# “Does employment structure drive trade in services and financial service exports?”


| | |
|---|---|
| **AUTHORS** | Khatira Huseynova<br>Sakina Hajiyeva<br>Vugar Nazarov<br>Ziyafat Habibova<br>Rasim Guliyev<br>Konul Valiyeva<br>Rasul Teymurlu |



| | |
|---|---|
| **ARTICLE INFO** | Khatira Huseynova, Sakina Hajiyeva, Vugar Nazarov, Ziyafat Habibova, Rasim Guliyev, Konul Valiyeva and Rasul Teymurlu (2026). Does employment structure drive trade in services and financial service exports?. *Problems and Perspectives in Management*, *24*(2), 240-257. doi:10.21511/ppm.24(2).2026.17 |
| **DOI** | http://dx.doi.org/10.21511/ppm.24(2).2026.17 |
| **RELEASED ON** | Monday, 18 May 2026 |
| **RECEIVED ON** | Saturday, 18 October 2025 |
| **ACCEPTED ON** | Friday, 13 March 2026 |





| | |
|---|---|
| **JOURNAL** | "Problems and Perspectives in Management" |
| **ISSN PRINT** | 1727-7051 |
| **ISSN ONLINE** | 1810-5467 |
| **PUBLISHER** | LLC “Consulting Publishing Company “Business Perspectives” |
| **FOUNDER** | LLC “Consulting Publishing Company “Business Perspectives” |

| NUMBER OF REFERENCES | NUMBER OF FIGURES | NUMBER OF TABLES |
|---|---|---|
| 51 | 0 | 8 |

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine

www.businessperspectives.org

**Type of the article:** Research Article

**Received on:** 18th of October, 2025
**Accepted on:** 13th of March, 2026
**Published on:** 18th of May, 2026



Khatira Huseynova, Doctor of Economic Science, Professor, Head of the Department of Public Administration and Management, Faculty of Administrative Management, The Academy of Public Administration under the President of the Republic of Azerbaijan, Azerbaijan.

Sakina Hajiyeva, Ph.D. in Economics, Associate Professor, Head of the Department of Economics, Faculty of Business and Management, Azerbaijan University of Tourism and Management, Azerbaijan. (Corresponding author)

Vugar Nazarov, Ph.D. in Economics, Associate Professor, The Dean of Business and Management Faculty, Azerbaijan University of Tourism and Management, Azerbaijan.

Ziyafat Habibova, Doctor of Political Science, Professor, Department of International Relations, Faculty of Social Management, Azerbaijan University of Tourism and Management, Azerbaijan.

Rasim Guliyev, Ph.D. Student, Department of Management, Faculty of Economics and Management, Azerbaijan State Oil and Industry University (ASOIU), Azerbaijan.

Konul Valiyeva, Ph.D. Student, Department of Business Administration, Business School, Azerbaijan State University of Economics (UNEC), Azerbaijan.

Rasul Teymurlu, Ph.D. Student, Department of Economics, Faculty of Business and Management, Azerbaijan University of Tourism and Management, Azerbaijan.



**Conflict of interest statement:**
Author(s) reported no conflict of interest

**Khatira Huseynova** (Azerbaijan), **Sakina Hajiyeva** (Azerbaijan), **Vugar Nazarov** (Azerbaijan), **Ziyafat Habibova** (Azerbaijan), **Rasim Guliyev** (Azerbaijan), **Konul Valiyeva** (Azerbaijan), **Rasul Teymurlu** (Azerbaijan)

# DOES EMPLOYMENT STRUCTURE DRIVE TRADE IN SERVICES AND FINANCIAL SERVICE EXPORTS?

## Abstract

The growing dominance of services in global trade raises the question of whether employment structure and labor market participation shape countries' ability to compete in international service markets, particularly in financial and insurance services. This study examines how the service-sector employment structure and labor market participation affect trade in services, with particular attention to insurance and financial services exports, across countries at different income levels. Using an unbalanced panel of 159 countries from 2010 to 2023, the study analyzes two dimensions of service trade: total trade in services as a share of GDP and insurance and financial services as a share of service exports. The results reveal that total service exports increase with higher labor participation ($\beta = 0.0157$, $p < 0.001$), but decrease as the service employment share rises ($\beta = -0.0048$, $p < 0.05$). GDP per capita and FDI are positive drivers ($\beta = 0.217$; $\beta = 0.013$), whereas the rule of law is negatively associated ($\beta = -0.211$). In insurance and financial services, labor participation reduces specialization ($\beta = -0.0059$, $p < 0.001$), and service employment is only weakly positive ($\beta = 0.0027$, $p \approx 0.07$). Income-group results show heterogeneity: service employment is strongly negative and FDI positive in low and lower-middle income economies (x1 $\beta = -0.015/-0.019$; x5 up to $\beta = 0.039$), whereas service employment becomes positive in high-income countries ($\beta = 0.022$, $p < 0.05$); here, higher income and participation reduce the relative weight of financial services ($\beta = -0.212$; $\beta = -0.0109$).

**Keywords** service exports, finance, insurance, employment, FDI, institutional quality, panel regression

**JEL Classification** F14, F16, J21, G22

## INTRODUCTION

The global economy is undergoing a structural shift in which services increasingly dominate both output and cross-border exchange. Services account for the largest share of global GDP, and their trade has grown faster than goods trade for more than a decade (Arias et al., 2025; IMF, 2024). Employment has also shifted steadily toward services, with more than half of global employment now in service activities. The strongest increases have occurred in developing countries (ILO, 2023; ILO, 2025). This matters because it coincides with the acceleration of automation in manufacturing, where robotics and digital technologies have weakened the traditional linkage between export expansion and domestic job creation. In contrast, many services remain dependent on human interaction, tacit knowledge, and trust, implying that labor inputs may still constrain service export capacity even as digital delivery expands.

The scientific problem addressed in this study is the unresolved relationship between service-sector employment and international service competitiveness.



http://dx.doi.org/10.21511/ppm.24(2).2026.17

Azerbaijan's non-oil diversification agenda has increasingly prioritized tradable services, with tourism positioned as a key channel for expanding service exports beyond hydrocarbons. Over the last decade, national and sectoral strategies have emphasized tourism development through infrastructure upgrades, destination branding, and improvements in service quality, reflecting its growing importance within the non-oil economy. This policy focus is also visible in public spending patterns, where tourism-related programs have been integrated into broader regional development and non-oil growth frameworks. Unlike many other services, tourism is highly labor-intensive and relies heavily on direct human interaction, hospitality standards, and trust, creating a close link between employment conditions and export performance. However, an expanding share of service employment may also signal domestic absorption, particularly in urban retail and personal services, without necessarily translating into tradable activities such as tourism. This distinction is particularly relevant for Azerbaijan, where tourism revenues remain sensitive to seasonality, external shocks, and connectivity constraints, making export performance dependent on service upgrading rather than employment expansion alone.

It remains unclear whether a larger service workforce mainly reflects domestic demand or whether it builds capabilities that translate into higher service exports, particularly in knowledge-intensive segments. This ambiguity is most pronounced in the fields of finance and insurance. Despite digital delivery (online banking, algorithmic trading, and digital insurance), core functions still rely on skilled personnel for relationship management, compliance, risk assessment, and product tailoring, where judgment and credibility remain central (ILO, 2021; ILO, 2024; Arias et al., 2025). As financial and insurance services gain prominence in global service trade, identifying when labor market structures enable export specialization and when they mirror internal absorption remains a key empirical challenge for development and trade research (Cihak & Tieman, 2008; Murshudli, 2013, pp. 59-78).

This makes the employment–export link in services an urgent area of research. In contrast to manufacturing, where robotization has decoupled job creation from export expansion, the service sector still demonstrates a strong reliance on labor inputs. The IMF emphasizes that human capital, institutional quality, and regulatory frameworks continue to be the backbone of globally competitive financial centers (Cihak & Tieman, 2008). As insurance and financial services gain a growing share of global trade in services, understanding how labor market structures and service-sector employment influence export capacity is essential for designing development strategies. Unlike manufacturing, where automation has weakened the link between employment and export capacity, services, especially financial and insurance services, remain strongly dependent on human capital, institutional trust, and professional expertise. This study, therefore, treats employment structure not as an end in itself, but as a key mechanism through which countries translate domestic service capacity into international trade performance. By jointly analyzing overall trade in services and the composition of financial service exports, the paper clarifies how labor markets shape service trade across different stages of economic development.

## 1. LITERATURE REVIEW

The expansion of service exports has made labor market structures and employment composition central to discussions of international competitiveness. Service-sector jobs increasingly determine the ability of economies to translate domestic capacity into external market performance. Evidence from European economies suggests that vulnerable employment and poor public health quality affect labor productivity, thereby influencing the capacity of service-intensive industries to engage in exports (Lyeonov et al., 2025; Melnyk et al., 2024). Similar findings are reported in studies on food insecurity, where sectoral employment allocation influences macroeconomic resilience (Megbowon & Zerihun, 2025).

