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## GLOBAL POVERTY AND STRUCTURAL SHIFTS IN ECONOMY

*Nina V. GOFFE,*

*ORCID 0000-0001-6740-7954, nina-goffe@yandex.ru*

*Primakov National Research Institute of World Economy and International Relations, Russian Academy of Sciences (IMEMO), 23, Profsoyuznaya Str., Moscow, 117997, Russian Federation.*

*Galina A. MONUSOVA,*

*ORCID 0000-0001-8266-5361, g.monusova@gmail.com*

*Independent researcher.*

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**Abstract.** Over the past 30 years, the world has achieved significant success in the fight against global poverty. However, progress in reducing its scale varies greatly in different parts of the world. Today, the epicenter of this calamity lies in Sub-Saharan Africa. The concentration of poverty in several places on the planet does not make the study of sources and dynamics of this phenomenon any less relevant. It is simultaneously both the root cause and the consequence of many current global challenges. The article focuses on analyzing the connection between the dynamics of poverty and structural shifts in the economies of developing countries. The authors note that for a long time, an important mechanism for reducing poverty in poor countries was the outflow of unskilled labor from the agricultural sector to the industrial one. As long as labor-intensive technologies were used in industry, it effectively absorbed the uneducated agricultural population, increasing their income and lifting them out of poverty. However, innovative labor-saving technologies and the digitization of economy have slowed down this process. Modern economy requires fewer workers while placing high demands on the quality of human capital. Poor African countries, caught up amid global technological shifts, have faced major challenges. One of the main ones includes the low level of education and vocational training, as well as the absence of not only computer literacy but also basic literacy. Under such conditions, innovation cannot organically develop, create high-tech jobs, and contribute to poverty reduction. Our contribution to academic literature lies in the demonstration, based on empirical materials, of various models of reducing global poverty in Latin America, Asia, and Africa. We also draw attention to possible mechanisms of this reduction and their transformation against the backdrop of the implementation of modern advanced technologies.

**Keywords:** global poverty, structural shifts, new technologies, digitalization, Sub-Saharan Africa.

### **About authors:**

Nina V. GOFFE, Cand. Sci. (Econ.), Leading Researcher.

Galina A. MONUSOVA, Cand. Sci. (History), Independent Researcher.

## ГЛОБАЛЬНАЯ БЕДНОСТЬ И СТРУКТУРНЫЕ СДВИГИ В ЭКОНОМИКЕ

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*ГОФФЕ Нина Владимировна, кандидат экономических наук,*

*ORCID 0000-0001-6740-7954, nina-goffe@yandex.ru*

*ИМЭМО им. Е.М. Примакова РАН, РФ, 117997 Москва, ул. Профсоюзная, 23.*

*МОНУСОВА Галина Алексеевна, кандидат исторических наук,*

*ORCID 0000-0001-8266-5361, g.monusova@gmail.com*

*Независимый исследователь.*

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**Аннотация.** Статья посвящена глобальной бедности — одному из самых серьезных вызовов, стоящих перед человечеством. Особое внимание уделено государствам Азиатского и Африканского регионов и анализу того, как наблюдающееся в них резкое снижение числа людей, проживающих в условиях нищеты, связано со структурными сдвигами в экономике. Показано противоречивое влияние на динамику бедности новых технологий и цифровизации. Подчеркивается, что одной

из ключевых задач в борьбе с нищетой в развивающихся государствах является ликвидация безграмотности и повышение уровня образования населения.

**Ключевые слова:** глобальная бедность, структурные сдвиги, новые технологии, цифровизация, Африка южнее Сахары.

*There is, perhaps, no better test of the progress of a nation than that which shows what proportion are in poverty...*

## INTRODUCTION

The quote given as an epigraph is a century-old statement by British economist and statistician Sir Arthur Bowley [1, p. 213]. By the time his book was published, the proportion of people living in extreme poverty (destitution)<sup>1</sup> was 56 per cent worldwide [2]<sup>2</sup>. A century later, the scale of this adversity has diminished considerably, but the problem has not disappeared. It remains a concern for international organizations, national governments, and academic publications.

Its impact extends far beyond the borders of poor regions, posing a threat to global economic stability. Developing countries often lack resources to invest in education, public health, infrastructure and projects to reduce the risks associated with the climate crisis: rising global sea levels, floods, heat waves, wildfires, or devastating hurricanes<sup>3</sup>.

Poverty poses a serious threat to international security, increasing the risk of civil conflicts and wars, which, in turn, lead to heightened poverty, transnational crime, and terrorism. A testament to the importance of this issue today is the fact that the Nobel Prize in Economics was awarded twice (in 2015 and 2019) for contributions to re-

search on various aspects of destitution and poverty alleviation<sup>4</sup>.

There is no universally accepted definition of poverty in academic literature or international organizational documents. In its most general form, poverty refers to the lack of sufficient resources to ensure a livelihood. It is also described as a state of hunger, limited access to education and other basic services, social discrimination and exclusion, and a lack of opportunity to participate in decision-making [source 3].

