# The Role of International Experience in the Formation of Innovative Structures of Economic Growth

<sup>1</sup> Konul Buyuker

Accepted: 06.12.2025 Published: 06.17.2025 https://doi.org/10.69760/portuni.0104026

**Abstract:** This paper investigates how international experience influences the development of innovative economic structures in both developed and developing economies. Drawing on comparative data, case studies, and international innovation indices, the study explores how exposure to foreign markets, educational systems, technologies, and cross-border collaborations drives structural economic transformation. The findings suggest that international experience plays a critical catalytic role by accelerating knowledge transfer, enhancing institutional learning, and enabling the adaptation of best practices.

Keywords: international experience, innovative structures, economic growth, investment, cross-border trade

# 1. INTRODUCTION

In the current globalized economy, innovation is increasingly recognized as a central engine of sustainable growth and competitiveness. Economies that effectively transition from resource-based or labor-intensive models to knowledge- and innovation-based systems tend to achieve higher productivity, greater value-added production, and more resilient economic structures. This transformation requires not only domestic policy reforms and investment in science and technology but also the strategic assimilation of international experience.

International experience encompasses a broad spectrum of activities, including foreign education and training, cross-border trade and investment, participation in international research collaborations, diaspora engagement, and the adoption of global best practices. Exposure to international systems often accelerates the diffusion of advanced technologies, management practices, and institutional models that are critical for fostering innovation. For example, returning scholars and entrepreneurs can introduce new ideas and practices acquired abroad, while multinational corporations may bring sophisticated technologies and innovation-oriented organizational cultures to host countries (Mammadova, & Abdullayev, 2025).

Historically, many countries that have successfully transitioned into innovation-driven economies such as South Korea, Israel, Singapore, and Estonia—have done so through deliberate engagement with global networks. They have leveraged international education, global trade integration, and diaspora knowledge to build robust national innovation systems. In these cases, international

<sup>&</sup>lt;sup>1</sup> Buyuker, K. A. Senior Lecturer, Chair of Finance and Management, Baku State University, Azerbaijan. Email: k.buyuker@mail.ru. ORCID: <u>https://orcid.org/0009-0002-2967-1871</u>

experience not only facilitated technological catch-up but also encouraged structural reforms in governance, education, and business environments conducive to innovation.

Despite growing consensus on the importance of international engagement, there remains a need for a clearer understanding of how, and under what conditions, international experience contributes to the formation of innovative economic structures. Does international exposure automatically translate into domestic innovation? What role do national institutions, absorptive capacities, and policy frameworks play in this process? How do developing countries, often limited in resources, harness global knowledge flows effectively?

This paper addresses these questions by examining the role of international experience in shaping national innovation ecosystems. Through a combination of quantitative data analysis and case studies, it explores the mechanisms by which international exposure contributes to the structural transformation of economies toward innovation-led growth. By identifying the channels and conditions through which international experience is translated into domestic innovation, the study aims to inform policymakers, researchers, and development strategists on how to optimize global engagement for economic modernization (Saxenian, 2006).

# 2. METHODS

This study adopts a mixed-methods research design that combines quantitative analysis of crossnational indicators with qualitative case studies. The goal is to identify the relationship between international experience and the formation of innovative economic structures, and to explore how this relationship manifests across diverse national contexts (Lundvall,1992). The methodology is structured around three main components: data collection, variable selection, and analytical techniques.

#### 2.1. Data Collection and Sources

To ensure a robust and comprehensive analysis, the study draws on multiple sources of secondary data:

• Quantitative data were collected from publicly available international databases, including:

o'The Global Innovation Index (GII) by WIPO, INSEAD, and Cornell University, providing composite scores and sub-indicators for innovation inputs and outputs (Cornell University, 2023).

o World Bank World Development Indicators (WDI), used for macroeconomic and education-related data.

oOECD Main Science and Technology Indicators, offering information on R&D expenditures, international co-publications, and technology balance of payments.

• UNESCO Institute for Statistics, with data on international student mobility, science and engineering graduates, and research personnel.

oWorld Economic Forum Global Competitiveness Reports, for indicators related to institutional quality, higher education, and business sophistication.

• Qualitative data were derived from academic literature, government reports, and institutional publications related to national innovation strategies and international engagement, with a focus on four case study countries: Singapore, Israel, South Korea, and Estonia.

