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MEASURING GLOBAL OUTSOURCING AND ITS EFFECT ON FIRMS PRODUCTIVITY

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ANNOTATION. This article discusses the role of outsourcing in the world economy and in the activities of companies. In order to estimate the size of the international market of outsourcing, the authors summarize the statistical data from various sources and analyze it in comparison with other secondary macroeconomic indicators. There is some empirical evidence to show the importance of outsourcing in increasing the efficiency of companies that are the main subjects of the outsourcing market.

INTRODUCTION. In today's globalized and digitized economy, the concept and practice of outsourcing is gaining popularity. Especially in the post-pandemic period, the need for remote business tools has increased dramatically. Outsourcing is supposed to be the most effective solution to a number of problems, such as reducing costs related to time and distance, coordinating financial relations, preventing interruptions in supply chain and logistics.

In order to measure the extent of outsourcing in the global economy and in the activities of companies, as well as to evaluate its effectiveness, this article analyzes the existing indicators related to outsourcing with important macroeconomic indicators, including the export of services and semiconductors, the export of IT services, and the degree of internationalization of companies. Finally, a conclusion summarizes through a comparative analysis of income.

KEY WORDS. Outsourcing, Outsourcing market, Business Process, Productivity, Internationalization, Application Service Provider, Industry, Information Technology, Remote Services, Freelancer.

Measuring Global Outsourcing and its Effect on Firms Productivity.

In the post-Covid-19 post-pandemic world economy of 2020, supply chain disruptions have been marked by falling oil prices and semiconductor shortages, not unlike the 1973 oil crisis. In such conditions, outsourcing, in particular, IT outsourcing, began to be more actual in the business world. So, what is the importance of outsourcing in the modern world economy and the activity of companies? Despite the fact that the term "outsourcing" was first used in 1989 by E.Kodak, the practice of outsourcing began to be used in industrialized countries such as the USA in the 1920s. In the early

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stages, outsourcing was local, with Ford, GM, and Chrysler outsourcing business processes such as accounting, parts, and warehousing to outside supply firms. After the 1960s, the participation of companies such as Toyota and Mitsubishi in the global automobile industry market strengthened the inter-industry alliance and created a global supply chain in the automotive industry. Large industries are becoming more and more dependent on outsourcing to remain competitive.

According to WTO, in 1998 only 37% of the value of produced American car was created locally. While 30% of the value of cars were sent to South Korea for being assembled, 17.5% to Japan for component purchases, 7.5% to Germany for design, 4% to Taiwan and Singapore for small parts, 2.5% to UK for advertising and marketing, 1.5% to Ireland and Barbados for data processing¹. Nowadays with software included these processes are more complicated.

In the 1980s, the same scenario was repeated in the computer industry, in the 21st century and in the modern world economy, this situation has become popular in mobile phones, electronics, pharmaceuticals and almost all industries. The global outsourcing industry was worth \$92.5 billion in 2019 and estimated to grow annually at the annual rate of 4%. According to CAGR, by 2025 it's expected to reach \$114 billion.

