



Optimizing the use of intangible assets in industry to overcome poverty: A cross-country analysis



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Abstract The article focuses on the description and utilization of intangible assets (IA), particularly in industry, as a means of alleviating poverty. The authors examine the experiences of European countries, as well as Ukraine and Kyrgyzstan, and evaluates existing approaches to granting access to intangible assets following international law. Given that only 40% of the global population has access to the Internet and participates in the digital economy, addressing inequality in this realm is a pressing global issue recognized by the G20. Economic inequality, defined in economic theory as the gap between the rich and the poor in terms of income, wealth, education, employment, and living standards within and across countries and regions, will be considered in this article as a disparity in economic well-being indicators. Generally, it is noteworthy that intangible assets (hereinafter referred to as the IA) are crucial, enabling enterprises to develop. They serve as primary indicators of technological progress and enterprise development, reflecting its innovative direction. Consequently, the accounting and auditing of IA play a vital role in industrial enterprises in Ukraine. However, insufficient legislative frameworks in post-Soviet countries, notably Kyrgyzstan, hinder the ability of intangible assets to contribute to poverty alleviation. The income distribution in these countries, which is closely linked to the issue of inequality, is viewed in a positivist theoretical framework from a functional perspective, specifically as the allocation of income among the principal factors of production. Changes in poverty levels in post-Soviet countries can also be attributed to investments in intangible assets that benefit households. Possessing social capital in the form of quality education, health, or land can lead to more favorable earning prospects and can function as intangible capital. One notable characteristic of industry in post-Soviet countries is its urban concentration, which can be attributed to the presence of individuals with more valuable intangible assets in urban areas.

Keywords: intangible assets, industry, poverty, cross-country analysis

1. Introduction

In the context of globalization, the human community is increasingly interconnected. There is a process underway to form a society capable of upholding the principles guided by intelligence, the primary asset of a "reasonable person," which constitutes an intangible asset. This trend is attributed to the growing influence of democratic governance and human potential both globally and within individual states. However, countries that have not fully realized democratic and liberal principles, particularly those with a post-totalitarian history, are not fully leveraging this potential.

The past two decades have seen rapid advancements in the information and communication technologies (ICT) industry, coupled with the widespread integration of ICT products (the primary intangible asset) into social and economic spheres. Consequently, IT technologies have become a key factor in labor productivity and quality of life, contributing to the widening gap between the affluent and the impoverished. The increasing significance of ICTs in the global economy necessitates a reconsideration of the role of modern information and communication technologies, often referred to as digital high-margin technologies, within the economic framework (Danylyshyn et al., 2023).

The impact of information and communication technologies also extends to economic cycles, which are characterized as periodic fluctuations in economic activity that manifest in the state of economic inequality. While much theoretical work on economic inequality concentrates on income distribution within countries, a comparative approach that analyzes changes in income distribution across countries appears to be most promising for studying the effects of technological change in countries with varying levels of income disparity, such as Ukraine and Kyrgyzstan (Azaryan, Fayvishenko, 2014).



The establishment of "assembly centers" for high-margin technological products and associated companies in concentrated geographical areas (such as Silicon Valley in Palo Alto, as well as Berlin, Singapore, and Tel Aviv), drawing on labor resources from nearly worldwide, highlights the issue of imbalance in the return on labor and capital at a global scale.

Analysis of the utilization and validation of intangible assets. Investigation and optimization of industry as a factor in poverty alleviation, drawing on the experiences of various countries.

2. Literature Review

Today, the nature of intangible assets has been examined by numerous scholars and practitioners, including Bashunskaya, Danylyshyn, Dudek, Halkiv, and their research teams. Blanchet (2017) devised a Pareto curve optimization method to assess income inequality levels in the current technological landscape, alongside modifying the national accounts system to enhance information gathering quality. Raj Chetty, an Economics Professor at Harvard University (2020), analyzed the evolving labor economy dynamics and the emergence of a transformed wealth distribution in developed nations, particularly in the United States. Ali Isse (2013) investigated income inequality in communist China, which ranks among the highest globally (Figure 1). Specifically, the wealthiest 1% in China controls approximately 33% of the country's total wealth, while the poorest 25% control only 1%. The Gini coefficient, a measure of the income distribution, for China, increased from around 0.3 in the 1980s to 0.49 in 2012, as per the report.