### 2.2. Analytical Techniques

The study employs both descriptive and inferential methods to examine patterns and relationships in the data:

• Correlation and regression analysis: Multiple regression models were used to determine the strength and direction of the relationship between international experience variables and innovation outcomes. Interaction terms were tested to explore moderating effects of institutional quality and absorptive capacity.

• Cluster analysis: To classify countries into typologies based on their innovation profiles and international engagement, K-means clustering was used. This enabled a comparative analysis of countries with similar development stages but differing degrees of international exposure.

• Comparative case study methodology: The four selected countries (Singapore, Israel, South Korea, Estonia) were analyzed using a structured, focused comparison. Each case was examined in terms of:

• Historical context of innovation policy (Freeman, 1995).

• Mechanisms of international engagement (e.g., diaspora networks, FDI attraction, global academic partnerships)

o Key reforms or milestones that accelerated innovation outcomes

• Challenges and lessons learned

Data triangulation was applied by comparing statistical findings with qualitative insights to ensure internal validity and reduce bias.

# 3. RESULTS

The results of this study are presented in two main parts: (1) quantitative findings from cross-national statistical analysis, and (2) qualitative insights derived from four comparative case studies. Together, these results highlight the multiple pathways through which international experience contributes to the formation of innovation-driven economic structures.

3.1. Quantitative Findings

The quantitative analysis reveals a consistent and statistically significant relationship between indicators of international experience and measures of innovation performance across the sampled countries.

3.1.1. Correlation Analysis

Bivariate correlation analysis showed strong positive relationships between:

- Inbound international students per capita and innovation output index (r = 0.71)
- International R&D co-publications and patent applications per capita (r = 0.68)
- FDI inflows (% of GDP) and high-tech exports (% of total exports) (r = 0.65)

These correlations suggest that countries with higher levels of international engagement, particularly in education, research, and investment, tend to produce more measurable innovation outcomes.

#### 3.1.2. Regression Analysis

Multiple regression models controlling for GDP per capita, institutional quality, and tertiary education levels revealed that:

• A 1% increase in international co-authorship is associated with a 2.4% increase in national patent output (p < 0.01).

• Countries with higher foreign student ratios exhibit greater startup density, even after controlling for income level and R&D investment (p < 0.05).

• FDI inflows, particularly in technology-intensive sectors, positively affect the development of innovation infrastructure (e.g., incubators, research parks) (Abdullayev et al., 2024).

#### 3.1.3. Cluster Analysis

Cluster analysis categorized countries into three typologies:

• Type I: Innovation Hubs with High International Engagement (e.g., Switzerland, Singapore, Netherlands)

• Type II: Emerging Innovators with Growing Global Links (e.g., China, Estonia, Chile)

• Type III: Resource-Dependent or Insular Economies (e.g., Nigeria, Kazakhstan)

Type I countries not only lead in innovation output but also exhibit the highest international engagement across all measured dimensions. Type II countries are in transition, and show rapid improvement in innovation capacity when international exposure increases. Type III countries lag in both international integration and innovation performance.

#### 3.2. Case Study Insights

The comparative case studies of Singapore, Israel, South Korea, and Estonia provide concrete examples of how international experience shapes national innovation ecosystems through policy, infrastructure, and institutional development (Yin, 2018).

3.2.1. Singapore

• International universities such as INSEAD and MIT partnerships played a key role in knowledge transfer.

• Government-sponsored scholarships required students to return after foreign education, ensuring brain gain.

• FDI from global technology firms catalyzed the development of industrial clusters in biotech and electronics.

• Result: Singapore ranked among the top 10 globally in the Global Innovation Index from 2020 to 2024.

3.2.2. Israel

- The Israeli diaspora, especially in the U.S., facilitated venture capital flows and startup mentorship.
- Military R&D programs integrated with civilian technology development attracted global attention.
- High rates of international co-authorship in scientific publications reflect strong academic linkages.

• Result: Israel has one of the highest R&D spending rates globally (over 4.5% of GDP) and leads in startup density.

3.2.3. South Korea

• Reverse engineering and technology licensing from abroad (especially the U.S. and Japan) served as a foundation for domestic innovation.

• Education policies focused on sending students abroad in STEM fields, followed by national reintegration programs.

• Chaebols (large conglomerates) adopted international standards, further integrating into global value chains.

• Result: South Korea is now a global leader in semiconductors, displays, and digital infrastructure.

3.2.4. Estonia

• Estonia capitalized on its geographic and cultural proximity to Nordic countries, adopting digital governance frameworks (Farzaliyeva & Abdullayev, 2025)

• Participation in EU research and innovation programs (e.g., Horizon 2020) significantly boosted R&D capabilities.