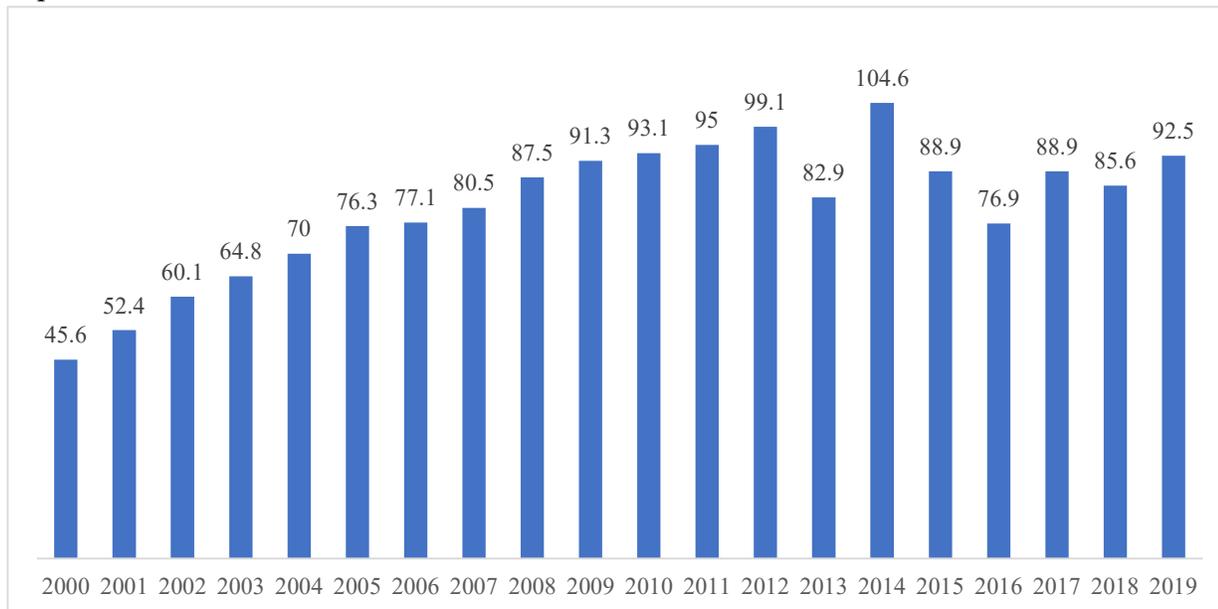


FIGURE 1. THE DYNAMICS OF GLOBAL OUTSOURCING MARKET IN THE GIVEN YEARS (IN BILLION USD)²

Therefore, the global outsourcing market is formed on the basis of demand and supply as a result of the above factors, and has a large share in the modern global economy. Among the many factors contributing to the expansion of the outsourcing market, three main factors can be distinguished:

1. Economic,
2. Technological,
3. Regulatory factors³.

¹ World Trade Organization Annual Report. 1998;

² www.statista.com

³ Kanonich V. Outsourcing Services Market in International Trade. 2009

Capital abundance and labor shortages in industrial countries have encouraged firms to move business processes to countries with high capital needs and low wages. In developed countries, as the environmental requirements become stricter, this trend has intensified.

Between 1979-2009 in the American manufacturing market 8 million jobs were outsourced, with only 11.5 million in December 2009. In 2018 US overseas affiliates hired 14.4 million workers. Outsourcing statistics for the UK show that 67% of the UK's start-ups outsource workforce and in 2020 nearly a third of businesses in the UK were expected to outsource more (Cyber Crew). According to Pearsoned CBC, one in 25 Canadian workers loses their job due to outsourcing.

On the other hand, there have been created more jobs in developing countries due to global outsourcing. In particular, in the Philippines 71000 new IT jobs were created in 2019. Also it was estimated that the need for mid-level and highly skilled workers to rise for 73% by 2022 (Magellan Solutions). Indian outsourcing industry statistics show, that the job of developer can be done for \$20-40 per hour, while for the same job developers in western countries charge from \$70 to \$150 per hour. But the gap between wages in developed and developing countries is decreasing, and rather than this factor, more geographic factors, such as logistics, being close to raw material sources, reducing transportation costs, and capturing foreign markets, encourage companies to outsource. Therefore, the reverse trend, i.e. outsourcing of business processes to large countries such as the USA, Canada, is also widespread.

As a technological factor, it is possible to show the development of the IT sector and the possibility of making orders in the online system. Facilities such as e-mail, billing and reporting operations, online registration, and logistics coordination allow US and European companies to maintain constant communication with suppliers in India, China, Singapore, and other remote locations from their home headquarters, as well as to reduce time-related risks. Large companies have almost outsourced their call centers abroad. After the dot-com crash of 2001, an IT boom began in Eastern Europe, India, China and the Pacific. The cities of Bangalore and Chennai have become the main centers of software production.