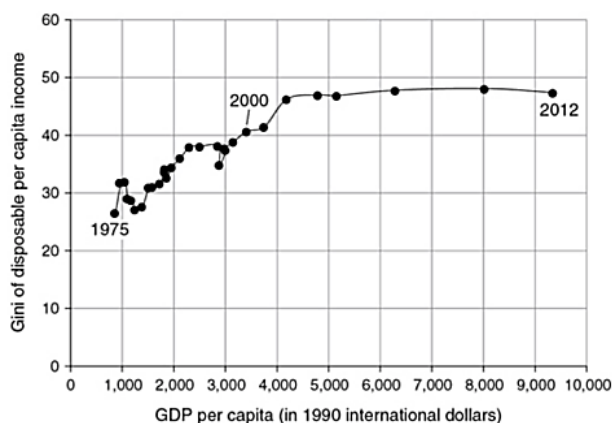


Figure 1 Income disparity in China, 1975-2012.

The intellectual property industry is experiencing a dynamic growth rate that surpasses the global economy's growth rate. For instance, the average annual growth rate of the global number of issued patents for inventions from 1990 to 2010 exceeded 4%, and according to the International Patent Cooperation Treaty, there is currently an annual growth rate of over 10% (Kwilinski, 2020, 2022; Dutchak et al., 2020).

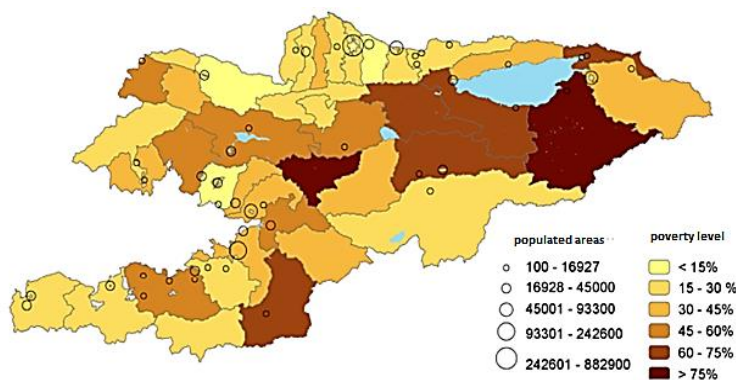


Figure 2 Poverty map and administrative map of the Kyrgyz Republic.

*Region boundaries show different districts, and circles indicate some towns and cities, which are often considered districts themselves. Smaller circles indicate individual settlements, often in rural areas.

In post-Soviet countries, the challenge of reducing poverty is particularly pertinent due to the high level of corruption (Shlapentokh, 2023). Atamanov and Sattar (2012) utilized a district-level poverty assessment model within the framework of poverty mapping to visually represent the extent of poverty on maps of the Kyrgyz Republic, using geographic files in vector format. A notable feature of this approach is its ability to visually depict spatial disparities that may be present in the data. The poorest regions are situated in the central part of the Kyrgyz Republic. The border regions of the Kyrgyz Republic exhibit lower poverty rates, likely attributable to the population's access to the economically prosperous country of China to the east and



southeast, as well as Kazakhstan to the north. The circles on the map denote population centers, with the capital city of Bishkek standing out as having a high population density along with a low poverty rate.

3. Methods and Materials

The study focuses on intangible assets, which play a pivotal role in industrial development across various countries worldwide. A retrospective analysis was conducted to examine the utilization of different strategies aimed at optimizing the use of intangible assets. The research also delves into poverty alleviation through industrial development.

Methodologies employed include historical and logical analysis and comparison, expert opinions, system analysis, and forecasting. The research materials encompass developments, ideas, and other intangible assets that hold the potential to aid in the global fight against poverty.

4. Results

The general concept of "intangible assets" is largely consistent across different countries. Drawing on the research of Gapurbaeva, Prokopenko, Shpak, and Sopronenkov, as well as legislative acts and foreign practices, the authors have formulated a comprehensive classification of intangible assets for accounting purposes in industrial enterprises. This classification aims to describe these assets thoroughly and comprehensively, elucidating their economic essence (see Table 1). It is worth noting that in leading global companies, intangible assets represent 30-40% of their total assets, while in knowledge-intensive enterprises, this proportion can reach 70-80%.

Table 1 Generalized classification of industrial intangible assets.