The diversity of forms of poverty – it can be absolute, relative, subjective or, more recently, digital<sup>5</sup> – implies different ways of measuring it. Regarding global poverty, which is the subject of this article, the task is simplified by the fact that since 1990, there has been a single standard for its measurement proposed by the World Bank: the international poverty line. This threshold was originally set at \$ 1 per person per day, essentially defining absolute poverty.

The international poverty line value has been revised several times over the past decades. In September 2022, it was fixed at \$ 2.15 per person per day in 2017 prices. The choice was made on the basis of the domestic data from the 28 poorest countries in the world, mostly located in sub-Saharan Africa.

Many critics have debated the legitimacy of this indicator. It accounts only for extremely low

<sup>1</sup> The terms “global poverty”, “extreme poverty”, “poverty”, and “destitution” are used synonymously in this article.

<sup>2</sup> The dynamics of extreme poverty from 1820 to this day are presented in detail in [3].

<sup>3</sup> Global warming will further restrict access to drinking water for the population of poor countries, negatively affect their health, and pose a real threat to food security in many countries of Africa, Asia and Latin America. Already today, 783 million people – almost 10 per cent of the world’s population – starve [source 1]. By 2050, uncontrolled climate change can force more than 200 million people to migrate within their own countries and push up to 130 million into poverty, reversing the hard-won gains in this area. The poorest regions of the world – sub-Saharan Africa and South Asia – would be hardest hit [source 2].

<sup>4</sup> For more details on the Nobel Prize winners in economics whose works have contributed to the formation of the modern discourse on poverty problems, see [4].

<sup>5</sup> In this case, digital poverty is treated by the authors as a completely absent or unstable Internet connection, the inability to purchase or use devices necessary for accessing the Internet, the high cost of mobile broadband connection, etc. People in digital poverty are unable to access online learning, online medical consultations, work from home, and other opportunities offered by modern technologies.

monetary income, which allows one to meet the minimum needs for food, clothing, and housing, and it is far from the concept of a decent life. If poverty is viewed more broadly as a lack of basic opportunities, a much wider range of people falls into the category of the poor. For instance, in 2019, 31 percent of the population in the Republic of Chad lived in poverty, according to the World Bank. However, the United Nations, using its own Multidimensional Poverty Index, estimated the proportion to be as high as 84 percent [source 4].

Nevertheless, the UN, in an effort to draw greater global attention to the plight of people in underdeveloped countries, has been continually using the international poverty line as a benchmark threshold in assessing the progress against poverty in terms of both the Millennium Development Goals and the 2030 Sustainable Development Goals. To track major poverty trends in the developing world, the authors of this article use the international poverty line proposed by the World Bank. It allows for comparisons across time and space, as well as for assessing the effectiveness of policies aimed at reducing poverty.

Poverty is a complex economic, social, cultural and political phenomenon influenced by many factors. Its level can be determined by the demographic situation, economic growth, inequality, labour market conditions, education level<sup>6</sup> and health status. A number of researchers attribute its existence to institutional causes or, in accordance with behavioural theories, to misguided motivations of individuals [5]. The above-mentioned sources of poverty are closely intertwined. Their investigation is an important subject; however, it is beyond the scope of this study.

This paper focuses on the dynamics of global poverty and is limited to analysing the impact of structural shifts in the economy on destitution, addressing the increasing penetration of new technologies into the economies of developing countries. The study relies on the data from

<sup>6</sup> According to UNESCO, if the entire adult population received secondary education the poverty rate could be reduced by more than half worldwide and by almost two-thirds in sub-Saharan Africa and South Asia [source 5].

the World Bank [source 6], as well as from domestic and foreign sources that offer a wide range of explanations for the main current trends in the socio-economic development of the Global South [6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, etc.].

## GLOBAL POVERTY DYNAMICS

Over the past three decades, the world has seen an unprecedented reduction in extreme poverty. The proportion of people living on \$ 2.15 a day fell from 38 % to 8.4 % between 1990 and 2019 [source 7]. In fact, more than 1 billion people have managed to get out of poverty within a generation. Nevertheless, according to World Bank estimates in absolute numbers, this means that in the pre-COVID year<sup>7</sup> just under 660 million people on the Earth existed in such conditions [source 8].

Figure 1 presents the 2019 poverty pattern and ranks the countries by share of the population with an income of \$ 2.15 a day per person and below.

There are large differences in poverty rates between the Asian, Latin American and African regions, with the first two having low poverty rates and the third one showing high destitution rates. Africa is poorly represented in the group with a poverty rate of 15 % and below (Gabon – 3 %, Mauritania – 6, Senegal – 9, Guinea – 14, Botswana – 15 %). Asian and Latin American states dominate here. Malaysia, China, Bhutan, Mongolia, Thailand and Vietnam have reduced extreme poverty to almost zero in 30 years.