Institutional and financial determinants are strongly intertwined with service employment and export potential. Insurance spending in Arab economies is influenced by labor intensity and institutional settings (Abusharbeh et al., 2025). In contrast, Romanian insurance markets following

COVID-19 reveal that shocks affect both employment and export dynamics (Macovei et al., 2024). Intellectual capital is another key driver: evidence from Jordanian financial institutions indicates that skills and knowledge assets directly enhance financial sector performance, thereby sustaining international competitiveness (Mustafa et al., 2024). Likewise, fintech innovations improve financial inclusion for women in Morocco (Hbibi & Makhrout, 2025) and strengthen financial development in Nigeria (Okoi et al., 2025), illustrating how service employment adapts to technological change in ways that promote cross-border services.

At the macroeconomic level, trade, FDI, and unemployment are closely linked, with inflows of foreign capital creating shifts in service employment and export structures (Aleksandravičienė et al., 2024). Studies of Chinese FDI in the US confirm the employment reallocation effect, where services absorb much of the adjustment in external competitiveness (Baghirzade et al., 2025). Country clustering following banking crises further demonstrates that heterogeneous macroeconomic trajectories impact both labor markets and the structure of tradable services (Ashurbayli-Huseynova & Guliyeva, 2025; Murshudli & Mursalov, 2020). Research on ASEAN also highlights that Sukuk financing stimulates employment creation and export diversification (Yusuf et al., 2025), reinforcing the financing–employment–trade nexus.

Labor market participation and human resource practices remain central to the economy. Home care burdens in developing countries reduce labor participation, constraining service employment and limiting export potential (Fajardo Hoyos & Mora Rodríguez, 2024). Workplace practices, such as evaluation systems and competence management, in modern business services also shape labor efficiency and international performance (Kuzior et al., 2022, 2023). Broader analyses of employee performance, including occupational stress and knowledge hiding, confirm that human capital conditions drive export potential in services (Urbański et al., 2024). Evidence from small and medium-sized firms further reveals that competitive strategies interact with labor and skill deployment to determine performance, thereby indirectly supporting the growth of service trade (Feng et al., 2024).

Innovation and technology are critical for service exports. Industry 4.0 transformations facilitate the development of alternative finance, enabling service firms to compete globally (Bilan et al., 2019). Digital innovation hubs in Europe have been shown to strengthen SME capacity for service exports (Gavkalova et al., 2024). Meanwhile, mobile banking and digital platforms are expanding access and reshaping employment structures in financial services (Malaquias & Hwang, 2025; Polishchuk, 2023; Loguinov & Murshudli, 2019). Product innovation in Portuguese services SMEs also reveals that innovation constraints in employment and management practices reduce external competitiveness (Martinez Campos et al., 2023). AI and advanced IT systems, including predictive HR analytics, further stabilize employment and sustain firms' ability to expand internationally (Zakharchenko et al., 2025; Głód et al., 2025). Digital innovations in health service delivery additionally prove transformative, as they allow countries to bridge barriers and expand the tradability of medical and health-related services (Sidii, 2025).

Sectoral studies enrich the picture. Tourism in Central and Eastern Europe illustrates how service jobs embedded in global value chains contribute to export revenues yet also expose economies to volatility (Kersan-Škabić, 2024; Valentinas et al., 2021). Creative employment in Ukraine underlines that knowledge-intensive services offer strong export potential during recovery phases (Marshavin, 2024). The port industry exemplifies how human capital investment fosters resilience and enhances export competitiveness (Wahba et al., 2025).

Tourism provides a clear sectoral illustration of how employment structure translates into service export capacity through human capital and institutional channels. In tourism-related services, export performance depends less on the sheer size of employment and more on the quality and composition of the workforce, including language skills, professional training, customer service standards, and managerial competence in hospitality, transport, and tour operations. Improvements in labor participation and employment quality can therefore enhance the ability to deliver internationally tradable tourism services, particularly when supported by vocational training systems and pro-


http://dx.doi.org/10.21511/ppm.24(2).2026.17

ductivity gains. At the same time, institutional and regulatory frameworks play a critical role, as transparent licensing procedures, predictable regulations, and service standards improve credibility and reduce transaction costs for visitors. Foreign direct investment further complements this process by introducing international management practices, service quality benchmarks, and linkages to global tourism networks. Taken together, tourism exemplifies a non-oil service sector in which labor market structure, institutional quality, and external investment jointly determine whether service employment translates into export competitiveness rather than remaining domestically absorbed.

Broader socio-economic and policy frameworks play a complementary role. National security and socio-economic determinants affect labor structures and, by extension, service performance (Firstová & Vysochyna, 2024). Fiscal expenditures in the Baltic States suggest that government policy has an indirect influence on service employment and, consequently, export composition (Filipova et al., 2025). Support programs for internally displaced persons in Ukraine demonstrate that targeted financial measures help maintain labor productivity, thereby securing the human capital needed for service exports. Similarly, sustainable business models under turbulent conditions highlight service firms' adaptability to external shocks (Pimenowa et al., 2023).

Ethical and governance perspectives are increasingly integrated into service export discussions. Ethical AI frameworks in social services highlight the importance of governance in aligning employment with export potential (Seniutis et al., 2024). E-commerce-driven exports emphasize the regulatory and institutional requirements for service expansion (Harma et al., 2025). Holistic approaches to SDG 8 further confirm that employment growth, sustainability, and trade outcomes are inseparable (Raman et al., 2025). The development of new instruments for measuring employee interests demonstrates how socially responsible employment practices can strengthen organizational outcomes, thereby sustaining competitive service exports (Piwowar-Sulej & Cierniak-Emerych, 2024; Baghirzade, 2024).

Sector-specific and micro-level evidence reaffirms these patterns. Microfinance institutions depend on employment structures for financial sustainability (Adhikari et al., 2024). Financial distress and capital structure condition sustainable growth in service industries (Intara et al., 2025). Barriers to innovation (Martinez Campos et al., 2023; Murshudli, 2018), employee attitudes (Kuzior et al., 2022), fintech adoption (Hbibi & Makhrout, 2025), and occupational stress (Urbański et al., 2024) all converge on the same conclusion: employment quality and institutional environment jointly determine the ability of service sectors to compete internationally.

The literature consistently demonstrates that service-sector jobs are central to driving trade in services and financial services exports. However, their impact is mediated by institutional quality, financial innovation, digitalization, and socio-economic conditions. Low- and middle-income economies often rely on FDI and governance reforms to support service exports, while high-income economies depend on skilled employment, innovation, and diversification. This suggests that labor structures, far from being uniform drivers, operate differently depending on development stage and policy environment.

This paper aims to examine how service-sector employment structure and labor market participation affect trade in services, with particular attention to insurance and financial service exports, across countries at different income levels.

## 2. METHODOLOGY

The empirical analysis is based on an unbalanced panel dataset constructed from World Bank databases, covering the period from 2010 to 2023 (World Bank, n.d.). Countries were included in the sample only if they reported data for the relevant variables during this time horizon. Since the coverage of indicators varies, two distinct samples were employed: one for models with trade in services as a share of GDP (y1) as the dependent variable, and another for models with insurance and financial services as a share of service exports (y2). The corresponding lists of countries are provided in Appendix A.

The dataset integrates economic, institutional, and sectoral indicators to capture the structural drivers of service trade and its composition (Hajiyeva et al., 2026). The dependent variables are defined as trade in services as a percentage of GDP (y1) and insurance and financial services as a percentage of service exports (y2). The explanatory variables include employment in services as a percentage of total employment (x1), the employment-to-population ratio for individuals aged 15 and above (x2), GDP per capita in constant 2015 US dollars (x4), the rule of law index (x3), regulatory quality (x6), and foreign direct investment inflows as a share of GDP (x5).

All variables were sourced from the World Bank World Development Indicators and Worldwide Governance Indicators (World Bank, n.d.). Prior to estimation, the distributional properties were examined using tests for skewness, kurtosis, and normality. Transformations were applied where necessary: GDP per capita was expressed in natural logarithms, insurance and financial services exports were shifted log-transformed due to negative values, and FDI inflows were winsorized at the 1st and 99th percentiles to mitigate the influence of extreme outliers.

Panel econometric techniques were employed to estimate the within-country dynamics of service export performance. Both fixed-effects (FE) and random-effects (RE) models were estimated, with model selection guided by the Hausman specification test. To address heteroskedasticity, serial correlation, and cross-sectional dependence, robust inference was obtained using country- and time-clustered standard errors and Driscoll–Kraay standard errors. Additional estimations were conducted for country subgroups based on the World Bank's income classification to explore heterogeneity across different development levels.