Classification features	Types of intangible assets
1) Terms of use	With definite terms of use With indefinite terms of use
2) The degree of identification (alienated from the enterprise)	Unidentified (Not alienated from the enterprise)
3) Legal feature	Right to exploit natural resources Rights to property in use Right to commercial activity Right to certain industrial property objects Copyright Other and intangible assets
4) Sources of financing	Own funds Fundraising State funding
5) Evaluation methods	Individual assessments Estimates in aggregate
6) Presence of liquidation value	There is a liquidation value There is no residual value
7) Degrees of depreciation	The degree is high The degree is low
8) Amortization options	Amortizable intangible assets Non-amortizable intangible assets
9) Exit route	Submission of IAs Contribution to the authorized capital of another company's IAs The way of exchanging IAs for a similar object Exchange of IAs for a similar object Transferred IAs free of charge Liquidated IAs
10) Reflected in the company's balance sheets	IA is reflected in the balance sheets IA is not reflected in the balance sheets
11) Nature of ownership	Owned IAs Leased IAs Mortgage IAs

The international standardization of information and communication technologies is viewed as a potential method to diminish both economic inequality and the digital divide. This approach to reducing inequality relies on supranational regulation of the ICT sector, which enhances the accessibility of technologies. It is noteworthy that while previous assistance to impoverished nations predominantly involved various forms of material or financial aid, there has been a shift towards directing a significant portion of the



support to educational programs, and programs aimed at fostering independent, profitable activities. Additionally, these resources are often directly allocated to communities by donors, bypassing government agencies or other intermediary organizations.

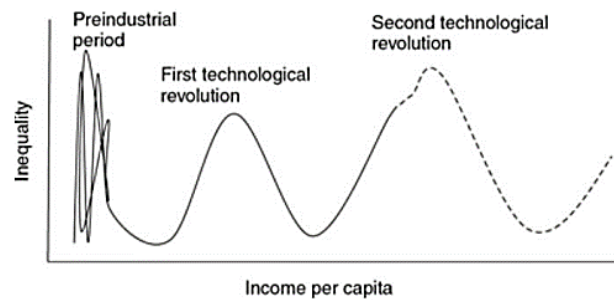


Figure 3 Expected change in inequality depending on income per capita.

Income inequality (see Figure 3) is predominantly linked to disparities within state borders, given that the nation-state constitutes the foundational element of political life within a specific territory. Consequently, the newly independent states that emerged following the dissolution of the USSR exhibited varying poverty rates, implemented diverse strategies to overcome economic crises, and experienced different impacts from international programs aimed at engaging the population in poverty alleviation efforts. Kyrgyzstan, a Commonwealth country, is among those that, upon gaining "forced" independence, pursued a policy of collaboration with international organizations, seeking to engage as many partners as possible. Consequently, nearly all UN agencies and other major international donor organizations have operated or resumed their activities in the country following the period of instability in 2010.

The Poverty Reduction Project implemented a socially responsible microcredit scheme (without collateral). The project's structure involved the establishment of a sub-regional office staffed by a UN international volunteer, typically with experience in similar projects. One of the primary responsibilities of the international volunteer was to oversee and guide the activities of the local staff. Each regional office, in turn, employed 2-3 national staff members (referred to as "volunteers," although they received compensation). These national volunteers coordinated activities directly within villages, overseeing several settlements each.

The villagers themselves used a specific methodology to assess their well-being, creating a "poverty pyramid" and compiling a "village poverty map." The criteria for defining poverty and well-being were determined by the villagers and varied significantly from one village to another. During these discussions, decisions were made regarding which families classified as poor would participate in the project. One notable aspect of this initiative was that individuals engaged in independent economic activities received funds directly for the first time. Kyrgyzpatent (The State Intellectual Property Service of Kyrgyzstan) has registered over 1,000 license agreements and agreements related to the assignment of patent rights. To achieve the primary goal of the Concept for Innovative Economic Development of the Kyrgyz Republic, several tasks must be addressed, including the development of the innovation infrastructure of the National Innovation System (NIS), the integration of science, education, and business within the NIS, the establishment of a technology and knowledge transfer system targeting both national and international markets, support for modernizing the economy and industry through public-private partnerships, and the creation of conditions to enhance regional participation in innovation activities (Blankespoor, 2013).

Examining the experience of EU countries in combating poverty through the utilization of intangible assets reveals several innovative solutions. For example, blockchain technology has the potential to bring substantial improvements to European industry, spanning from startups to large corporations, as well as the political sphere and citizens. Blockchain can facilitate the provision of more efficient services and the creation of new ones by:

- Enhancing business processes in both the public and private sectors.
- Creating opportunities for new distributed business and interaction models based on direct peer-to-peer exchange, eliminating the necessity for centralized platforms or intermediaries.

Currently, one million EU businesses are engaged in selling goods and services through online platforms. Additionally, more than 50% of small and medium-sized enterprises that sell via online marketplaces conduct international sales. Projections indicate that the turnover of European business-to-consumer (B2C) e-commerce will soon reach 602 billion euros. In 2018, a regulation prohibiting geo-blocking of domains within the EU came into effect. Previously, geo-blocking prevented individuals from using the internet in one EU member state to purchase goods and services from a website whose domain was registered in another EU state.