The regulatory factor, based on the protectionist and localization mood in the global economy, and on the basis of the increase of environmental students in developed countries, implies that companies will outsource to these countries in order to avoid losses caused by barriers to selling their goods in foreign markets. Firms in outsourced countries create additional jobs, increase capital flow, prevent brain drain. In order to create conditions for outsourcing, SEZs and enclaves are being established. For example, China has more than 6600 outsourcing firms according to the China Business Review. India has around 417 SEZs, while offshore banks in Singapore provide many tax incentives to foreign investors. However, trade unions in developed countries criticize outsourcing as a cause of job losses in unions.

The above theoretical considerations are intuitive and supported by many studies. However, the next issue is to find an answer to the question of what indicators determine the development of outsourcing and its market. This is a difficult task, because the tool, method and indicator that concretely measure the volume of outsourcing have not yet been formed, and the concept of outsourcing is interpreted differently in different practices. Nevertheless, it is possible to assess its scale and level of development through various comparative methods.

In order to evaluate outsourcing, some assumptions are made. In particular, outsourcing has a strong relationship with the service industry, the number of contracts between firms, IT industry exports, and the degree of internationalization of firms, and their development is in the same direction as the trend of outsourcing development.

Our first assumption is that the share of outsourcing in the service sector is sufficient. Because outsourcing consists of providing services on the basis of a contract between the customer and the supplier. In contrast to the provision of services on the basis of a general contract, the outsourcing service is not a one-time, but a continuous service provision based on a long-term contract. In the contract, the customer assumes a certain risk while assigning the supplier to perform some important tasks.

The share of exports of services in the world economy is increasing rapidly, and with them the share of outsourcing. In particular, the service outsourcing industry in China was worth \$175.35 in 2020, that's 65% increase over its 2016 market value (Statista).

The Figure 2 below summarizes their dynamics between 2000 and 2021 in order to show the relationship between the outsourcing market and the export of services worldwide. Here we take service export data as exogenous variable, i.e. as a cause for outsourcing market, which is supposed to be as an endogenous variable, i.e. effect. Calculations show that the correlation between them is 0.8027 and the slope is positive 0.8367. This means that increasing service export by 1 amount makes outsourcing market to increase be 0.8267 units. It is obvious that the connection is significant.

