

Exploring the impact of an innovative economy on global development

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Keywords

Azerbaijan, Innovation economy, Global economic transformation, multi-speed development model, World-systems theory, Structural asymmetry in globalization, Science and technology policy

Abstract

This article explores the relationship between the rise of an innovative economy and the emergence of a new global development model. Tracing globalization's historical trajectory – from maritime discoveries and colonial empires to the Industrial and Neoliberal Revolutions – it highlights the current phase, marked by technological innovation and rapid economic transformation. Drawing on the "wheels without brakes" theory and the "cappuccino effect," the study illustrates how this new wave of globalization fosters a multi-speed, multi-tiered global economy composed of dynamic cores and dependent peripheries. Using world-systems analysis, the article hypothesizes that innovation economics is a driving force behind the formation of a new global development system. The research aims to define innovation economics, examine its global impact, and assess its implications for both developed and developing nations. The conclusion emphasizes the need for inclusive policy frameworks to manage the transition toward innovation-based economies, while acknowledging the potential risks of increased inequality and uneven development.

It is reported that in recent years, Azerbaijan has considered the development of its innovation economy as a strategic priority and has implemented consistent reforms and large-scale programs in this area.

Introduction

This article aims to uncover the reflections between an innovative economy and the emergence of a new type of global development. Contemporary world history can be considered as a sequence of coherent and interconnected globalization: The maritime discovery of the New World, the development of sea trade and colonial and neo-colonial empires, the Industrial Revolution and market globalization that followed, the economic Neo-Liberal Revolution and deepening of globalization after it.

Drawing on world-system analysis, the object of this study is an innovative economy and a system of global economic development that is closely linked to it. The article puts forward the hypothesis, which states: The emergence of innovation economics causes the formation of a new system of global development. In the context of the hypothesis and aim of the study the goals can be described: to explain the meaning of innovation economics and an innovative system, to demonstrate the transformation and functioning of the modern global economy and global development systems, to identify the reflections between innovative economy and the formation of a new type of global economic development, and then, in conclusion, to analyze the most important results of the study.

Theoretical Foundations of Innovative Economy

The essence and the problems of the innovative economy theory are revealed based on the method and models of the innovative economic processes. New economic theory and the transition to the priority of innovative economic laws generate new theoretical problems and lead to the formation of new areas of economic research methodology. In the economic system, there is a radical change in the dependencies and regularities. The described processes in the industrial system are considered through the example of women's clothing in the post-war period. Within the framework of the industrial system, the industrial, agrarian, construction, railway, and other branches are adjacent and interact with each other, because of which the observed plan of development of economic processes is lost.

Currently, Research and Development (R&D) plays a crucial role, especially considering the significant advances in science and technology observed in this millennium. The global economy is undergoing rapid transformation, driven by the expansion of the knowledge sector and the commercialization of emerging technologies, which is leading to an increased focus on R&D. Additionally, trends regarding social welfare highlight the importance of effective R&D activities. It is also noteworthy how intellectual property rights for inventions are increasingly recognized for their pivotal role in fostering innovation and contributing to economic growth.

However, as technology becomes more sophisticated, a finished product consists of a greater number of technologies. Consumers have demanded a greater variety of products, and information about the technology is available through various means. On the other hand, the speed and bounds of technological advancement have been accelerated, making it difficult for a firm to maintain a competitive edge in technology until the patent term expires.

There is a global economic acceleration of globalization and capitalist expansion. The global economy has networked and expanded exponentially to encompass both virtual and physical markets. There has been greater movement of goods and people across borders. Innovation and investment have moved across borders, creating flows of capital, commodities, ideas, and labor. Intellectual property spread and economics have led to increases and changes in patents, copyrights, trademarks, plant variety rights, etc. A global IP regime has been introduced, with far-reaching effects on markets. However, the poor have greatly benefited. There is a global economy reorganization and restructuring; this reorganization is from above, by big business, through their control of technology and IP rights, facilitated by the growth of services and knowledge-based processes. The new economy, globalization, and a tight global IP regime have all increased risks for the many and the poor. At the same time, there is increasing inequality of income within and between nations.

Key Concepts in Innovative Economy:

1. A substantial narrative now exists around a set of key concepts in innovation literature, including the national system of innovation (NSI), technological innovation system (TIS), regional innovation system (RIS), and local innovation system (LIS) (Chataway et al., 2009). For some, these have offered a new departure from standard neo-classical economics in setting innovation in broader systemic and dynamic contexts. However, there is an increasing sense in which these new approaches have themselves become rather conventional. They are increasingly associated with the well-resourced technological payloads of firms, research institutes, and universities in OECD economies.

2. There is now a notable, but remarkably under-analyzed, diversity in the types of innovation undertaken by different kinds of economic actors in different industry settings and value-adding positions. We refer to this ensemble of developments as being “below the radar” since the collective significance of these new currents is only poorly recognized at present, not just by policymakers, but also by many of the core innovation systems. Below the radar (BRI) innovation does take place in ways that escape the attention of traditional NSI, TIS, RIS, or LIS analysts.