High-bandwidth networks like 5G are poised to become a critical intangible asset for Europe to compete in the global market. It is projected that global 5G revenues for mobile operators will reach €225 billion annually by 2025.

The European Union's objective is not solely to adapt to and adopt innovations but also to pioneer and excel in this domain. By 2025, the EU aims to construct a supercomputer that will encompass the establishment of facilities capable of analyzing billions of data points in real time and executing computations thousands of times faster than conventional

computers. The EU has proposed to enhance the scientific capacity and competitiveness of the European industry by integrating high-performance computing, big data, and cloud computing technologies.

The European Commission has formulated guidelines regarding the ethics of artificial intelligence (AI). AI is emerging as a strategically vital domain and a pivotal driver of economic progress. It has the potential to address various societal challenges, from disease treatment to reducing the environmental footprint of agriculture. Nonetheless, careful consideration of the socio-economic, legal, and ethical ramifications is essential. The European Commission advocates for a European approach to robotics and AI to ensure that these technologies are developed responsibly. This approach aims to enhance the industrial and research capabilities of EU nations.

5. Discussion

Income inequality has risen in numerous countries, and the disparity between countries has expanded over the past two centuries, reaching its peak in the 1980s before gradually declining. This decline has been propelled by rapidly growing economies that are narrowing the income gap with advanced economies. However, technological advancements are introducing new challenges to this trend. The automation of production is diminishing the comparative advantage of these countries, which have relied on low labor costs to drive their growth.

In the late 1990s, the World Bank introduced a new transition paradigm that considered both economic transformations and the evolution of public administration. This paradigm focused on processes related to poverty reduction and the engagement of local communities in governance. Until recently, and in some countries even today, international organizations have implemented technical assistance programs in this area. These programs are based on an approach that emphasizes activating the population, developing its potential, and changing its role in development processes. Digitalization has emerged as a potent impetus and strategy for combating poverty. The widespread dissemination of useful and relevant information through digital means provides opportunities for self-development and self-education, offering impoverished individuals a chance for a brighter future (Prokopenko et al., 2020).

Given that only 40% of the world's population has access to the Internet and participates in the digital economy, addressing inequality in the digital economy is a pressing global challenge that was recognized by the G20 in 2017 with a call for a more inclusive digital economy. In economic theory, economic inequality is defined as the discrepancy between the poor and the rich in terms of distribution of income, wealth, education, employment, standard of living, both within a country and between countries and geographic regions. In this regard, economic inequality in this work will be considered as the difference in indicators of economic well-being both between individual farms and between countries. What is especially relevant in the countries of the post-Soviet space, in particular in Ukraine and Kyrgyzstan, which are listed in the article (Shpak et al., 2021).

6. Conclusions

The quantitative analysis in this study indicates that income inequality linked to the ICT factor is evident at the intra-country level in developing countries. However, for developed countries, these factors do not explain the dynamics of inequality. This suggests that the ICT factor influences the structure of inequality in developing countries, a trend that is also apparent at the inter-country level. According to Western experts, intellectual property accounts for up to 35% of the capital of industrial firms in countries with advanced economies. In contrast, in post-Soviet countries such as Ukraine and Kyrgyzstan, the estimated and recorded intellectual property represents only a few percentage points of their total capital.

The current status of intellectual property assessment and accounting in Ukraine and Kyrgyzstan does not accurately reflect the actual potential of intellectual property but rather indicates the unsatisfactory state of affairs in this domain. The necessity for intellectual property valuation arises in various scenarios, including the transfer of rights through the sale of individual patents, certificates, and copyrights, as well as the granting of licenses for industrial property and know-how. Intellectual property valuation is also essential for assessing the entire scientific and technical potential of privatized enterprises and organizations, their sale, evaluating intellectual property as a contribution to the authorized capital of newly established enterprises, determining remuneration for authors and individuals contributing to their implementation, and other economic activities.

Thus, the establishment and progression of a market economy in post-Soviet countries necessitate the establishment of diverse forms and types of ownership, encompassing both tangible and intangible assets. Among these assets is intellectual property, safeguarded by relevant property rights. The establishment and evolution of the intellectual property system are closely intertwined with the formulation and advancement of the legislative framework for intellectual property rights protection.

Ethical considerations

Not applicable.

Conflict of Interest

The authors declare no conflicts of interest.

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