• Initiatives like e-Residency and global digital identity systems demonstrate policy innovation inspired by international models.

• Result: Estonia is recognized as one of the most digitally advanced countries relative to its size.

3.3. Common Patterns Across Cases

The following themes emerged across the four case studies:

- Policy intentionality: All countries implemented deliberate strategies to translate international exposure into domestic innovation.
- Institutional support: Dedicated agencies and programs (e.g., Enterprise Singapore, Start-Up Nation Central) played a pivotal role in managing international partnerships.
- Cultural openness: Societal support for global engagement, bilingualism, and international collaboration underpinned long-term innovation capacity (Mammadova & Abdullayev, 2025).

These findings provide strong empirical and comparative support for the hypothesis that international experience is a key enabler of innovation-led structural economic transformation. The discussion section that follows will explore the implications of these findings for policymakers and development practitioners.

# 4. DISCUSSION

The results of this study provide compelling evidence that international experience plays a transformative role in shaping innovative structures of economic growth. Both the quantitative analyses and case study insights demonstrate that economies engaging meaningfully with global knowledge flows, talent mobility, and international collaboration are better positioned to develop dynamic, innovation-led economic systems.

4.1. Interpreting the Impact of International Experience

One of the most striking findings is the strong correlation between international engagement especially in higher education, scientific collaboration, and FDI—and various innovation outcomes. These results align with innovation systems theory, which emphasizes the importance of external knowledge sources and networked learning in economic development. The mechanisms by which international experience translates into innovation can be grouped into three primary pathways:

4.1.1. Human Capital Development and Brain Circulation

The mobility of students, researchers, and skilled workers significantly enhances the domestic innovation capacity of host and home countries. Exposure to foreign academic environments, research standards, and problem-solving methods increases the absorptive capacity of returning individuals. This is particularly evident in Singapore and South Korea, where government programs intentionally linked foreign education to national development goals. Moreover, brain circulation—rather than brain drain—has emerged as a more accurate and beneficial model in countries like Israel, where diaspora networks continue to engage with the domestic innovation ecosystem.

4.1.2. Technology and Knowledge Transfer

FDI and international R&D collaboration serve as critical channels for importing advanced technologies and practices. These forms of international experience allow countries to move beyond simple technology adoption to more complex forms of learning, adaptation, and eventually

innovation. South Korea's early strategy of acquiring and internalizing foreign technologies through licensing and joint ventures laid the groundwork for indigenous innovation (Kim, 1997). Similarly, Estonia's participation in European Union research initiatives positioned it to leapfrog traditional stages of development, particularly in digital public infrastructure.

4.1.3. Institutional and Policy Learning

Beyond individual and firm-level benefits, international exposure contributes to institutional development and policy innovation. Countries that actively benchmark against international standards—whether in education, research governance, or regulatory frameworks—are better equipped to foster innovation. Estonia and Singapore are notable in this regard, having designed national strategies that reflect lessons learned from leading global practices. This process of "selective adaptation" allows countries to build innovation ecosystems that are contextually appropriate yet globally competitive.

# 4.2. Contextual and Structural Moderators

While international experience is a key enabler, its effectiveness depends significantly on domestic contextual factors. The impact of international exposure is moderated by:

• Institutional quality: Weak governance or corruption can hinder the absorption and diffusion of global knowledge.

• Education and skills base: Without a sufficiently skilled domestic workforce, imported knowledge cannot be effectively utilized.

• Innovation infrastructure: R&D labs, incubators, and funding mechanisms are needed to translate ideas into outcomes.

• Policy coherence: Disjointed or inconsistent policies can undermine long-term innovation strategies.

These moderators help explain why some countries with similar levels of international exposure achieve vastly different innovation outcomes. For instance, while several developing countries receive substantial FDI or send students abroad, they may lack the institutional or policy environment to channel these experiences into systemic innovation.

4.3. Risks and Limitations of Relying on International Experience

Although international experience can catalyze innovation, excessive reliance on foreign sources of knowledge and investment carries risks:

• Dependence on external technologies can inhibit domestic capability development if not complemented by active learning policies.

• Talent outflow, if unmanaged, can lead to brain drain and widen development gaps.

• Policy imitation without adaptation can result in inappropriate or ineffective innovation policies, particularly if local institutional realities are ignored (Chaminade et al, 2009).

To mitigate these risks, it is essential for countries to embed international knowledge into localized innovation strategies. This requires developing feedback mechanisms, adaptive institutions, and long-term planning.