# 3. RESULTS

## 3.1. Employment in services and trade in services

The dataset covers 2,241 observations drawn from a balanced panel of countries and years (Table B1, Appendix B). Average income levels amount to $13,927 in constant 2015 terms, while the median remains substantially lower at $5,573, indicating a strong asymmetry in the distribution of economic development. The long right tail, confirmed by positive skewness and high kurtosis, reflects the presence of extremely wealthy economies, whereas the bulk of observations concentrate around much lower values. Institutional indicators show values fluctuating close to zero. Estimates of the rule of law present a slightly negative median and a moderate positive skew, suggesting a predominance of weak to moderate institutional settings. Regulatory quality follows a similar pattern with values clustering around neutral positions and extending from strongly negative to strongly positive extremes. Employment in services accounts for more than half of the labor force, with median values exceeding 58%. Slight negative skewness suggests a concentration of countries with higher shares of service-related employment. Employment-to-population ratios stabilize at around 57% with a symmetric distribution, indicating moderate labor market engagement across the sample. Trade in services contributes around 25% of gross domestic product on average, yet the median remains closer to 17%, underscoring the influence of outliers such as small open economies. Extremely high skewness and kurtosis confirm the disproportionate role of a limited number of cases. Foreign direct investment inflows exhibit even greater volatility, with extreme positive and negative values leading to substantial dispersion and a highly leptokurtic distribution. The descriptive evidence highlights sharp inequalities across the sample, modest institutional capacity in many cases, dominance of service employment, and pronounced heterogeneity in external sector indicators. These distributional properties imply the necessity of transformation procedures and robust estimation strategies in subsequent empirical analysis.

Shapiro–Wilk tests indicated significant deviations from normality for all variables ($p < 0.001$), which is expected given the large sample size ($N = 2241$). Severe departures were observed for GDP per capita ($W = 0.705$), trade in services ($W = 0.517$), and FDI inflows ($W = 0.220$), consistent with the strong skewness and kurtosis reported in the descriptive statistics. Employment and governance indicators exhibited values closer to normality ($W$


http://dx.doi.org/10.21511/ppm.24(2).2026.17

> 0.95), although they remained statistically non-normal. To mitigate the impact of extreme skewness, log transformations were applied to GDP per capita and trade in services, while FDI inflows were treated with winsorization. Employment and institutional measures were retained in their original scale. Robust inference methods were subsequently employed to address remaining distributional concerns. Transformation diagnostics were conducted using the Yeo–Johnson procedure. GDP per capita and trade in services displayed λ values close to zero (–0.02 and –0.30, respectively), confirming the suitability of logarithmic transformations. Employment indicators yielded λ values close to one (1.31 and 1.15) and were therefore retained in their original scale. Governance measures produced intermediate λ estimates (0.57 and 0.65), which were preserved in their untransformed form to ensure comparability with the established World Governance Indicators. FDI inflows exhibited extreme distributional irregularities (λ ≈ 1 but norm_stat ≈ 296), which were not resolved by power transformations; therefore, volatility was addressed by winsorizing extreme values. Log transformations substantially improved the distribution of GDP per capita and trade in services, reducing skewness and heavy tails. Winsorization of FDI inflows successfully mitigated the impact of extreme outliers, bringing the distribution closer to normality, though not perfectly. Shapiro–Wilk tests remain significant ($p$ < 0.001) due to the large sample size ($N$ = 2241), but $W$ statistics demonstrate much better approximation to Gaussianity after transformation.

The panel regressions (Table 1) indicate that service exports are shaped by labor market participation, economic development, institutional quality, and investment flows. The fixed-effects specification reveals that higher employment-to-population ratios, higher GDP per capita, stronger regulatory quality, and greater foreign direct investment inflows significantly enhance service exports. In contrast, a higher share of service employment and stricter rule of law correspond to reductions. Although the random effects model produced similar results, the Hausman test decisively rejected the assumption of regressor–effect independence ($\chi^2$ = 62.56, df = 6, $p$ < 0.001), validating the fixed effects model as the more reliable estimator.

The FE specification with robust inference (Table 2) indicates that the relationship between service-sector employment and service exports is not robust once heteroskedasticity, autocorrelation, and cross-sectional dependence are accounted for, as the coefficient on employment in services becomes statistically insignificant. By contrast, the employment-to-population ratio remains strongly positive, implying that higher levels of overall labor force participation are consistently associated

**Table 1.** Panel regression results: Determinants of service exports

| Variable | FE (Within, country effects) | RE (Swamy–Arora) |
|---|---|---|
| Employment in services (% of total, x1) | –0.0048 * (0.0024) | –0.0006 (0.0022) |
| Employment-to-population ratio (x2) | 0.0157 *** (0.0023) | 0.0110 *** (0.0020) |
| GDP per capita, log (log_x4) | 0.2174 *** (0.0525) | 0.2238 *** (0.0386) |
| Rule of Law (x3) | –0.2112 *** (0.0412) | –0.1553 *** (0.0393) |
| Regulatory Quality (x6) | 0.0822 * (0.0368) | 0.1062 ** (0.0358) |
| FDI inflows, winsorized (win_x5) | 0.0134 *** (0.0026) | 0.0168 *** (0.0026) |
| Constant | – | 0.2931 (0.2839) |
| Observations (N) | 2,241 | 2,241 |
| Countries | 164 | 164 |
| Time period | 6–14 years | 6–14 years |
| $R^2$ (within) | 0.066 | – |
| $R^2$ (overall) | – | 0.071 |
| Adjusted $R^2$ | –0.010 | 0.069 |
| F-statistic / Chi² | 24.38 *** | 160.99 *** |
| Hausman $\chi^2$ (df = 6) | 62.56 *** | – |

*Note:* Dependent variable: log(Trade in services, % of GDP). Standard errors in parentheses. Signif. codes: '***' – 0.001; '**' – 0.01; '*' – 0.05; '.' – 0.1; 'no symbol' – insignificant. The FE model includes country dummies; the RE model assumes independence between regressors and country effects. Hausman test ($\chi^2$ = 62.56, p < 0.001) rejects RE, supporting FE as the preferred specification.

**Table 2.** FE estimates with robust standard errors

| Variable | Estimate | Driscoll–Kraay SE (time) | Country-clustered SE | Cross-time SE |
|---|---|---|---|---|
| Employment in services (% of total, x1) | –0.0048 | (0.0046) | (0.0063) | (0.0041) |
| Employment-to-population ratio (x2) | 0.0157*** | (0.0025) | (0.0044) | (0.0022) |
| GDP per capita, log (log_x4) | 0.2174** | (0.0689) | (0.1365) | (0.0741) |
| Rule of Law (x3) | –0.2112** | (0.0743) | (0.0689) | (0.0586) |
| Regulatory Quality (x6) | 0.0822* | (0.0324) | (0.0949) | (0.0275) |
| FDI inflows, winsorized (win_x5) | 0.0134*** | (0.0030) | (0.0038) | (0.0027) |
| Constant | – | – | – | – |
| Observations | 2,241 | | | |
| Countries | 164 | | | |
| Time period | 6–14 years | | | |
| $R^2$ (within) | 0.066 | | | |
| F-statistic | 24.38*** | | | |

*Note:* Dependent variable: log(Trade in services, % of GDP). Robust standard errors are shown in parentheses, estimated using Driscoll–Kraay (time clustering), country-clustered covariance, and cross-time covariance. Signif. codes: '***' – 0.001; '**' – 0.01; '*' – 0.05; '.' – 0.1; 'no symbol' – insignificant.

with greater intensity of service exports. Income levels, measured by the log of GDP per capita, exert a significant positive influence, reflecting that wealthier economies are more likely to expand their external service markets. Institutional indicators exhibit contrasting effects: regulatory quality has a positive impact, suggesting that stronger regulatory frameworks facilitate international service integration. In contrast, the rule-of-law variable shows a negative association, suggesting that stronger enforcement may be linked to greater reliance on domestic markets. Foreign direct investment inflows, after winsorization, display a robust positive relationship, underlining the complementary role of foreign capital in enhancing service exports. These results are stable across different clustering schemes for robust standard errors, strengthening confidence in the validity of the findings.

To capture structural heterogeneity across development levels, the analysis employs the World Bank's income classification, which categorizes economies into four groups based on gross national income per capita: low-income, lower-middle-income, upper-middle-income, and high-income. Each country-year observation in the dataset was assigned to its respective group, enabling estimation of fixed-effects regressions separately for each income category. This approach enables the testing of whether the drivers of service exports differ systematically across stages of economic development. The models were estimated using the same specification as in the baseline analysis, with the dependent variable defined as the logarithm of trade in services relative to GDP and explanatory variables including service-sector employment, labor force participation, income level, governance indicators, and foreign direct investment inflows. Robust inference was ensured by applying Driscoll–Kraay standard errors, thereby controlling for heteroskedasticity, serial correlation, and cross-sectional dependence within each group (Table 3).

For low-income countries, service-sector employment exerts a strong negative association with service exports (–0.015, $p < 0.001$), while FDI inflows play a positive and significant role (0.028, $p < 0.01$). Other determinants, including GDP per capita, institutional quality, and labor force participation, are insignificant. This suggests that in low-income economies, rising service employment primarily reflects domestic demand rather than international competitiveness, whereas external capital inflows support an export-oriented approach.