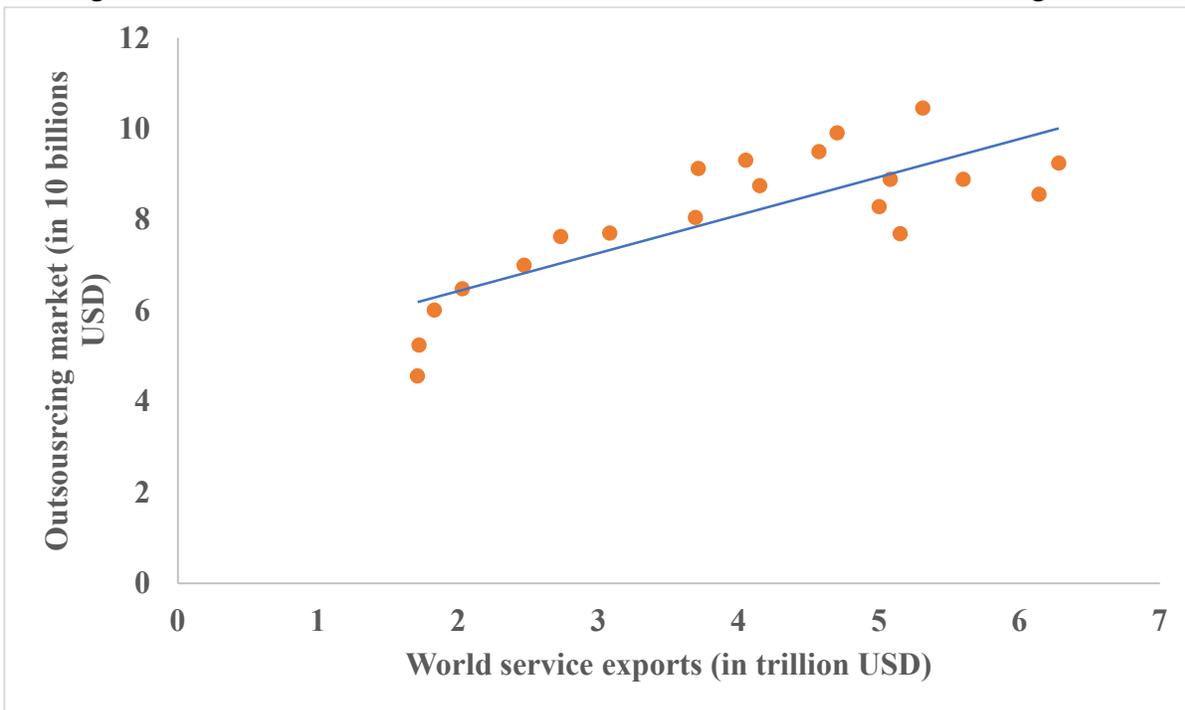


FIGURE 2. RELATION BETWEEN WORLD SERVICE EXPORTS AND OUTSOURCING MARKET⁴

⁴ By author based on World Bank and Statista Data in 2000-2020 years

Of course, limiting yourself to the trend of the service sector alone does not lead to a clear conclusion. Therefore, we will add the next components. The increasing number of contracts between firms indicates the growth of the outsourcing market, because outsourcing is not deal between a producer firm and a consumer (organization), but between two firms. In this case, a firm is contracting out a specific business process that it can perform from another firm, and this process is ongoing. According to ISG and Computer Weekly service contacts increased in value by 41% in 2021.

IT outsourcing is the most developed type of modern outsourcing, like Business Process Outsourcing (BPO). In 2020, the IT outsourcing market will reach 159.26 billion. USD and was around 22% of the total IT services market. The annual growth of the industry is estimated to be around 4% on average. To measure its size, it is appropriate to observe the dynamics of IT-related exports around the world. According to the data of the World Bank, since 2011, the share of the export of ICT products in the total export of goods has been increasing sharply.