The top of the figure is crowned by African countries. Some of them maintain high rates of

<sup>7</sup> The decline of global progress indicators vs. extreme poverty slowed down before the pandemic (the decline was only 1 p. p. between 2013 and 2015). The crisis caused by the spread of *COVID-19* exacerbated this trend. The number of people living in extreme poverty is estimated to have increased by 70 million by the end of 2020. This is the largest annual increase since at least 1990. A total of 720 million people worldwide were living on less than \$ 2.15 a day by the end of 2020. By now, the decline in extreme poverty has progressed. However, the goal of putting an end to extreme poverty by 2030 seems unattainable. By that time, almost 7 % of the world's population (approximately 574 million people) will probably still be living in extreme poverty [sources 6, 8].

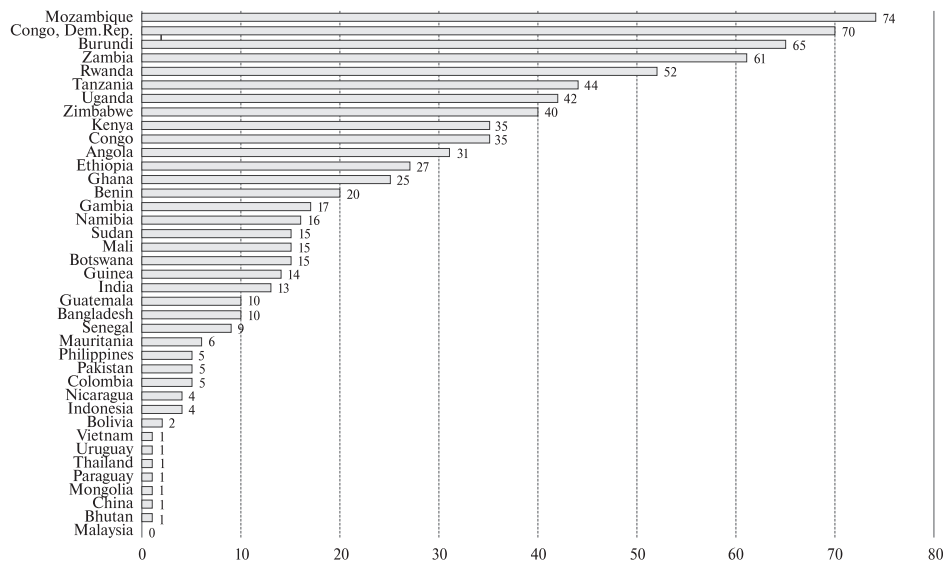


Figure 1. Poverty rate in the developing world, 2019, %

Source: [source 6].

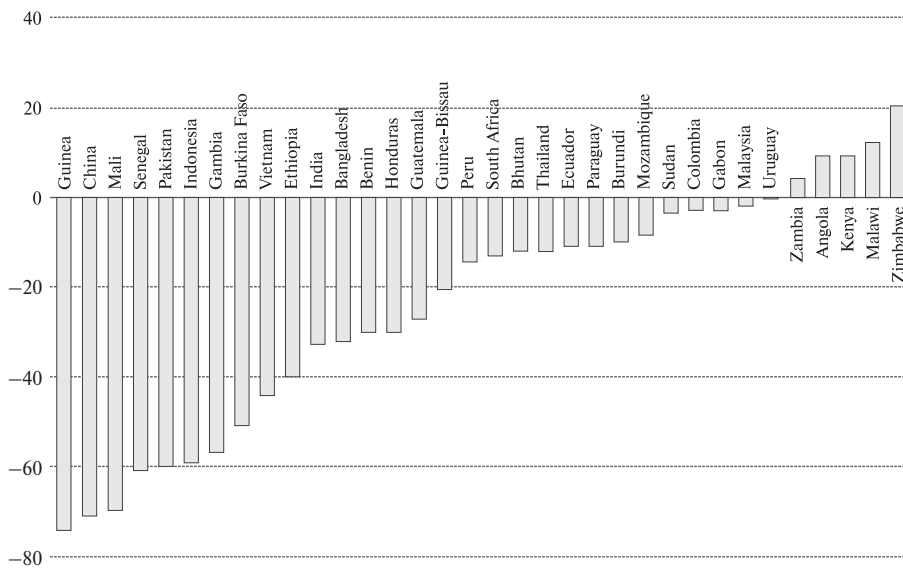


Figure 2. Reduction in the share of the population with an income up to \$2.15 per day, 1990–2019, p.p.

Source: [source 6].

extreme poverty. For instance, more than half of the population of Mozambique, the Democratic Republic of Congo, Burundi, Zambia, Rwanda and more than a third of the population of Angola, Kenya, Uganda, Zimbabwe and many other countries continue to live on an income of less than \$ 2.15 per day.

During the observed period, countries varied significantly in their pace of progress in poverty reduction. Figure 2 ranks the countries according

to the decline in the share of the population with an income of \$ 2.15 per day or less between 1990 and 2019.