In lower-middle-income countries, service employment continues to display a negative and significant relationship with exports (–0.019, $p < 0.01$), while GDP per capita becomes positively associated (0.355, $p < 0.05$), indicating that higher development levels facilitate integration into global service markets. Regulatory quality is also significant (0.087, $p < 0.05$), and FDI inflows remain strongly positive (0.039, $p < 0.001$). The rule of law appears negative, but only marginally significant.


http://dx.doi.org/10.21511/ppm.24(2).2026.17

**Table 3.** Determinants of service trade by World Bank income group (FE with Driscoll–Kraay SE)

| Variable | Low Income | Lower-Middle Income | Upper-Middle Income | High Income |
|---|---|---|---|---|
| Employment in services (% of total, x1) | −0.0148 *** (0.0028) | −0.0191 ** (0.0058) | 0.0085 (0.0054) | 0.0224 * (0.0094) |
| Employment-to-population ratio (x2) | 0.0013 (0.0032) | 0.0012 (0.0064) | 0.0178 *** (0.0024) | 0.0181 * (0.0078) |
| GDP per capita, log (log_x4) | −0.1302 (0.1103) | 0.3549 * (0.1801) | 0.3050 ** (0.1008) | 0.0785 (0.1612) |
| Rule of Law (x3) | 0.0307 (0.1561) | −0.2731 . (0.1470) | −0.1973 * (0.0853) | −0.0995 ** (0.0360) |
| Regulatory Quality (x6) | 0.1061 (0.2273) | 0.0872 * (0.0373) | 0.0506 (0.0717) | −0.0011 (0.0652) |
| FDI inflows, winsorised (win_x5) | 0.0280 ** (0.0086) | 0.0390 *** (0.0074) | 0.0116 . (0.0068) | −0.0003 (0.0008) |
| Observations | 317 | 670 | 593 | 661 |

*Note:* Dependent variable: log(Trade in services, % of GDP). Estimates are from country fixed-effects regressions with Driscoll–Kraay standard errors (maxlag = 2) in parentheses. Signif. codes: '***' – 0.001; '**' – 0.01; '*' – 0.05; '.' – 0.1; 'no symbol' – insignificant.

For upper-middle-income countries, the employment-to-population ratio emerges as a highly significant predictor (0.018, $p < 0.001$), indicating that broader labor participation is associated with higher service exports. GDP per capita remains positive and significant (0.305, $p < 0.01$), while the rule of law displays a negative effect (–0.197, $p < 0.05$). Service employment, FDI inflows, and regulatory quality show no robust association.

In high-income countries, service employment turns positive (0.022, $p < 0.05$), as does labor participation (0.018, $p < 0.05$), indicating that mature economies translate labor inputs into international service competitiveness. However, GDP per capita and regulatory quality lose significance, while the rule of law exerts a negative effect (–0.099, $p < 0.01$). FDI inflows are not significant in this group, reflecting a greater reliance on endogenous capacities rather than foreign capital.

The results highlight a structural shift: in lower-income economies, service employment does not contribute to external competitiveness, whereas in advanced economies it supports export capacity. FDI plays a catalytic role mainly in low- and lower-middle-income countries, while institutional frameworks shape outcomes differently across development levels.

## 3.2. Insurance and financial services as a share of service exports and employment in services

The descriptive statistics provide a comprehensive overview of the variables employed in the analysis. The sample covers 2,132 country-year observations from 159 countries across up to 14 years. GDP per capita (constant 2015 US$, x4x) exhibits a mean of 13,997 with a very high standard deviation (19,134), reflecting substantial heterogeneity in development levels across countries. The distribution is strongly right-skewed (skew = 2.15, kurtosis = 4.94), with values ranging from 253 to over 110,000, indicating the presence of extreme outliers among high-income economies.

Institutional indicators reveal narrower variation. The rule of law estimate (x3) has a mean close to zero (0.01) with a standard deviation of 0.94, consistent with its standardized scale (–2.5 to +2.5). Its distribution is slightly right-skewed (0.48) with mild platykurtosis (–0.71). Regulatory quality (x6) shows similar properties (mean = 0.09, sd = 0.91, skew = 0.40).

Labor market indicators present moderate variation. Employment in services (x1) accounts for 55.9% of total employment, with a wide range from 8.6% to nearly 90%. The distribution is slightly left-skewed (–0.40), suggesting that more countries are clustered toward higher shares of service employment. The employment-to-population ratio (x2) centers around 56.8% (sd = 11.1), with a near-symmetric distribution (skew = 0.06) and limited excess kurtosis.

Insurance and financial services as a share of service exports (y2) show considerable dispersion, with a mean of 5.7% but a maximum exceeding 96%. The distribution is heavily right-skewed (4.06) with extreme leptokurtosis (22.61), indicating that while most countries record low values, a few economies are highly specialized in financial and insurance services.

Foreign direct investment inflows (x5) are highly volatile, with a mean of 5.7% of GDP but extreme values ranging from –445% to +452% of GDP, reflecting large-scale divestments or one-off capital inflows in some cases. The distribution is strongly skewed (5.87) with very high kurtosis (152.6), confirming the presence of extreme outliers.

The World Bank's income classification (x7) confirms balanced representation across groups, with a mean of 2.5 on a scale from 1 (low income) to 4 (high income). The distribution is approximately symmetric (skew = –0.12) with moderate platykurtosis (–1.47), consistent with categorical grouping rather than a continuous variable.

To address distributional distortions, variables were subjected to log transformation and winsorization where appropriate. GDP per capita was transformed using the natural logarithm, which significantly improved its distributional properties, as indicated by the Shapiro–Wilk statistic, which increased from 0.706 in the raw series to 0.978 in the log-transformed version. Insurance and financial services, expressed as a share of service exports, were adjusted using a shifted logarithm to account for negative values. While this transformation increased the Shapiro–Wilk statistic from 0.569 to 0.687, the variable remained highly skewed, reflecting the structural concentration of financial specialization in a limited number of economies. Foreign direct investment inflows exhibited extreme outliers that power transformations could not correct; consequently, the series was winsorized at the 1st and 99th percentiles. This adjustment substantially improved the distributional fit, raising the Shapiro–Wilk statistic from approximately 0.22 in the raw data to 0.941 after winsorization. Although normality was not fully achieved in any of the cases, the transformations considerably reduced skewness and kurtosis, enhancing the reliability of subsequent regression estimates.

The FE and RE panel estimates (Table 4) provide insights into the determinants of insurance and financial services as a share of service exports. The fixed-effects specification indicates that the employment-to-population ratio (x2) exerts a significant negative influence ($\beta = -0.0059$, $p < 0.001$), suggesting that higher overall labor force participation is associated with a relative decline in financial service specialization. Employment in services (x1) shows a positive but only marginally significant relationship ($\beta = 0.0027$, $p = 0.064$). In contrast, GDP per capita (log_x4), the rule of law (x3), regulatory quality (x6), and foreign direct investment inflows (x5) do not display significant effects in the within-country specification. The explanatory power of the fixed-effects model remains limited ($R^2 = 0.014$).

By contrast, the random-effects estimator attributes a positive and significant effect to both employment in services ($\beta = 0.0024$, $p < 0.05$) and the employment-to-population ratio ($\beta = -0.0022$, $p < 0.05$). Other predictors remain insignificant. The random-effects model yields higher overall explanatory power ($R^2 = 0.10$). However, the Hausman test ($\chi^2 = 23.026$, $p < 0.001$) rejects the null hypothesis of consistency, implying that the random-effects estimates are biased. Consequently, the fixed-effects specification is considered the more reliable estimator for inference.

To ensure robust inference, the FE estimates were re-estimated using heteroskedasticity- and autocorrelation-consistent covariance structures. Three approaches were applied: clustering by country, clustering by time, and the Driscoll–Kraay (DK) correction with a lag length of two (Table 5). Across all specifications, results were consistent, confirming the robustness of the main findings.

Under Driscoll–Kraay corrections, the employment-to-population ratio (x2) retained a strong and highly significant negative effect ($\beta = -0.0059$, $p < 0.001$). At the same time, employment in services (x1) remained marginally significant at the 10% level ($\beta = 0.0027$, $p = 0.069$). In contrast, GDP per capita (log_x4), institutional quality measures (rule of law and regulatory quality), and FDI inflows were not statistically significant in any specification. This robustness analysis strengthens the conclusion that labor market structures, particularly the balance between service sector employment and overall participation, play a central role in shaping the share of insurance and financial services within exports. In contrast, macroeconomic development and governance indicators exert no measurable within-country effect in the short to medium run.


http://dx.doi.org/10.21511/ppm.24(2).2026.17

**Table 4.** FE and RE regression results

| Variable | FE Estimate | FE Std. Error | FE t-value | RE Estimate | RE Std. Error | RE z-value |
|---|---|---|---|---|---|---|
| Employment in services (% of total, x1) | 0.00271 | 0.00146 | 1.85 · | 0.00236 | 0.00113 | 2.09 * |
| Employment-to-population ratio (%), x2 | –0.00592 | 0.00136 | –4.34 *** | –0.00221 | 0.00097 | –2.28 * |
| GDP per capita (log, x4) | –0.02468 | 0.03161 | –0.78 | 0.00428 | 0.01817 | 0.24 |
| Rule of Law: Estimate (x3) | 0.00641 | 0.02558 | 0.25 | 0.01551 | 0.02139 | 0.73 |
| Regulatory Quality: Estimate (x6) | 0.02144 | 0.02261 | 0.95 | 0.01136 | 0.02019 | 0.56 |
| FDI inflows (% GDP, winsorized, x5) | 0.00152 | 0.00153 | 0.99 | 0.00098 | 0.00150 | 0.66 |
| Constant | – | – | – | 3.3381 | 0.1313 | 25.42 *** |
| **Model fit** | | | | | | |
| $R^2$ (within) | 0.014 | | | | | |
| Adj. $R^2$ | –0.068 | | | 0.098 | | |
| F / $\chi^2$ statistic | F = 4.71 *** | | | $\chi^2$ = 33.62 *** | | |
| N (observations) | 2132 | | | 2132 | | |
| Countries (n) | 159 | | | 159 | | |
| Hausman Test | $\chi^2(6)$ = 23.03, p = 0.0008 → FE preferred | | | | | |

*Note:* Dependent variable: insurance and financial services (% of service exports, BoP). FE = fixed-effects (within estimator); RE = random-effects (Swamy–Arora). Signif. codes: '***' – 0.001; '**' – 0.01; '*' – 0.05; '·' – 0.1; 'no symbol' – insignificant.