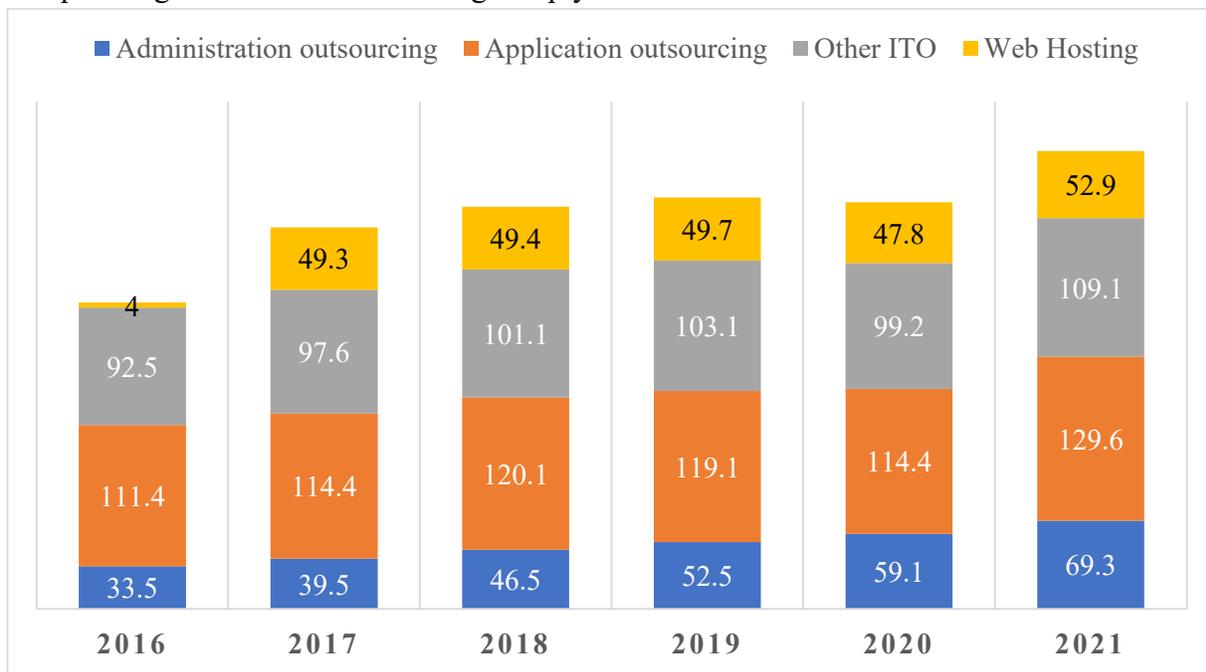


FIGURE-3. GLOBAL IT OUTSOURCING REVENUE BY SEGMENT OVER THE YEARS⁵

The scope of IT outsourcing is broad, ranging from operating systems to application service providers (ASPs), online platforms, small developer and freelancer groups, and the exchange of services. Today, Google, Android, Apple, and Microsoft software companies, in addition to providing services to industry, finance, and other businesses, also outsource the creation of applications to developers through the Play Market and AppStore. Developers, in turn, outsource front-end and back-end types to each other. For instance, the American freelance workforce contributed \$1.2 trillion to the U.S. economy between 2019 and 2021, and the growth in the number of such freelancers was by 22%.

Outsourcing can also be evaluated through semiconductors. According to the Semiconductor Industry Association, semiconductor sales in 2021 will reach 555.9 billion. reached the dollar. According to the World Trade Organization, the export of semiconductor products in the 3rd quarter of 2021 increased by 25% compared to the 3rd quarter of 2019. Including 45% in Africa, 40% in South and Central

⁵ www.statista.com

America and 31% in Asia. In North America and Europe, this growth was 12-20% lower compared to the world trend (picture). This indicates that semiconductor manufacturing has been outsourced to developing countries.