A marked reduction in extreme poverty is evident in most developing countries, with this trend being particularly pronounced in Asian, Latin American, and African countries. The highest reductions (with a decrease of about 70 p. p.) were recorded in Guinea, China, and Mali. A significant reduction (by 30–60 p. p.) was also observed

in Indonesia, Pakistan, Senegal, Gambia, Vietnam, India, and others.

Some countries showed only a small reduction in poverty. On the one hand, these are countries where poverty levels were initially low. These include, in particular, Ecuador, Colombia, Uruguay, Paraguay, Sudan and Gabon. On the other hand, in some cases (Mozambique or Zambia), poverty rates remain high, with a weak decline over 30 years.

In several African countries (Angola<sup>8</sup>, Kenya, Malawi, Zambia, Zimbabwe<sup>9</sup>) the extreme levels of poverty have increased compared to 1990. However, it should be noted that the observed period is characterized by significant fluctuations rather than a steady increase in poverty<sup>10</sup>. For instance, Zambia demonstrated a sharp decline in poverty in 1996 compared to 1990, followed by an increase by 2006, and then another decline. The same trend is observed in Angola and Kenya<sup>11</sup>.

Thus, a significant poverty reduction took place primarily in Asia. China (70 p. p.), Vietnam (40 p. p.), India (35 p. p.), Indonesia (60 p. p.) and Bangladesh (35 p. p.) have in many ways quantitatively<sup>12</sup> set the general trend of poverty reduction in the developing world. Several African countries (Guinea, Mali, Senegal) have also made a notable contribution to this process. Latin American states had a smaller impact on the global trend, as the decline in poverty over the analysed period was minimal there, and poverty levels were already noticeably lower in the 1990s compared to African and Asian countries.

It would be worthwhile to further examine the countries in the Asian and African regions in more detail to understand how the ob-

<sup>8</sup> Data for 1996–2019.

<sup>9</sup> Data for 2006–2019.

<sup>10</sup> These fluctuations can be accounted for by various reasons including statistical error, data quality, current political-economic situation in these countries and many other factors. This observation can apply to any underdeveloped country.

<sup>11</sup> The authors' calculations according to [source 6].

<sup>12</sup> This is especially true for China and India with a cumulative population of about 3 billion.

served sharp decline in the number of people living in poverty is linked to structural shifts in the economy.

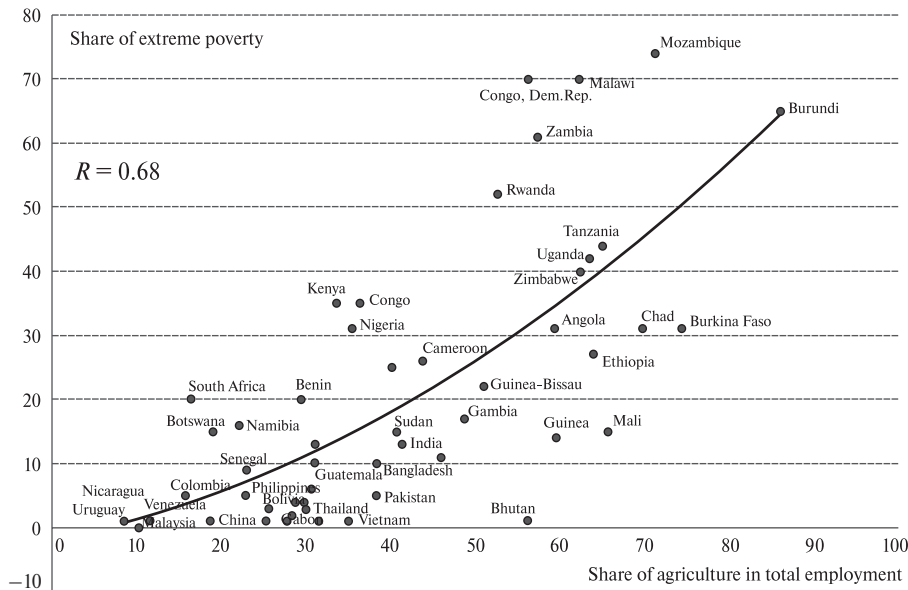
## STRUCTURAL SHIFTS IN THE ECONOMY AND POVERTY REDUCTION

There is a consensus in academic and expert communities, asserting that economic growth accompanied by deep structural shifts is one of the most important tools for alleviating poverty and improving the well-being of people in developing countries.

*Scientific and technological progress* is a key factor in raising incomes and living standards. However, new knowledge and technologies are unevenly distributed around the globe. For instance, between 1995 and 2014, the USA, Japan, Germany, France and the UK accounted for three-quarters of all patented innovations in the world. At the end of the last decade, the situation changed. China and South Korea entered the top five category in a number of sectors – either in terms of research and development or the number of international patents [15].