To capture heterogeneity across different stages of development, the fixed-effects models were re-estimated separately for countries grouped according to the World Bank income classification. This approach enables the assessment of whether the determinants of insurance and financial services exports vary systematically across low-, lower-middle-, upper-middle-, and high-income economies. By applying Driscoll–Kraay standard errors, the analysis accounts for heteroskedasticity, serial correlation, and cross-sectional dependence within each subgroup, thereby ensuring robust inference (Table 6).

For low-income countries, most coefficients are statistically insignificant, reflecting limited structural linkages between employment, governance, and service export composition. The only significant result is a negative effect of the rule of law estimate ($\beta = -0.158$, $p < 0.01$), suggesting that improvements in governance may not immediately translate into greater financial service exports, possibly due to underdeveloped domestic financial markets.

In lower-middle-income economies, the rule of law is positively associated with financial services exports ($\beta = 0.085$, $p < 0.05$), indicating that institutional strengthening contributes to service specialization at this stage of development. Other variables, including labor market indicators, GDP per capita, and FDI inflows, remain insignificant.

Among upper-middle-income countries, the results highlight a stronger role of both labor market structure and governance. Employment in services exerts a positive and significant effect ($\beta = 0.0047$, $p < 0.05$), while the employment-to-population ratio has a negative impact ($\beta = -0.0059$, $p < 0.05$). The rule of law displays a robust negative association ($\beta = -0.071$, $p < 0.001$). These findings suggest that sectoral composition and governance

**Table 5.** Robust fixed-effects estimates with clustered and Driscoll–Kraay corrections

| Variable | Estimate | Robust SE (DK) | t-value | p-value |
|---|---|---|---|---|
| Employment in services (% of total, x1) | 0.00271 | 0.00149 | 1.82 | 0.069. |
| Employment-to-population ratio (%), x2 | –0.00592 | 0.00099 | –6.00 | <0.001*** |
| GDP per capita (log, x4) | –0.02468 | 0.04308 | –0.57 | 0.567 |
| Rule of Law: Estimate (x3) | 0.00641 | 0.01550 | 0.41 | 0.679 |
| Regulatory Quality: Estimate (x6) | 0.02144 | 0.02454 | 0.87 | 0.382 |
| FDI inflows (% GDP, winsorized, x5) | 0.00152 | 0.00186 | 0.82 | 0.413 |

*Note:* Model statistics: Estimator: Fixed effects (within); N = 2132 observations, 159 countries; $R^2$ (within) = 0.014; Robust standard errors: Driscoll–Kraay (lag = 2). Signif. codes: '***' – 0.001; '**' – 0.01; '*' – 0.05; '·' – 0.1; 'no symbol' – insignificant.

**Table 6.** FE estimates by World Bank income group (Driscoll–Kraay SEs)

| Variable | Low Income | Lower-Middle Income | Upper-Middle Income | High Income |
|---|---|---|---|---|
| Employment in services (% of total, x1) | 0.0042 (0.0071) | 0.0037 (0.0028) | 0.0047** (0.0021) | 0.0037 (0.0023) |
| Employment-to-population ratio (%), x2 | 0.0001 (0.0041) | −0.0027 (0.0018) | −0.0059* (0.0023) | −0.0109*** (0.0024) |
| GDP per capita (log, x4) | −0.0225 (0.136) | 0.0358 (0.043) | 0.0933 (0.091) | −0.2115** (0.067) |
| Rule of Law: Estimate (x3) | −0.158** (0.053) | 0.0848* (0.041) | −0.0707*** (0.020) | 0.0305 (0.024) |
| Regulatory Quality: Estimate (x6) | 0.0530 (0.127) | 0.0093 (0.031) | 0.0228 (0.017) | 0.0262 (0.036) |
| FDI inflows (% GDP, winsorized, x5) | 0.0047 (0.012) | −0.0006 (0.0022) | 0.0017 (0.0018) | 0.0010 (0.0015) |
| N (obs.) | 313 | 619 | 566 | 634 |

*Note:* Dependent variable: insurance and financial services (% of service exports, BoP). Estimates are fixed effects with Driscoll–Kraay robust standard errors (max lag = 2). Standard errors in parentheses. Signif. codes: '***' – 0.001; '**' – 0.01; '*' – 0.05; '.' – 0.1; 'no symbol' – insignificant.

dynamics jointly shape financial service exports in middle-income settings.

In high-income economies, the employment-to-population ratio is strongly negatively associated ($\beta = -0.0109$, $p < 0.001$), while GDP per capita exhibits a significant negative association ($\beta = -0.212$, $p < 0.01$). This suggests that in advanced economies, higher labor force participation and rising income levels are associated with a reduced relative reliance on financial and insurance services within total service exports, possibly reflecting broader diversification into other high-value service sectors.

The results underscore the importance of income-group-specific dynamics, where institutional quality is most crucial in middle-income settings, labor market structures are influential in upper- and high-income economies, and macroeconomic development significantly shapes the service export profiles of advanced economies.

## 4. DISCUSSION

The results confirm that the relationship between service-sector employment and service trade is neither linear nor uniform across levels of development. The positive effect of the employment-to-population ratio on total service exports contrasts with the weaker or negative role of service employment shares, suggesting that broad labor participation matters more for export capacity than sectoral concentration. This finding is consistent with earlier evidence showing that aggregate labor utilization enhances service output and external competitiveness. In contrast, excessive concentration in domestically oriented services may crowd out export-oriented activities. In this sense, the results align with prior findings for European and transition economies, which emphasize labor participation over sectoral employment density as a driver of service productivity and exports (Lyeonov et al., 2025; Melnyk et al., 2024).

At the same time, the negative association between service employment and total service exports in low- and lower-middle-income countries extends previous research by clarifying the structural origin of this association. Earlier studies argue that service-sector job growth in developing economies largely reflects domestic demand expansion rather than export specialization (Megbowon & Zerihun, 2025; Fajardo Hoyos & Mora Rodríguez, 2024). The present findings corroborate this interpretation empirically, showing that employment growth alone does not generate export capacity unless accompanied by productivity gains and institutional maturity. In contrast to some optimistic views that service expansion automatically enhances trade integration, the results demonstrate that service employment can be export-neutral or even export-reducing during early stages of development.

The positive role of GDP per capita and FDI inflows in explaining service exports is broadly in line with the literature that links income growth and foreign capital to service upgrading and internationalization. Previous studies highlight that FDI facilitates technology transfer, managerial skills, and integration into global value chains, which are particularly important for tradable services (Aleksandravičienė et al., 2024; Baghirzade et al., 2025). The present analysis confirms these


http://dx.doi.org/10.21511/ppm.24(2).2026.17

channels empirically but also shows that their effectiveness varies across income groups. Unlike studies that treat institutional quality as uniformly beneficial, the negative coefficient for the rule of law in some specifications suggests that formal legal enforcement may increase compliance costs and reduce flexibility for export-oriented service firms in developing economies, a finding that echoes concerns raised in recent institutional and regulatory studies (Filipova et al., 2025; Ashurbayli-Huseynova & Guliyeva, 2025).

The income-group analysis provides further insight into how the employment–export nexus evolves with development. The transition from a negative relationship between service employment and exports in low-income economies to a positive one in high-income economies supports the structural transformation hypothesis identified in earlier research (Bilan et al., 2019; Gavkalova et al., 2024). Unlike previous studies that infer this transition indirectly, the present results demonstrate it explicitly through income-stratified estimations. This finding is consistent with Industry 4.0 and digitalization research, which shows that technological intensity increases the tradability of services and allows employment growth to translate into export competitiveness only at advanced stages of development (Malaquias & Hwang, 2025; Polishchuk, 2023).

For insurance and financial services, the negative effect of overall labor participation contrasts with the positive role of specialized service employment in higher-income settings. Earlier studies emphasize that financial export specialization depends on human capital depth and capital efficiency rather than on employment scale (Intara et al., 2025; Mustafa et al., 2024). The present findings confirm this argument and add nuance by showing that broad labor participation may dilute specialization by expanding non-tradable services. In high-income economies, the negative impact of GDP per capita and labor participation reflects diversification into ICT, logistics, and creative services, a pattern consistent with recent evidence on structural shifts in advanced service economies (Raman et al., 2025; Kersan-Škabić, 2024).