Challenges and Barriers to Implementing Innovative Economy Strategies

1. There Are Different Sources and Differentiated Outcomes of Innovation. Innovation policy needs to address both these sources and acknowledge their differences. A fourth challenge is to identify the specific types of policies that are most effective in enhancing a diversity of inter-firm relationships based on different types of learning, and to leave room for experimentation with these kinds of policies. A fifth challenge is to bring the policy-making to a local level, since this is regarded as the most effective way to generate a variety of inter-firm relationships and encourage the type of innovation that is most effective in a given territory.

2. There is a profound doubt about an all-purpose innovation theory and hence an all-purpose innovation policy. In more developed economies, inter-firm relationships often reflect complementarities between different types of innovation activities and the firms involved. Local policy makers and governments needed to accept that innovation is multifaceted and that all types of innovation are not equally learnt from the same types of firms and therefore cannot be promoted by the same policy means

(Chaminade et al., 2009). Rather than designing a national innovation policy to be leveraged out even at the regional level, innovation policy at a local level should instead provide support to different kinds of experimentation with learning processes among different types of firms.

Innovative Economy and Environmental Sustainability

Environmental regulation has become more stringent over the past thirty years, driven by a growing realization of the human and economic costs associated with pollution. Such regulations are necessarily driven by the broader experience set through time, and so tend to ratchet upwards from the marginal abatement cost. Increases in environmental stringency must eventually affect the product, leading to further regulation at the sector level (A. Ashford, 2009). This enclosure demonstrates an increasingly sophisticated body of structural-demand green-output regulation literature, regarding a world that stays constant even as the economy responds to strictures on the environment. The most likely initial response to tightened environmental regulation for a given extreme environment is bottom-line reductions in pollution. A future of investment is needed, especially for under-capitalized firms, to develop pollution prevention activities. However, pollution prevention comes at the cost of operational rigidity, a non-trivial issue as the most common superior practices are best on comparative advantage. The union of environmental regulation and innovative activity is a marriage of appropriate financial benefits. Although pollution-related process innovation has not been a historical strength of the chemicals industry as measured by patenting, it has fallen behind since the '70s, and in any case, that is not where most of the gains have been made from stringently regulated industries. The other pollution-related side of industry innovation is the technology of production, which can also be influenced by more stringency, leading to more socially and environmentally sustainable technology. Global economic developments have increasingly been driven by the liberalization of trade, following the '80s aimed at an integrated global economy by 2005. These and other factors are bringing about a 'new global economy'. Included in the changes to the pattern of regional economic activities, where at one time most global corporations regarded small clusters of activities, such as a factory located in a developing labor-intensive part of the world, now the more general three different kinds of location-strategy may be observed: the 'cheap-labor' strategy, the 'high-value-added' strategy, and organizational networking. Similar and in large measure parallel changes have also taken place in technology. Just as industrial production has evolved from hydro-electric-based megawatt capacity chemical plants to solar and wind energy-based process and product technologies, so also a very expensive paradigm shift is in operation in the area of information technology. These enormous changes in regional economic activities are driven by both the restructuring and retrenchment of the older model of mass production and the nationalization of business organizations (Gibbs & Lintz, 2015). From the relevant history, it is tempting to see in this response to the potential environmental regulatory type an acceleration of these global trends, reflecting in large measure the widespread fears already prevalent in the developed economies about job security and wages, occupational health and safety, and unemployment and other social costs of dislocated change. The growth of the 'new global economy' highlights the crucial role of an international approach in which industrial, environmental, and trade policies are integrated. Acknowledging the inevitability of change, the central problem concerns the design of an alternative approach which ensures a sustainable development and industrial relative positions in the 'new global economy'. An alternative approach, the ecological modernization of industry, envisages industry actively contributing to the design for a sustainable future through technological, organizational, institutional, and social innovation. Active strategies towards the new industrial configurations are suggested that also highlight the dangers of a purely adversarial, control-oriented approach between government and industry. The management of environmentally sustainable conversion calls for a strategy dramatically different from that of the industry response to past solutions for abatement. Due to geographical permanency and local public outrage, the 21 plants that generate the 'worst' emissions must close by 2000 or soon thereafter. Efforts to meet the goal can undoubtedly strongly suggest that these pollution audits are 'ended'. Yet it is shown that these plans, too, can fail, as demonstrated by chemicals in southern Ecuador. The explanation of this unexpected resilience and longevity reveals a wide variety of mitigation strategies, grounded in the contradictory political economy and the processes regulating the implementation of industrial

environmental policy at the site or local scale. Successful management of an environmental industrial response would involve a confluence of information and initiatives generated from outside the industry, with many contributors. This, the general widening of the internal/external industrial boundary, enables a better understanding of the industrial strategies selected and also a more effective offsetting response by government and other agencies. Changes in the sectors from product to 'product services' are a fundamental shift in the production and procurement paradigm. These processes involve sometimes revolutionary changes in use, location, and/or ownership, which could well provoke new types and locations of environmental impacts, and possibly social as well as economic disturbance associated with the rapid decline of the old product-oriented industrial sectors. Preliminary findings from the case study of the switch and the service future expected are examined with a focus on the differences in industrial and recycling practices in the two types of economy. The growing importance of this kind of industrial system application in the developing world and the previously neglected role of government as a major constituent and catalyst in the process of sectoral shift provide an economic development and environmental management perspective that urgently requires more policy-relevant research.

