restored. Since 1967, scientific work on scientific organization of labour has been actively conducted, and many of the developed methods have not lost their relevance in a current context (Belyaev et al., 2019).

Basic provisions of the scientific organization of labour are:

- improvement of specialization of labour,
- improvement of workplace organization,
- improvement of working methods,
- optimization of labour rating,
- training of personnel (Krivov, 2016).

One of the modern forms of specialization of labour is the outsourcing of non-core functions, standard and mass operations, involving similar algorithms, for different enterprises. The obvious advantages of outsourcing are absence of necessity for investment in specialized equipment and training of qualified employees, guarantee uninterrupted operation, opportunity to apply best practices and experience, and ease of control «by results».

Within the framework of workforce management at a new level of automation such tools for managing the efficiency of employee's working time as timekeeping and photography of working time, as well as standardizing of operations become a widespread practice.

Toyota's lean production concept, for example, is based on identifying and eliminating eight types of losses: overproduction, waiting, movement, excess inventory, defects, excessive handling, transportation, and unused employee potential (Brom & Belonosov, 2016). The introduction of this concept at enterprises can improve the efficiency of using various resources, including labour.

The change of the resource paradigm, the transition of the advantage to the production of an information product, transforms the subject of prudence as well. If in the classical version of the concept, the main attention was paid to material resources, the economical spending of which was achieved by improving technological and organizational processes, under modern conditions, the new factor of prudence is economy in the logistics of communicating information between subjects and objects of management (Melnikov & Gankin, 2018). In Russia, a lean production system is implemented within the framework of the national project «Labour Productivity and Employment Support» (Shtraus, 2019).

However, the introduction of scientific methods for labour organization or the concept of lean production does not guarantee the success of the enterprise. They can contribute to achieving high results, but the key to the intensification and rationalization of work is the person himself. Employees' behaviour can be irrational (Bovykin, 2019). In an attempt to minimize the uncertainty in the employees' behaviour using scientific methods for labour organization, managers determine processes in detail, divide operations excessively, and thus achieve the opposite effect: methods designed to increase labour productivity begin to hinder it due to the negative reaction from an employee. The Japanese mentality differs from the Russian one. It would be unreasonable to expect the same results from the introduction of the concept of lean production in Russia. An important task that should be solved in the framework of improving labour productivity at the Russian enterprises is to create the organizational culture in which employees would be focused on improving discipline and performance. Taking into account the national mentality, a «Rational model



of labour relations» was developed, based on three unified systems - the tariff system, the resultant system, and the profit-sharing system.

## 5. Conclusions

The methods used to estimate the level of labour productivity often do not reflect the real picture. This makes it difficult not only to make international comparisons, but also to assess changes in dynamics.

The analysis of some existing productivity management practices and policies has shown that they can be divided into two groups. The first one focuses on using reserves, optimizing existing business processes, production, logistics, etc. The second one involves additional investments and is aimed at implementing modern technologies. The latter will be effective only if all the processes at the enterprise are already fixed and the organizational culture corresponds to the goals and objectives of the company.

Building a policy of labour productivity management, most countries rely on small and medium businesses, form effective consulting and methodological support for enterprises participating in the program, and create regional and industrial support centres.

The issue of whether labour productivity is a source of structural changes or, on the contrary, arises as a result of economic restructuring, remains debatable. A number of economists note in their publications that the problem of labour productivity management is not so urgent and does not require much attention, it is necessary to focus on managing domestic demand and developing tools to stimulate it. In our opinion, labour productivity management is an essential condition for building sustainable social-economic development. Under the conditions of the demographic pitfall, the growth of labour productivity will ensure a decent level and quality of life for the population, restructuring the economy for the new mode. At the same time, labour productivity should be understood in a broad sense, when an important role is played not only by technical factors of growth but also by the transformation of social and organizational components. Only an integrated approach can ensure the achievement of growth targets and the stability of the economic system.

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