Finally, the heterogeneous impact of institutions across income groups supports the view that governance reforms are stage-dependent. While institutional strengthening enhances financial specialization in middle-income economies, it has limited or negative effects in low-income settings where market infrastructure remains weak. This finding aligns with recent work arguing that institutions become effective only once complementary capabilities (human capital, innovation, and regulatory capacity) are in place (Hbibi & Makhrout, 2025). This highlights that employment structure influences service exports not directly, but through its interaction with productivity, institutions, and technological readiness, thereby refining and extending existing theoretical and empirical insights.

Despite the robustness of the econometric approach, several limitations should be acknowledged. First, the analysis relies exclusively on World Bank indicators, which, although comprehensive, are subject to measurement errors and coverage gaps, resulting in differences in the number of observations across dependent variables. Second, the unbalanced nature of the panel and the reliance on data availability between 2010 and 2023 may introduce selection bias, as countries with weaker statistical capacity or incomplete reporting are underrepresented. Third, although transformations and winsorization were applied to address skewness and extreme outliers, residual non-normality and heterogeneity across countries may still affect coefficient precision. Finally, the models focus on structural and institutional drivers. However, they cannot fully capture country-specific policies, geopolitical shocks, or informal sector dynamics that also shape the structure of service exports.

## CONCLUSION

This study aimed to investigate whether service-sector employment structure and labor market participation affect trade in services, with particular attention to insurance and financial service exports, across countries at different income levels.

The analysis uses an unbalanced panel of 159 countries (2010–2023) based on World Bank indicators for service trade, employment, development, institutions, and FDI. Fixed- and random-effects models were estimated, with the Hausman test guiding selection. Robust inference relies on clustered and Driscoll–Kraay standard errors, and additional estimations by World Bank income group capture heterogeneity across development levels.

The findings demonstrate that the employment-to-population ratio is a strong negative predictor of insurance and financial service exports (FE $\beta = -0.0059$, $p < 0.001$). At the same time, service-sector employment is only marginally positive ($\beta = 0.0027$, $p \approx 0.07$). GDP per capita, governance, and FDI show no consistent within-country effects. By income group, the rule of law is negative in low-income countries ($\beta = -0.158$, $p < 0.01$) but positive in lower-middle-income economies ($\beta = 0.085$, $p < 0.05$); in upper-middle-income countries, service employment is positive ($\beta = 0.0047$, $p < 0.05$) and rule of law remains negative ($\beta = -0.071$, $p < 0.001$). In high-income countries, both labor participation ($\beta = -0.0109$, $p < 0.001$) and GDP per capita ($\beta = -0.212$, $p < 0.01$) exhibit negative correlations, consistent with diversification away from financial services in exports.

These results provide several broad policy implications. In low-income economies, strengthening governance frameworks alone is insufficient to foster financial service exports, as underdeveloped markets constrain the translation of institutional improvements into export capacity. Here, priority should be placed on developing domestic financial infrastructure and human capital before expecting export specialization. In lower-middle-income countries, institutional quality emerges as a key driver, underscoring the importance of legal certainty, property rights protection, and effective contract enforcement in attracting international clients and investment in financial services. For upper-middle-income economies, a balanced labor market structure is critical: policies that expand skilled service employment, combined with measures that ensure regulatory predictability, can enhance competitiveness in financial services. In high-income countries, the negative effects of higher income levels and broad labor force participation suggest that financial services are increasingly competing with diversified service sectors, such as ICT, professional services, and creative industries. Policymakers in these economies should therefore focus on maintaining global competitiveness by fostering innovation, digital transformation, and niche specialization within financial services rather than relying on scale expansion. The evidence demonstrates that the relationship between service employment, institutions, and service exports is highly dependent on the stage of economic development. Policy frameworks should therefore be differentiated: capacity-building and infrastructure development in low-income economies, institutional strengthening in lower-middle-income economies, labor market optimization in upper-middle-income economies, and innovation-driven competitiveness strategies in high-income countries.

## AUTHOR CONTRIBUTIONS

Conceptualization: Khatira Huseynova, Sakina Hajiyeva, Vugar Nazarov, Ziyafat Habibova, Rasim Guliyev, Konul Valiyeva, Rasul Teymurlu.
Data curation: Vugar Nazarov, Rasim Guliyev, Konul Valiyeva, Rasul Teymurlu.
Formal analysis: Khatira Huseynova, Sakina Hajiyeva, Vugar Nazarov, Ziyafat Habibova, Rasul Teymurlu.
Funding acquisition: Khatira Huseynova, Sakina Hajiyeva, Ziyafat Habibova.
Investigation: Khatira Huseynova, Sakina Hajiyeva, Ziyafat Habibova, Rasim Guliyev, Konul Valiyeva.
Methodology: Khatira Huseynova, Sakina Hajiyeva, Vugar Nazarov, Ziyafat Habibova.
Project administration: Khatira Huseynova, Ziyafat Habibova, Vugar Nazarov, Konul Valiyeva.
Resources: Rasim Guliyev, Konul Valiyeva, Rasul Teymurlu.
Software: Ziyafat Habibova, Rasim Guliyev, Konul Valiyeva, Rasul Teymurlu.
Supervision: Khatira Huseynova, Sakina Hajiyeva, Vugar Nazarov.


http://dx.doi.org/10.21511/ppm.24(2).2026.17

Validation: Khatira Huseynova, Sakina Hajiyeva, Rasim Guliyev, Konul Valiyeva, Rasul Teymurlu.
Visualization: Ziyafat Habibova, Rasim Guliyev, Konul Valiyeva, Rasul Teymurlu.
Writing – original draft: Khatira Huseynova, Sakina Hajiyeva, Vugar Nazarov, Ziyafat Habibova, Rasim Guliyev, Konul Valiyeva, Rasul Teymurlu.
Writing – review & editing: Khatira Huseynova, Sakina Hajiyeva, Vugar Nazarov, Ziyafat Habibova, Rasim Guliyev, Konul Valiyeva, Rasul Teymurlu.

## REFERENCES


1. Abusharbeh, M., Atari, S., & Atallah, A. (2025). The determinants of non-life insurance spending: Evidence from Arab economies. *Insurance Markets and Companies, 16*(1), 54-63. https://doi.org/10.21511/ins.16(1).2025.05
2. Adhikari, G., Sapkota, A., & Parajuli, D. (2024). Determinants of financial sustainability in microfinance institutions: A panel data study. *Financial Markets, Institutions and Risks, 8*(4), 78-95. https://doi.org/10.61093/fmir.8(4).78-95.2024
3. Aleksandravičienė, A., Butkus, M., & Kadisa, T. (2024). Assessing the effect of trade and FDI on growth-unemployment nexus. *Equilibrium. Quarterly Journal of Economics and Economic Policy, 19*(1), 59-91. https://doi.org/10.24136/eq.3006
4. Arias, O., Fukuzawa, D., Le, D. T., & Mattoo, A. (2025). *Future jobs: Robots, artificial intelligence, and digital platforms in East Asia and Pacific. East Asia and Pacific development studies.* Washington, DC: World Bank. https://doi.org/10.1596/978-1-4648-2199-8
5. Ashurbayli-Huseynova, N., & Guliyeva, N. (2025). Identifying common patterns via country clustering based on key macroeconomic indicators after banking crises. *Banks and Bank Systems, 20*(2), 62-82. https://doi.org/10.21511/bbs.20(2).2025.06
6. Baghirzade, M. (2024). The dualism of green economy and digital economy. In E. Eyvazov (Ed.), *Trends of the Modern Era: "Green Economy and Sustainable Development"* (pp. 32-38). UNEC. https://doi.org/10.2139/ssrn.5096858
7. Baghirzade, M., Djakons, D., & Bilokon, D. (2025). The impact of Chinese foreign direct investment on US industry. *Financial Markets, Institutions and Risks, 9*(2), 1-34. https://doi.org/10.61093/fmir.9(2).1-34.2025
8. Bilan, Y., Rubanov, P., Vasylieva, T., & Lyeonov, S. (2019). The influence of Industry 4.0 on financial services: Determinants of alternative finance development. *Polish Journal of Management Studies, 19*(1), 70-93. https://doi.org/10.17512/pjms.2019.19.1.06
9. Cihak, M., & Tieman, A. F. (2008). *Quality of financial sector regulation and supervision around the world* (IMF Working Paper 08/190). International Monetary Fund. Retrieved from https://www.imf.org/en/publications/wp/issues/2016/12/31/quality-of-financial-sector-regulation-and-supervision-around-the-world-22129
10. Fajardo Hoyos, C. L., & Mora Rodríguez, J. J. (2024). Effect of home care activities on labor participation in a developing country. *Economics & Sociology, 17*(1), 103-116. https://doi.org/10.14254/2071-789X.2024/17-1/7
11. Feng, Q., Kot, S., Chaveesuk, S., & Chaiyasoonthorn, W. (2024). The impact of competitive strategy on enterprise performance: An empirical study of small and medium-sized manufacturing enterprises. *Journal of International Studies, 17*(3), 9-37. https://doi.org/10.14254/2071-8330.2024/17-3/1
12. Filipova, M., Djakona, A., & Haram, V. (2025). Determinants of government expenditures in the Baltic States. *Financial Markets, Institutions and Risks, 9*(2), 66-89. https://doi.org/10.61093/fmir.9(2).66-89.2025
13. Firstová, J., & Vysochyna, A. (2024). Optimisation of socio-economic, environmental and public health determinants of national security for post-pandemic recovery. *Health Economics and Management Review, 5*(1), 67-79. https://doi.org/10.61093/hem.2024.1-05
14. Gavkalova, N., Gładysz, B., Quadrini, W., Sassanelli, C., Asplund, F., Ramli, M. R., Detzner, P., Deville, J., Dragic, M., Van Erp, T., Georgescu, A., Price, L., Robertsone, G., & Terzi, S. (2024). Digital innovation hubs and portfolio of their services across European economies. *Oeconomia Copernicana, 15*(1), 59-94. https://doi.org/10.24136/oc.2757
15. Głód, G., Głód, W., Wolniak, R., & Jonek-Kowalska, I. (2025). The quality of IT systems and the competencies and training of employees in the process of implementing a new cost accounting standard in the hospital. *Administratie si Management Public, 44,* 94-113. Retrieved from https://ideas.repec.org/a/rom/rampas/v2025y2025i44p94-113.html
16. Hajiyeva, S., Huseynova, K., Habibova, Z., Valiyeva, K., Teymurlu, R., Nazarov, V., & Guliyev, R. (2026, January 7). *Employment structure and trade in services: Financial and insurance service exports* [Data set]. Zenodo. https://doi.org/10.5281/zenodo.18174615
17. Harma, W., Telli, S., & Maatallah, M. (2025). Socio-economic challenges of e-commerce-driven exports: Regulatory framework, components, institutional capacities, and approaches. *SocioEconomic Challenges, 9*(3), 97-119. https://doi.org/10.61093/sec.9(3).97-119.2025