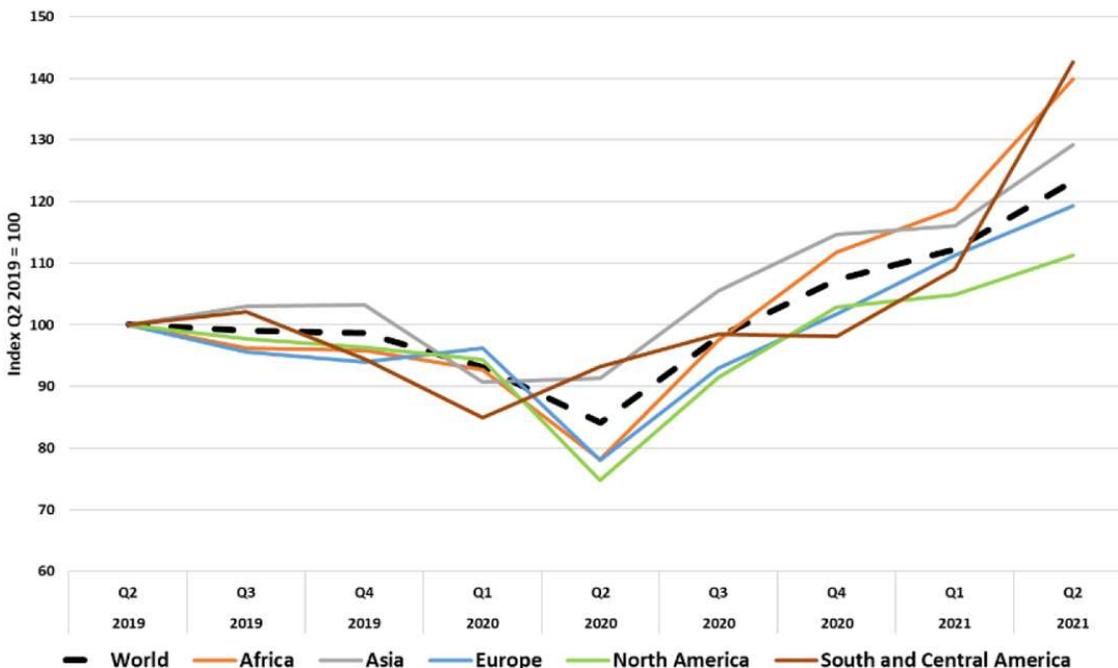


FIGURE 4. THE DYNAMICS OF SEMICONDUCTOR EXPORTS IN THE GIVEN YEARS⁶

It is also possible to observe the disruptions in semiconductor exports in 2020 from this figure. The biggest declines were in North America and Europe, where they fell to 20-28 percent. And the main supply around the world was at the expense of Asia and South America. In fact, the largest semiconductor manufacturing companies such as Intel, Qualcomm, TSMK and MediaTek operate in Taiwan and other Asian countries.

Outsourcing is seen as increasing the company's competitiveness, especially as technology improves. First, modern IT technologies shorten the product life cycle faster. In such conditions, firms do not have time to update the equipment in the enterprise for the production of each new model. Update costs involve a lot of cost and risk.

Secondly, continuous training of workers in new technologies requires time in addition to cost. These basic factors are more obvious than the principles of the division of labor in the economy. Deloitte Survey shows the following advantages as a result of studying many companies.

⁶ WTO 2022

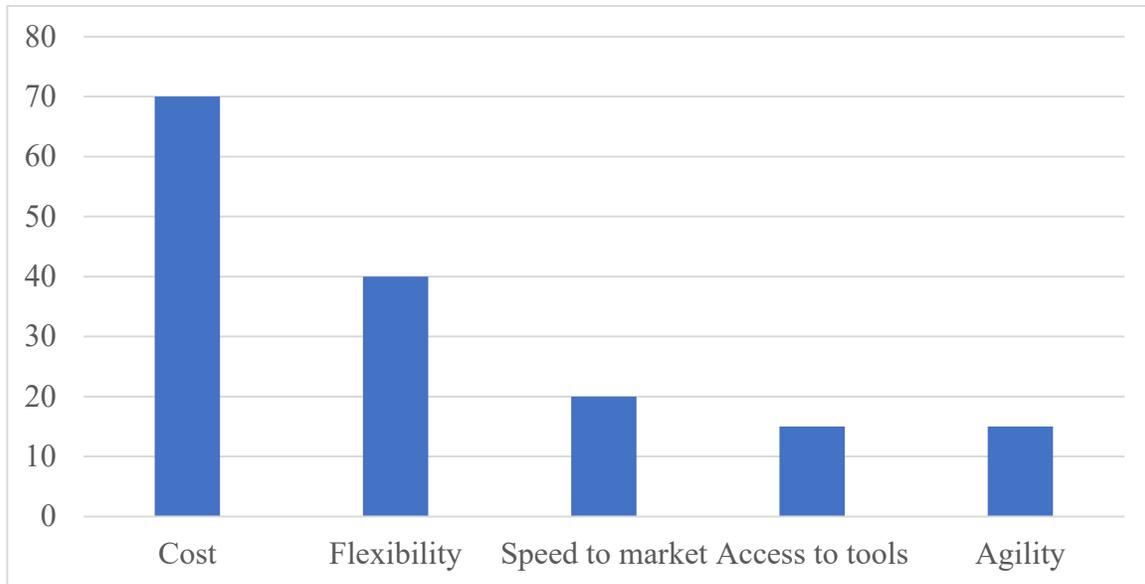


FIGURE 5. MAIN OUTSOURCING OBJECTIVES IN 2020⁷

We observe how outsourcing affects the efficiency of companies by comparing them with the growth of their capitalization. According to the World Bank, the dynamics of gross capitalization of world companies between 2008-2020 and the dynamics of outsourcing expenses in the same years based on Statista data are presented in the table.

Table-1

Outsourcing spending (in billion U.S. dollars)⁸ and Market capitalization of world listed companies (in trillion U.S. dollars)⁹ in the given years.