### 5. CONCLUSION

This study has examined the multifaceted role of international experience in the development of innovative structures that underpin long-term economic growth. By combining quantitative data analysis with qualitative insights from selected case studies, it demonstrates that international engagement—when effectively managed—serves as a powerful catalyst for innovation-led development.

International experience contributes to innovation ecosystems through several critical mechanisms: the transfer of knowledge and technology, the enhancement of human capital, and the stimulation of institutional learning and policy reform (Archibugi & Lundvall, 2001). The empirical findings show strong positive correlations between international indicators (such as student mobility, international R&D collaboration, and foreign direct investment) and innovation outputs (such as patenting activity, startup growth, and high-tech exports). Moreover, the case studies of Singapore, Israel, South Korea, and Estonia illustrate how strategic global engagement can be leveraged to accelerate domestic innovation capacity.

However, the study also underscores that international experience is not inherently transformative. Its impact is contingent upon the presence of absorptive capacity, institutional quality, and coherent policy frameworks. Countries that proactively design mechanisms to integrate global knowledge—such as targeted talent return programs, innovation-friendly regulatory environments, and public-private R&D partnerships—are more likely to see tangible outcomes. Conversely, those that lack these foundational elements may struggle to convert international exposure into meaningful innovation.

Looking forward, as the world becomes more interconnected, the role of international experience in shaping economic futures will only grow in importance. Emerging technologies, transnational challenges (e.g., climate change, pandemics), and evolving global labor markets will demand not only technological solutions but also collaborative and adaptive innovation models. Countries that position themselves as active participants in international knowledge networks will have a strategic advantage in building resilient, inclusive, and forward-looking economies. Though cuisine reflects traditional experience in economic growth, it can also become innovative (Javid & Sadikhova, 2025).

In conclusion, international experience is not a substitute for domestic reform—it is a complement. When coupled with visionary leadership, strong institutions, and a long-term commitment to innovation, it can serve as a cornerstone of structural transformation. Future research should continue to explore how different models of international engagement interact with local contexts, and how these interactions can be optimized to foster inclusive and sustainable economic growth.

#### REFERENCES

- Abdullayev, A. E., Asgerova, M. R., Abbasova, M. M., & Humbat, E. (2024). Global Challenges of Regional Management in The Modern World: The Main Factors Shaping the Infrastructure Base of Regional Management. International Journal, 5(11), 4639-4644.
- Archibugi, D., & Lundvall, B.-Å. (Eds.). (2001). The globalizing learning economy. Oxford University Press.
- Chaminade, C., Lundvall, B.-Å., Vang, J., & Joseph, K. J. (2009). Innovation policies for development: Towards a systemic experimentation-based approach. In Handbook of innovation systems and developing countries (pp. 181–206). Edward Elgar.
- Cornell University, INSEAD, and WIPO. (2023). Global Innovation Index 2023.
- Farzaliyeva, E., & Abdullayev, A. (2025). The Economic Power of Culture: How Arts and Heritage Drive Employment. Global Spectrum of Research and Humanities, 2(3), 80-91.
- Freeman, C. (1995). The 'National System of Innovation' in historical perspective. Cambridge Journal of Economics, 19(1), 5–24.
- Javid, B., & Sadikhova, S. (2025, May). Culturonyms in Food and Drink: How Language Reflects Cultural Identity Through Cuisine. In Publisher. agency: Proceedings of the 10th International Scientific Conference «Modern scientific technology»(May 29-30, 2025). Stockholm, Sweden, 2025. 418p (p. 346). Malmö University.
- Kim, L. (1997). Imitation to innovation: The dynamics of Korea's technological learning. Harvard Business Press.
- Lundvall, B.-Å. (1992). National systems of innovation: Towards a theory of innovation and interactive learning. Pinter Publishers.
- Mammadova, E., & Abdullayev, A. (2025). Cultural Industries and National Economic Competitiveness: A Global Perspective. Porta Universorum, 1(3), 322-344.
- Mammadova, E., & Abdullayev, A. (2025). Protection of Cultural Heritage and Its Economic Benefit. Acta Globalis Humanitatis et Linguarum, 2(3), 180-187.
- OECD. (2022). Main Science and Technology Indicators.
- Saxenian, A. (2006). The New Argonauts: Regional Advantage in a Global Economy.
- Yin, R. K. (2018). Case study research and applications: Design and methods (6th ed.). Sage Publications.