18. Hbibi, A.A., & Makhrout, S. (2025). Fintech and financial inclusion of Moroccan women working in the informal sector: An empirical analysis based on the Technology Acceptance Theory. *Investment Management and Financial Innovations, 22*(3), 439-454. https://doi.org/10.21511/imfi.22(3).2025.33

19. Intara, P., Jirathumrong, P., & Rattanapan, N. (2025). Revisiting the role of capital structure and financial distress in shaping sustainable growth and firm value: Insights from Thailand's listed service industry. *Investment Management and Financial Innovations, 22*(3), 152-162. https://doi.org/10.21511/imfi.22(3).2025.12

20. International Labour Organization (ILO). (2021). *Digitalization and the future of work in the financial services sector.* Geneva: International Labour Office, Sectoral Policies Department.

21. International Labour Organization (ILO). (2023). *World employment and social outlook: Trends 2023*. Geneva: International Labour Office. https://doi.org/10.54394/SNCP1637

22. International Labour Organization (ILO). (2024). *Harnessing the potential of digital technologies to achieve decent work in the financial sector: Policies and practices on the impact of digitalization in the sector.* Geneva: International Labour Office. Retrieved from https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40ed_dialogue/%40sector/documents/publication/wcms_921163.pdf

23. International Labour Organization (ILO). (2025). *World employment and social outlook: May 2025 update*. Retrieved from https://www.ilo.org/sites/default/files/2025-05/WESOUpdate_May2025_1.pdf

24. International Monetary Fund (IMF). (2024). *Services Trade Expands at a Faster Pace Than Goods Trade*. Retrieved from https://data.imf.org/en/news/november%2013-26%20-

25. Kersan-Škabić, I. (2024). Tourism in global value chains – The case of Central and East European countries. *Journal of International Studies, 17*(4), 109-125. https://doi.org/10.14254/2071-8330.2024/17-4/7

26. Kuzior, A., Ober, J., & Karwot, J. (2022). Employee attitudes towards employee evaluation systems in the utility sector: A case study of Sewage and Water Supply Ltd., Rybnik, Poland. *Sustainability, 14*(19), Article 12436. https://doi.org/10.3390/su141912436

27. Kuzior, A., Sobotka, B., Postrzednik-Lotko, K. A., & Smołka-Franke, B. (2023). Managing competences of Generation Y and Z in the opinion of the employees in the modern business services sector in Poland in the post-pandemic period. *Sustainability, 15*(20), Article 14925. https://doi.org/10.3390/su152014925

28. Loguinov, B. B., & Murshudli, F. F. (2019). Digitalization challenges to global banking industry. In *37th International Scientific Conference on Economic and Social Development – "Socio Economic Problems of Sustainable Development"* (pp. 786-794). Baku.

29. Lyeonov, S., Sheliemina, N., Szpakowska, Z., & Bács, Z. (2025). How vulnerable employment and public health quality shape labour productivity: A comparative study of European economies. *Journal of International Studies, 18*(1), 232-253. https://doi.org/10.14254/2071-8330.2025/18-1/14

30. Macovei, A.-G., Popelo, O., Zhavoronok, A., Dankiewicz, R., Gabriela Cosmulese, C., & Popova, L. (2024). Pre- and post-effect of COVID-19 on the insurance industry: A study based on Romanian companies. *Insurance Markets and Companies, 15*(2), 74-84. https://doi.org/10.21511/ins.15(2).2024.07

31. Malaquias, R. F., & Hwang, Y. (2025). Mobile devices and mobile internet data services: Implications for mobile banking. *Human Technology, 21*(1), 161-175. https://doi.org/10.14254/1795-6889.2025.21-1.8

32. Marshavin, O. (2024). Creative employment as a modern resource of socio-economic recovery of Ukraine. *Social and Labour Relations: Theory and Practice, 13*(2), 11-19. https://doi.org/10.21511/slrtp.13(2).2023.02

33. Martinez Campos, M., Aguilar Madeira, M. J., & Cagica Carvalho, L. (2023). Barriers to product innovation: An empirical study in Portuguese services SME. *Economics & Sociology, 16*(4), 230-243. https://doi.org/10.14254/2071-789X.2023/16-4/11

34. Megbowon, E. T., & Zerihun, M. F. (2025). Modeling the impact of sectoral employment structure on food insecurity: Insight for addressing hunger as a socioeconomic challenge. *SocioEconomic Challenges, 9*(3), 64-76. https://doi.org/10.61093/sec.9(3).64-76.2025

35. Melnyk, M., Blyznyukov, A., Kolomiiets, S., & Dinits, R. (2024). Socio-economic determinants of public healthcare. *Health Economics and Management Review, 5*(1), 32-47. https://doi.org/10.61093/hem.2024.1-03

36. Murshudli, F. F. (2013). *Banking services of foreign economic activities of Azerbaijan in the conditions of financial globalization*. Baku: "East-West" Publishing House. Retrieved from https://www.elibrary.az/CGI/irbis64r_plus/cgiirbis_64_ft.exe?S21COLORTERMS=0&LNG=&Z21ID=GUEST&I21DBN=IBIS_FULLTEXT&P21DBN=IBIS&S21STN=1&S21REF=10&S21FMT=briefHTML_ft&S21CNR=5&C21COM=S&S21ALL=%3C.%3EI=65%2E268%285%D0%90%D0%B7%D0%B5%29%2F%D0%9C%2091%2D656-875%3C.%3E&USES21ALL=1

37. Murshudli, F. F. (2018). Innovative trends of international banking business (Case of Azerbaijan). *MGIMO Review of International Relations, 1*(58), 186-212. https://doi.org/10.24833/2071-8160-2018-1-58-186-212

38. Murshudli, F. F., & Mursalov, M. M. (2020). Anti-crisis regulation of the banking business: The case of Azerbaijan. In *Anti-Crisis management: state, region, enterprise. Collective monograph* (pp. 220-241). Riga, Latvia: Publishing



http://dx.doi.org/10.21511/ppm.24(2).2026.17

House "Baltija Publishing". https://doi.org/10.30525/978-9934-26-020-9-15

39. Mustafa, D. I., Alzebdieh, R. M., Abdullatif, M., & Al Majali, S. A. (2024). Intellectual capital and firm performance of Jordanian financial institutions. *Banks and Bank Systems, 19*(3), 9-22. https://doi.org/10.21511/bbs.19(3).2024.02

40. Okoi, I., Otosi, F., Emori, E., Asukwo, J., Obo, E., Eba, A., & John, J. (2025). The dynamic effect of financial technology on financial development in Nigeria. *Investment Management and Financial Innovations, 22*(3), 426-438. https://doi.org/10.21511/imfi.22(3).2025.32

41. Pimenowa, O., Pimenov, S., Fyliuk, H., Sitnicki, M. W., Kolosha, V., & Kurinskyi, D. (2023). Sustainable business model of modern enterprises in conditions of uncertainty and turbulence. *Sustainability, 15*(3), Article 2654. https://doi.org/10.3390/su15032654