Years	2013	2014	2015	2016	2017	2018	2019	2020	2021
Spending (billion \$)	922	897	866	894	931	933	1040	1076	1186
Capitalization (trillion \$)	64.37	67.18	62.27	65.12	79.5	68.89	78.83	93.69	-

Summarizing the dynamics of the gross capitalization of companies with a 1-year lag of outsourcing costs in the same graph, we can observe that there is a strong connection between these two indicators. The correlation made by the selection method is also 0.80. If the actual situation corresponds to these calculations, the cost of 1 unit of outsourcing will increase the capitalization of the company in the next year.

⁷ Deloitte Outsourcing Survey 2020

⁸ Statista

⁹ World Bank 2022

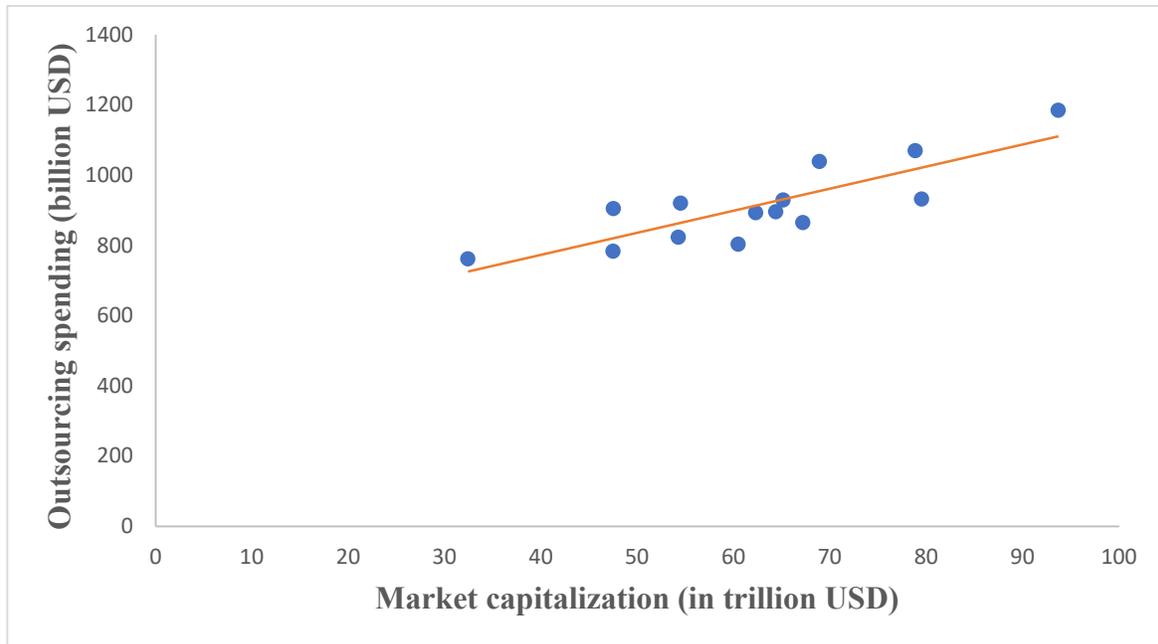


FIGURE 6. ESTIMATED RELATION BETWEEN OUTSOURCING SPENDING AND MARKET CAPITALIZATION OF WORLD COMPANIES¹⁰

Unlike in measuring the relation between outsourcing market and service exports, this time the outsourcing-related variable is endogenous and is included as a factor influencing firm capitalization. The results show that the correlation between them is 0.83 and the slope is positive 0.6288. That is, an increase in outsourcing spending by 1 unit increases the company's capitalization by 0.63 times.

Summary. Outsourcing has a strong position in the modern world economy and consists of the improvement of international division of labor and cooperation. Currently, almost all industries are related to outsourcing. The international outsourcing market is the reason for the specialization of innovative industries in developed countries and the flow of investments and unemployment reduction in developing countries. It has both positive and negative aspects, mainly related to the loss of traditional jobs in developed countries. That is why it is causing criticism from local trade unions.

Outsourcing improves the efficiency of firms in the long run. For this, companies should be ready to take some risks. Artificial intelligence, Cloud, Robotics and automation, Web hosting, freelancing platforms are the most promising areas of IT outsourcing. Especially in the post-pandemic world economy, their relevance is becoming more evident.

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