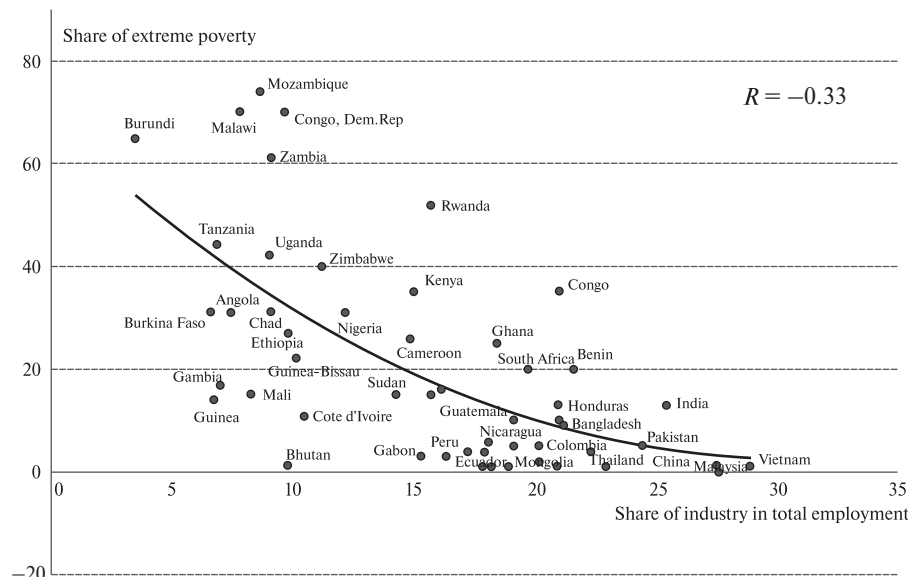
*Globalization* has integrated developing economies into international production and trade chains, facilitating the penetration of new technologies into Third World countries. This has led to the emergence of modern enterprises and the development of new industries and activities. However, poor countries do not always benefit from global technological shifts (as discussed below). Large gaps in labour efficiency between the traditional and modern parts of the economy have long been an inherent characteristic of developing societies. Structural shifts in the economy are accompanied by the reallocation of the workforce from labour-intensive agrarian sectors of the national economy to more highly productive industrial sectors. *Urbanization* plays an important role in this process, redistributing economic activity between agriculture, industrial production and service industry<sup>13</sup>.

<sup>13</sup> Note, however, that while initially urban growth leads to improvement in poverty rates, further, at higher levels of urbanization, they may slow down [16]. Rural poverty turns



**Figure 3.** Extreme poverty and share of people employed in agriculture, 2019, %

Source: [source 6].



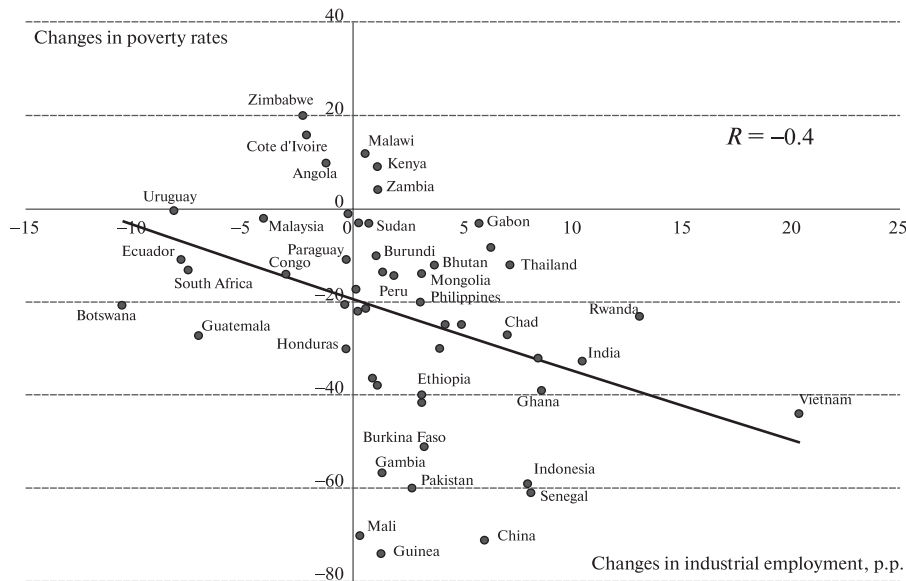
**Figure 4.** Extreme poverty and share of people employed in industry, 2019, %

Source: [source 6].

According to the *dual sector model* proposed by Nobel Prize winner William Lewis, surplus labour from the traditional agricultural sector gets transferred to a more productive industrial sector; the latter’s growth over time absorbs the surplus workforce and stimulates sustainable development [17]. This, in turn, improves into urban poverty. Some 1.1 billion people presently live in urban slums (or slum-like conditions). Experts warn that this figure is likely to grow.

human well-being and reduces poverty and destitution [18].