Innovative Economy and Digital Transformation

In 2014, China first put forward the strategic positioning of "accelerating the establishment of an innovative country", effectively transforming the "buy" model into the "create" model, and achieving innovation-driven development. Among them, a scientific and technological innovation system and an incentive mechanism that is compatible with it must be established. In 2018, the 10th line of the Chinese Academy of Engineering announced that China should accelerate the promotion of the innovation-driven development strategy. It was pointed out that the annual global share of innovation expenditures in the country should account for 2.5% of the world's GDP. Currently, China's R&D investment is under 2%, but in the next ten years, China's innovation spending will take a qualitative leap. By 2025, the output value of core industries driven by a new generation of artificial intelligence should surpass 1 trillion. The exponential growth of money and output value is directly relatable to the GDP and is also the foundation of its GU technology foundation. In a sense, the eastern country's model tells the story. Similar to the "Korea Model" and the "German Switzerland Model", China has developed codes by directly pumping trillions of dollars from Western countries Crossing with the sample, the seed, and the formulation, stepping into the threshold of the "Korea Model" and successfully monopolizing the absolute advantage and the market share. In the future, this situation will make China a superpower that dominates the IT market. Nonetheless, since the federal government has imposed restrictions, under the Made in China 2025 plan, the core cannot be broken, rebuilding and smashing the rules to implement an innovative economy has become the only effective way. Other countries need to keep up with DY. (Ding et al., 2024).

With the development and popularization of digital technology, the digital economy has brought about great changes in various life fields of human beings and has had a significant impact on national development strategies, business behavior, and personal lives. The improvement of innovation level plays a pivotal role in overcoming the predicament of external technology dependence faced by SDG1, promoting renewable energy substitution for SDG7, and maintaining the supply of innovation momentum for SDG8. The digital economy has fundamentally changed the way of economic and social value creation, becoming a driving force for technological innovation. Over half of the world's top 1000 companies have made digital transformation the core of their strategy development. Digital transformation has penetrated all aspects of enterprise production, management, and development, driving production processes and enterprise strategy. The 14th Five-Year Plan regards digital transformation as strategic to promote changes in production, lifestyle, and governance. The report of the 20th CPC National Congress stated that China must accelerate digital innovation, eliminate the digital divide, and boost the digital economy's healthy growth. By 2023, the value of the core ecosystem of the digital economy is anticipated to exceed 400 billion. Large-scale investments cater to all systems within the inclusive, interconnected, and seamless system, covering evolving things to evolve from the prominence of the internet to the full integration of new infrastructure and modern IT (Yu et al., 2023). This part must be standardized. The construction of a modern economy means that the economic system

must be driven by technological innovation in resources, the environment, industrial divisions, and technical facilities.

Conclusion and Future Directions

Trade and investment can potentially generate positive benefits for both sides. Impacts can be seen as a function of the characteristics of the trade and investment flows and policies of the partners. For the global economy, whatever the specific nature of the trade and investment relations, a managed transition to an economy increasingly based on innovation is required if the problems that activity generates are not to become overwhelming. Such an adaptation will, arguably, require effort to ensure that benefits are widely spread and that approaches that might improve the likelihood of this occurring are actively undertaken. It was suggested that the current wave of reforms exacerbates existing disparities. Consequently, future moves might engender a reaction. In addition, insufficient weight was given to potential positive developments in poorer regions of the world.

What was significant about the analyses presented was that a major economic magnitude could not be explained by the established causal variable. It was not so much the rate of investment that was important but rather the productivity of investment, and that remained unexplained. Impacts of changes in policies on financial flows were potentially of great significance, especially if the economic implications of financial globalization were unpredictable and policy sensitive. However, focused work in this area has been limited. Issues of science policy became more strategic since science was concerned above all with the creation of new knowledge, presumably economically useful. Science policy was very prominent in debates about options for the post-colonial world. The link with the agenda for 'underdevelopment' was perhaps just as significant since underlying international poverty and inequality were seen as resulting in poor economic conditions. It was this confluence of concerns that gave rise to the drafting of a manifesto by a group of policy-oriented social scientists.

In recent years, Azerbaijan has adopted the development of an innovation economy as a strategic priority and implemented consistent reforms and large-scale programs in this area. These works have accelerated the country's integration into the global economic system and created conditions for the formation of a competitive and sustainable economic model.

Steps taken by Azerbaijan to transition to an innovation economy have strengthened the country's scientific-technical and economic potential. The adopted strategic documents and implemented state programs ensure a systematic approach in this area. These measures not only contribute to improving socio-economic well-being within the country but also create conditions for Azerbaijan's active participation in the global innovation environment.

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