42. Piwowar-Sulej, K., & Cierniak-Emerych, A. (2024). How to measure employees' interests so as to be a more socially-responsible employer: A proposal of a new scale and its validation. *Oeconomia Copernicana, 15*(1), 267-306. https://doi.org/10.24136/oc.2571

43. Polishchuk, Y. (2023). FinTech future trends. In J. Lubacha, B. Mäihäniemi, & R. Wisła (Eds.), *The European digital economy: Drivers of digital transition and economic recovery* (1st ed., pp. 204-220). Routledge. https://doi.org/10.4324/9781003450160-15

44. Raman, R., Gunasekar, S., Ray, S., Behera, D., Nedungadi, P., & Dénes, D. L. (2025). A holistic approach to Sustainable Development Goal 8: Integrating economic growth, employment, and sustainability. *Equilibrium. Quarterly Journal of Economics and Economic Policy, 20*(1), 147-202. https://doi.org/10.24136/eq.3342

45. Seniutis, M., Gružauskas, V., Lileikiene, A., & Navickas, V. (2024). Conceptual framework for ethical artificial intelligence development in social services sector. *Human Technology, 20*(1), 6-24. https://doi.org/10.14254/1795-6889.2024.20-1.1

46. Sidii, F. S. (2025). Transforming health service delivery through digital innovation: Overcoming socio-ecological barriers and bridging the digital divide. *Health Economics and Management Review, 6*(2), 60-75. https://doi.org/10.61093/hem.2025.2-05

47. Urbański, M., Haque, A. U., Kaur, H., Yamoah, F. A., & Kot, M. (2024). Gender dynamics in knowledge hiding and occupational stress on employee performance. *Economics and Sociology, 17*(4), 29-42. https://doi.org/10.14254/2071-789X.2024/17-4/2

48. Valentinas, N., Petrokė, I., Bačiulienė, V., & Vasylieva, T. (2021). The impact of the sharing economy as an ecosystem on the tourism sector. *Journal of Tourism and Services, 12*(22), 66-88. https://doi.org/10.29036/jots.v12i22.241

49. Wahba, M., El Haddad, E., Ragheb, M., & Assem, A. (2025). Resilience of the port industry to socioeconomic challenges: The role of human capital. *SocioEconomic Challenges, 9*(2), 316-339. https://doi.org/10.61093/sec.9(2).316-339.2025

50. World Bank. (n.d.). *World Bank Open Data*. World Bank Open Data. Retrieved from https://data.worldbank.org/indicator

51. Zakharchenko, A., Kushnerov, O., Kubaščikova, Z., & Babenko, K. (2025). An intelligent system for predicting staff turnover in HR processes based on neural networks. *Knowledge Economy and Lifelong Learning, 1*(1), 35-47. https://doi.org/10.61093/kell.1(1).35-47.2025

# APPENDIX A. COUNTRIES IN THE SAMPLE

The empirical analysis relies on two distinct country samples depending on the dependent variable.

## **List 1.** Countries included in the analysis of trade in services (% of GDP, y1)

Afghanistan, Albania, Algeria, Angola, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burkina Faso, Burundi, Cabo Verde, Cambodia, Cameroon, Canada, Chile, China, Colombia, Comoros, Congo, Dem. Rep., Congo, Rep., Costa Rica, Cote d'Ivoire, Croatia, Cyprus, Czechia, Denmark, Djibouti, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Eswatini, Ethiopia, Fiji, Finland, France, Gabon, Gambia, Georgia, Germany, Ghana, Greece, Guatemala, Guinea-Bissau, Guinea, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Kyrgyz Republic, Lao PDR, Latvia, Lebanon, Lesotho, Liberia, Libya, Lithuania, Luxembourg, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Mauritania, Mauritius, Mexico, Moldova, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, North Macedonia, Norway, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russian Federation, Rwanda, Samoa, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Sierra Leone, Singapore, Slovak Republic, Slovenia, Solomon Islands, South Africa, South Korea, Spain, Sri Lanka, St. Lucia, St. Vincent and the Grenadines, Sudan, Suriname, Sweden, Switzerland, Tajikistan, Tanzania, Thailand, Timor-Leste, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkiye, Uganda, Ukraine, United Kingdom, United States, Uruguay, Uzbekistan, Vanuatu, Zambia, Zimbabwe.

## **List 2.** Countries included in the analysis of insurance and financial services (% of service exports, y2)

Afghanistan, Albania, Algeria, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burkina Faso, Burundi, Cabo Verde, Cambodia, Cameroon, Canada, Chile, China, Colombia, Comoros, Congo (Dem. Rep.), Congo (Rep.), Costa Rica, Cote d'Ivoire, Croatia, Cyprus, Czechia, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Eswatini, Ethiopia, Fiji, Finland, France, Gabon, Gambia, Georgia, Germany, Ghana, Greece, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, South Korea, Kuwait, Kyrgyz Republic, Lao PDR, Latvia, Lebanon, Lesotho, Liberia, Libya, Lithuania, Luxembourg, Madagascar, Malawi, Malaysia, Mali, Malta, Mauritania, Mauritius, Mexico, Moldova, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, North Macedonia, Norway, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russian Federation, Rwanda, Samoa, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Sierra Leone, Singapore, Slovak Republic, Slovenia, Solomon Islands, South Africa, Spain, Sri Lanka, St. Lucia, St. Vincent and the Grenadines, Sudan, Suriname, Sweden, Switzerland, Tajikistan, Tanzania, Thailand, Timor-Leste, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkiye, Uganda, Ukraine, United Kingdom, United States, Uruguay, Uzbekistan, Vanuatu, Zambia.


http://dx.doi.org/10.21511/ppm.24(2).2026.17

# APPENDIX B

**Table B1.** Descriptive statistics of variables for calculations of the interconnection of trade in services and employment in services

| Indicator | Variables | | | | | | |
|---|---|---|---|---|---|---|---|
| | GDP per capita (constant 2015 US$) (x4) | Rule of Law: Estimate (x3) | Employment in services (% of total employment) (x1) | Employment to population ratio, 15+, total (%) (x2) | Trade in services (% of GDP) (y1) | Foreign direct investment, net inflows (% of GDP) (x5) | Regulatory Quality: Estimate (x6) |
| N | 2241 | 2241 | 2241 | 2241 | 2241 | 2241 | 2241 |
| Mean | 13927.1 | –0.01 | 56.15 | 56.7 | 24.91 | 5.62 | 0.06 |
| SD | 19053.9 | 0.94 | 17.51 | 11.27 | 30.61 | 26.83 | 0.91 |
| Median | 5573.34 | –0.21 | 58.13 | 57.2 | 17.04 | 2.63 | –0.1 |
| Min | 253.45 | –1.92 | 8.62 | 20.55 | 2 | –444.71 | –2.24 |
| Max | 110873 | 2.12 | 93.38 | 87.46 | 341.11 | 452.22 | 2.31 |
| Skewness | 2.15 | 0.49 | –0.35 | –0.08 | 5.2 | 6.01 | 0.4 |
| Kurtosis | 4.95 | –0.69 | –0.66 | 0.51 | 36.12 | 160.02 | –0.67 |

**Table B2.** Descriptive statistics of variables for calculations of the interconnection of insurance and financial services as a share of service exports and employment in services

| Variable | GDP per capita (constant 2015 US$, x4) | Rule of Law: Estimate (x3) | Employment in services (% of total, x1) | Employment-to-population ratio (%), x2 | Insurance & financial services (% of service exports, BoP, y2) | Foreign direct investment, net inflows (% of GDP, x5) | Regulatory Quality: Estimate (x6) |
|---|---|---|---|---|---|---|---|
| N | 2132 | 2132 | 2132 | 2132 | 2132 | 2132 | 2132 |
| Mean | 13997.3 | 0.01 | 55.93 | 56.81 | 5.74 | 5.74 | 0.09 |
| SD | 19134.2 | 0.94 | 17.2 | 11.14 | 9.27 | 27.48 | 0.91 |
| Median | 5672.18 | –0.20 | 58.08 | 57.06 | 2.59 | 2.63 | –0.07 |
| Min | 253.45 | –1.92 | 8.62 | 20.55 | –23.72 | –444.71 | –2.09 |
| Max | 110873 | 2.12 | 89.73 | 87.46 | 96.32 | 452.22 | 2.31 |
| Range | 110620 | 4.05 | 81.11 | 66.91 | 120.04 | 896.93 | 4.4 |
| Skew | 2.15 | 0.48 | –0.40 | 0.06 | 4.06 | 5.87 | 0.4 |
| Kurtosis | 4.94 | –0.71 | –0.63 | 0.32 | 22.61 | 152.57 | –0.71 |
| SE | 414.4 | 0.02 | 0.37 | 0.24 | 0.2 | 0.6 | 0.02 |

*Note:* The table presents descriptive statistics for the sample of 2,132 country-year observations covering 159 countries. Variables include GDP per capita (constant 2015 US$), institutional quality indicators (Rule of Law, Regulatory Quality), labor market measures (Employment in services; Employment-to-population ratio), financial openness indicators (Insurance and financial services; Foreign direct investment inflows), and the World Bank income classification (coded 1 = low income, 4 = high income).