There exists a close positive relationship between the level of extreme poverty and the share of those employed in agriculture and a negative relationship between the former indicator and the share of people employed in industry. Figures 3 and 4 illustrate this clearly. One can see, in the bottom left corner of Figure 3 where coun-



**Figure 5.** Changes in industrial employment in 1990–2019 and extreme poverty alleviation, p.p.

The authors' calculations according to: [source 6].

tries with low levels of poverty and agricultural employment are concentrated, mostly Latin American and Asian countries and only a few African states (Botswana, Senegal and South Africa). Most of the latter are concentrated in the upper right corner and are characterised by a high share of rural labour and extremely high levels of extreme poverty.

Figure 4 shows a negative relationship between extreme poverty and the share of industrial labour: poverty is significantly lower where the share of industrial employment is higher. This is mainly characteristic of the Latin American region and Asian countries. In particular, these are Vietnam, China, India, Thailand, Bangladesh, Bhutan, Mongolia, Indonesia, Malaysia, Colombia, Bolivia and several other countries. These are the states that have significantly reduced the extreme poverty level over the past 30 years.

Figure 5 demonstrates a statistically significant inverse correlation between the changes in industrial employment in 1990–2019 and poverty reduction in developing countries over the same period. The correlation coefficient is  $-0.4$ . The countries (mostly Asian) where the share of employment in industry has increased over the last 30 years have witnessed extreme poverty decline. They are in the bottom right corner of the figure.

The mechanism of economic development through the growth of labour productivity (LP) and redistribution of labour force between industry sectors was vividly described by well-known economists Margaret Macmillan and Danny Rodrik [19].

Supposing, there are two sectors in the economy of a country, one of which has a higher LP (sector A) than the other one (sector B). The workers of the less productive sector (B) begin to move to the more productive sector (A).

As a result, the LP growth in sector A is further increased by the extended number of the employed, i. e. the more productive sector accumulates workers from the less productive sector. Thus, the economic growth of this country will be driven by both the enhanced labour efficiency in the first sector and its numerical expansion, and by the contraction of the less productive second sector. According to McMillan and Rodrik, "...labour flows from low-productivity activities to high-productivity activities are a key driver of development" [12, p. 26].

These authors decomposed labour efficiency growth into two components. The first includes LP growth within a sector or industry, and the second reflects the contribution of structural shifts to this growth, i. e., the reallocation of

**Table 1.** Decomposition of labour productivity 1990–2005, %

Region	LP growth	Growth components	
		Within	Structural shift
Latin America	1.36		–0.88
Africa	1.86	3.13	–1.27
Asia	3.88	3.31	0.57
Developed world	1.45	1.54	–0.09

Source: [19, p. 20].

the workforce from less productive to more productive industries. When both components are positive (increasing), overall economic growth accelerates to a greater extent than when these components move in different directions and cancel each other out (e. g., LP growth in a more efficient sector is accompanied by contraction of that sector). The results of this decomposition are presented in Table 1.

According to Table 1, the Asian region countries demonstrate the highest growth. Both components of this growth have a “+” sign, i. e. are tending upwards. Countries in Africa and Latin America show significantly lower growth overall. In both cases, the intra-industry growth in labour efficiency was cancelled by the negative contribution of some structural shift (as evidenced by the minus sign).

The negative sign for a structural component means that the workforce moved from a more productive sector to a less productive one. McMillan and Rodrik associate this process with premature deindustrialization [19]. What does this process represent?

Deindustrialization has become an obvious reality for the developed world for some time already. The labour shift from industrial production to the service industry is largely due to the fact that modern technologies are labour-saving and require progressively fewer workers. At the same time, rich countries can afford a variety of services that are increasingly innovative, modern and productive.

At present, the service sector dominates the economic structure of most countries. However, while this stage is organic and natural for developed economies (and Latin America), since

they have passed the stage of early industrialisation, it becomes a challenge for underdeveloped African countries and creates certain problems. Let us explain this thesis.

Poor countries in Africa are at a stage of development that involves the translocation of large flows of unskilled labour from the unproductive agricultural sector to the more productive one. As pointed out earlier (see Figure 4), this more efficient sector was, and still is, represented by industrial production which until recently used to absorb the uneducated rural population. However, modern advanced technologies requiring small numbers of qualified labour have slowed down this process.

The mechanism of labour outflow from the agrarian sector to the industrial domain was working successfully for a long time and proved to be effective in a number of Asian countries (China, Vietnam, Bangladesh). However, the situation is currently changing. For instance, the automation of jacquard weaving at one of the garment factories in Bangladesh resulted in the dismissal of 3,000 female workers who found it quite difficult to get retrained and get a new job. At the same time, it is known that the country’s recent economic success was largely due to the mass-scale shift of the agricultural workforce to the textile industry<sup>14</sup>.

Industrial development can absorb large numbers of unskilled agricultural workers only if labour-intensive technologies not requiring highly educated specialists are used. The greatest welfare-enhancing and poverty-reducing effects are achieved when the most productive sectors are expanded. It has been noted above that modern tech-

<sup>14</sup> *The New York Times*, 02.04.2024.

nologies are becoming increasingly labour-saving. For instance, 10–15 years ago, industrialisation was able to absorb large amounts of unskilled labour because this was required by production processes. Today, this is becoming problematic.

Poor African countries with a high share of unskilled agricultural labour are currently in a difficult situation. They receive modern technologies oriented towards highly skilled labour and therefore having insignificant absorptive capacity. Therefore, large segments of the population will not be able to improve their living conditions. In such a situation, we may observe increased income inequality, while the reduction of extreme poverty remains uncertain. Premature deindustrialization in Africa results in many jobs being generated in the service sector, which is often informal, unproductive, and low-paid in underdeveloped countries. The shift of agricultural labour to this sector does not contribute to a significant reduction in poverty, which is what we are currently observing [6, 20, 21, 22].

### DIGITALIZATION: REDUCING POVERTY OR INCREASING INEQUALITY?

Globalization is bringing modern technologies to the service sector in the developing world, leading to the emergence of technologically advanced, innovation-driven jobs. Optimists believe that this will increase productivity and competitiveness, stimulate economic growth, and open new avenues for the development of low-income countries<sup>15</sup>.

A less optimistic (and apparently more realistic at the moment) view of the problem is rooted in the fact that poor countries generally lack the necessary capacities to assimilate and use the latest technologies. In these circumstances, innovations, while not leading to growth, can enhance the structural/technological heterogeneity of the economy.

The authors of a paper published by the *International Labour Organization* conclude that

<sup>15</sup> This faith in technology is largely based on the “new”, or endogenous, growth theory. Its proponents view investment in human capital (primarily education) as the key to the transition to a more efficient “knowledge economy”.

digitalization to date does not make a significant contribution to the economies of poor countries and does not promote structural shifts therein. Nor has it led to the creation of a sufficient number of new, “decent” and highly efficient jobs to stimulate such shifts [23].

At first glance, the introduction of the latest technologies in Africa does not seem so bleak. According to the World Bank, mobile communications coverage on the African continent is quite high. By 2018, it had reached 73 % [11, p. 11]. The growing adoption of mobile devices has also extended access to the Internet. In the last decade, Africa has experienced one of the highest growth rates of Internet users in the world. However, in 2021, the Internet penetration rate was about 43 %, below the global average of 66 % [source 9]. Nevertheless, this has facilitated the development of digital activities such as social media, online shopping, and mobile payments<sup>16</sup>.

The development of payment services has contributed to the expansion of digital labour platforms. However, most workers employed on these platforms are involved in simple tasks, known as micro-tasks, which include data entry, image processing, and similar activities. Performing these tasks does not require specialized training and does not generate high incomes [source 10].

The lack of skills required for more complex jobs is related to the limited availability and low quality of education and professional training in information technologies, especially in advanced and specialised areas such as software development, data analysis, etc. [source 11].

There is some hope that the development of new technologies will positively impact the quality of life in poor countries, particularly with the emergence of applications in local languages that provide access to distance learning and telemedicine [source 12]. These applications can help compensate for the lack of qualified teachers and doctors. Indeed, there is an acute shortage of healthcare workers in underdeveloped countries. For example, while there are approximately 450

<sup>16</sup> For example, *M-PESA*, the largest mobile money transfer service in Africa, set up in Kenya, provides a wide range of financial transactions via smartphones.

potential patients per doctor in Brazil, that number is around 4,500 in Kenya [source 12]. Accordingly, some scholars believe that modern digital technologies can help improve the quality of life for people in poor African countries. Let us examine the opportunities and limitations of such prospects.

It is useful to consider specific examples provided by experts and researchers working in Kenya [source 12]. Local programmers have developed a mobile medical application that allows users to diagnose various diseases, many of which can be detected and treated quite early, potentially saving lives. The authors of a relevant survey suggest that new technologies can partially solve the problem of access to healthcare in remote areas. The very possibility of applying such technologies in a poor African country is undoubtedly impressive. However, it is important to remember that some regions of the continent with a particular need for remote healthcare may not be covered by the Internet. For instance, in Kenya, with 123 mobile phones per 100 people, only 28% of the population [source 13] has access to the Internet, and only about a third of the population has completed secondary education [source 6]. How can one discuss the widespread use of digital applications in such a situation?!

Table 2 presents the coefficients showing a correlation between the level of extreme poverty, the share of the population with complete secondary education and the share of the population with access to the Internet.

The level of extreme poverty is negatively correlated with both the level of education and access to the Internet. At the same time, access to the Internet and complete secondary education are positively correlated: the higher the level of education, the more likely individuals are to have access to the Internet and less likely to be at the poverty threshold. This suggests that in underdeveloped countries with high levels of extreme poverty, adopting and diffusing modern technologies will be difficult. Consequently, the use of such technologies may not lead to significant poverty reduction but rather to growing inequality between the educated population and those who lack the knowledge, skills, and abilities to use them.

**Table 2.** Correlation coefficients

	Complete secondary education	Internet access
Extreme poverty rate	−0.411	−0.691
Share of population with complete secondary education		0.671

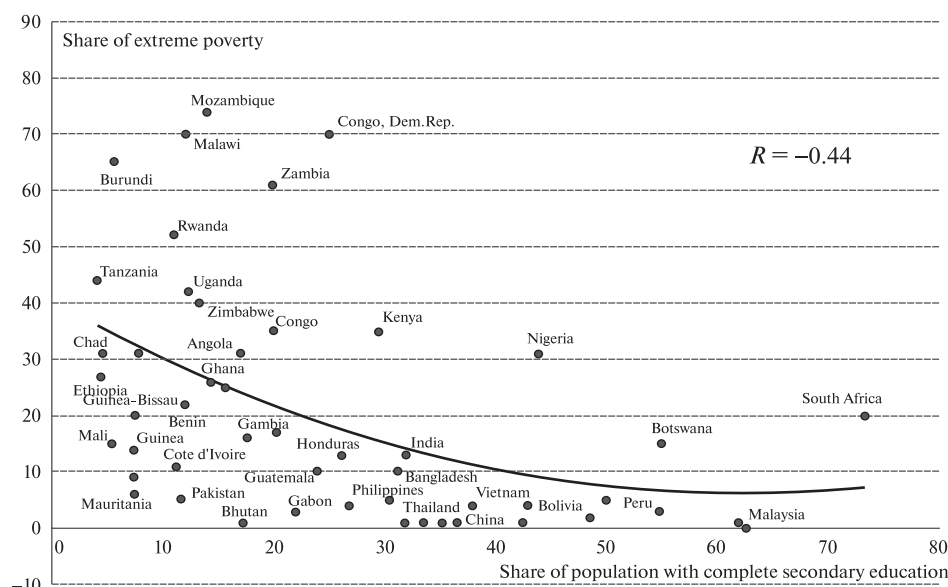
All values are statistically significant at  $p < 0.001$ .

The authors' calculations according to: [source 6].

One of the main problems in sub-Saharan Africa today is the very low level of education. Figure 6 vividly illustrates the relationship between educational attainment and the poverty level in the developing world. The bottom right corner of the figure shows a cluster of countries with high shares of people having completed secondary education and low levels of extreme poverty. These include mostly Latin American and Asian countries, as well as Botswana and South Africa. The upper left corner depicts African countries with a very low share of educated people and a high level of extreme poverty, including Mozambique, Malawi, Burundi, the Democratic Republic of Congo, and Zambia. It should be added that in some African countries, the level of basic literacy is still quite low. For instance, in Burkina Faso and Chad, only one in three citizens is literate, and in Benin, Ethiopia, Guinea – one in two [source 6].

Given this situation, the population cannot fully benefit from modern technologies. As a result, advanced innovations cannot spread widely and alleviate poverty. This applies to jobs in both industrial production and services, as well as individual users of gadgets, computers, and developers of software and mobile applications. The low share of the educated population is a serious constraint on the introduction of progressive technologies in developing countries, their economic growth, and, consequently, the improvement of people's well-being [24].

Thus, increasing the educational level in sub-Saharan Africa is currently one of the most effective factors allowing people to get out of the poverty trap, as evidenced by the studies of World Bank experts [25].



**Figure 6.** Share of population with secondary education vs. extreme poverty, 2019, %

Source: [source 6].

## CONCLUSION

Using data from the World Bank, the authors have analysed the dynamics of extreme poverty worldwide over the past 30 years, focusing on structural shifts in the economies of developing countries, particularly in Asia and Africa. These shifts have been characterized by the reallocation of the workforce from low-productivity agricultural sectors to more productive industrial sectors, historically a key factor in poverty reduction. However, with the spread of advanced, labour-saving technologies that require skilled workers, who are in extremely short supply in poor countries, this impact is diminishing. Modern high-tech activities are unable to absorb large numbers of unskilled agricultural laborers and thus fail to lift people out of poverty.

While the potential economic benefits of digital technologies are enormous, new challenges arise alongside new opportunities. The spread of mod-

ern production methods and digitalization in poor regions is hindered by extremely low levels of education and basic literacy among the population. The penetration of such methods into sub-Saharan Africa could exacerbate inequality, potentially slowing poverty reduction or even increasing destitution. Improving the educational level of the population and eradicating illiteracy are important but not the only milestones on the path to overcoming poverty. In addition to these challenges, poverty eradication is hindered by economic instability, high unemployment, inequality, corruption, food insecurity, and weak social protections, issues characteristic of many countries on the African continent. Moreover, there are serious reasons to fear further growth in poverty, driven by pandemics, ongoing conflicts, threats of military coups, climate shocks, and energy challenges. A vicious cycle is evident: poverty is both a cause and a consequence of these processes, representing a subject for further research and analysis.

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