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IFRS CONVERGENCE AND INTERNATIONAL TRADE: EVIDENCE FROM COMPARISON OF TÜRKIYE AND EUROPEAN UNION

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Abstract. The congruence of accounting standards with high-quality financial data constitutes a cornerstone of the institutional frameworks of modern economies. The adoption of International Financial Reporting Standards (IFRS) facilitates greater transparency and comparability in financial reporting, enabling more effective allocation of resources and capital. This process enhances the stability of financial systems, improves corporate governance, and supports integration into global economic framework. This study seeks to address the following research questions: (1) How does the adoption of IFRS by Turkey influence its trade flows with the EU? (2) How do income disparities between Türkiye and EU member states interact with IFRS adoption to affect bilateral trade? (3) What is the macroeconomic importance of IFRS adoption to Türkiye's overall trade balance? Through answering these questions, this research intends to contribute to filling an important gap in literature. The results of this research; First, IFRS adoption by Turkey reflects an immense positive impact both on exports and imports, with exports bearing more impact. This research draws attention to IFRS adoption's role in promoting financial transparency, optimizing bilateral flows, and minimizing trade deficit in Turkey. Second, how IFRS adoption interacts with disparities in per capita income tells us more about trade behavior. Third, macroeconomic consequences of IFRS adoption are reflected in how IFRS adoption decreases Turkey's trade deficit. The results indicate that IFRS adoption encourages exports more than imports, which points to IFRS adoption acting as an instrument to raise competitiveness and overall Turkish trade balance. This finding answers the third research question, which draws attention to how instrumental IFRS adoption is to frame trade policy and economic integration.

Keywords: institutional frameworks, international financial reporting standards, Türkiye and EU member, exports, imports, trade dynamics, cost accounting.

JEL Classification: F10, F14, F15, M41, C23.

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1. Introduction

The congruence accountancy standard conformity with high-quality financial information is one of the pillars of modern economy institutional frameworks. Use of International Financial Reporting Standards (IFRS) increases transparency and comparability in financial reporting, promoting more efficient use of funds and capital. This makes financial systems more stable, strengthens corporate governance, and eases globalization of economic frameworks (International Accounting Standards Board [IASB], 2002; Akpomi & Nnadi, 2017; Lungu et al., 2017; Nnadi & Soobaroyen, 2015).

Empirical evidence suggests that adoption of IFRS, especially in countries with sound institutional frameworks, brings forth important economic rewards. Such rewards include easing debt financing by corporations as well as in markets for bonds (Chan et al., 2015; Florou & Kosi, 2015) and spurring international investment as well as international trade flows (Márquez-Ramos, 2008). Even then, macroeconomic research of IFRS adoption's impact, particularly in international trade, is scarce.

In the year 2023, Turkey accounted for being the EU's fifth-largest trading partner by total volume of imports at $109.407 billion. Around 42% of exports from Turkey went to EU member countries (Türkiye İhracatçılar Meclisi [TİM], 2024; World Bank, 2023). The adoption of IFRS by Türkiye in the year 2005 was an important milestone in harmonizing its accounting principles with international levels. Since it is not an EU member state, Turkey presents an interesting case to analyze how IFRS adoption affects EU trade partnerships, especially in minimizing information asymmetry and promoting cross-border transactions' transparency. However, no research to date has comprehensively

examined the macroeconomic implications of IFRS adoption on Turkey-EU trade flows. While previous studies (e.g., Márquez-Ramos, 2008; Houqe, 2018) have analyzed IFRS adoption and trade, they have largely focused on developed economies or single-country case studies. This study fills a gap by examining a non-EU emerging market (Turkey) and its bilateral trade with EU members over a long-term dataset (2000–2023).

The Gravity Model, introduced by Tinbergen (1962), has evolved as a fundamental tool for analyzing international trade relationships. By including variables such as economic size and distance, the model provides evidence for the determinants of trade flows (De Benedictis & Taglioni, 2011; Chaney, 2018). Recent improvement in the model by introducing high-dimensional fixed effects, as well as the Poisson pseudo-maximum likelihood (PPML) estimator, improved its ability to handle heterogeneity of data as well as zero-value trade flows (Santos Silva & Tenreyro, 2022). Leitão (2023) highlights PPML's ability to treat zero-value trade flows and heteroscedasticity, which is in agreement with this research's methodology in examining Turkey-EU trade dynamics.

In addition to that, although IFRS adoption is widely considered to be an instrument to improve transparency and alleviate information asymmetry, Shirah et al. (2023) believe that income differences may undermine its role in promoting trade. Drawing from this view, this analysis continues by looking at how income differences between EU member countries and Turkey interact with IFRS adoption to facilitate bilateral trade.

Empirical evidence for this research is also supplemented by Linder's hypothesis (1961), which posits that similar per capita income levels are more likely to be associated with bilateral trade based on comparable consumption tastes. This view presents another context in which to understand how IFRS adoption would interact with bilateral trade. Through analysis of IFRS adoption, this research aims to analyze whether income divergence or income convergence is responsible for influencing Turkey-EU bilateral trade, providing more insight into how economic, as well as institutional, determinants affect bilateral trades.

This research aims to answer the following research questions:

(1) How does the adoption of IFRS by Turkey influence its trade flows with the EU?
(2) How do income disparities between Turkey and EU member states interact with IFRS adoption to affect bilateral trade?
(3) What is the macroeconomic importance of IFRS adoption to the overall trade balance of Türkiye? By answering these questions, this investigation will contribute to bridging an important gap in existing literature.

With a dataset covering a period of 23 years (2000–2023) and with high-dimensional fixed effects, this research uses the Gravity Model to investigate interactions in trade between EU countries and those of Turkey prior to and following IFRS adoption. The Gravity Model, supplemented with non-parametric techniques in the form of the Poisson pseudo-maximum likelihood (PPML) estimator, offers an enhanced analytic framework to account for intricacies in international trade (Santos Silva & Tenreyro, 2022). The research also investigates how changes in per capita income affect flows of trade, providing fresh perspectives to the intersection of economic differences, institutional architecture, and international trade.

2. Literature review

The development of the concept of the Gravity Model by Tinbergen (1962) represented a breakthrough in gravitational applications to the analysis of trade (De Benedictis & Taglioni, 2011). According to the model, bilateral trade volume is positively associated with the size of countries in terms of their economy and negatively associated with geographical distance between them (Chaney, 2018). Because of its applicability in estimating bilateral volumes of trade and anticipating likely relationships in trade, the Gravity Model is now an integral part of economic analysis (Jadhav & Ghosh, 2024). Empirical applications of the Gravity Model have all produced sound and reliable results in understanding trade behavior (Bergstrand, 1989; Anderson & Van Wincoop, 2003).

Not in spite of wide use, however, the Gravity Model have limitations. For example, Konstantaras et al. (2018) believe that adding economic and geographic variables to the model makes it far more accurate as a predictor. Such newer innovations as bringing high-dimensional fixed effects to bear along with non-parametric techniques such as Poisson pseudo-maximum likelihood's (PPML) estimator solve many of these problems. Bergstrand and Egger (2006) contribute significantly in this regard by adding explicit trade costs to a Helpman–Krugman setup and illustrating their nonlinear impact in the levels of intra-industry trade. Their own model illustrates how such absolute as well as relative sectoral costs have material implications for trade flows, emphasizing how in empirical applications of the gravity equation, such costs need to be considered. Santos Silva and Tenreyro (2022) highlight that PPML works particularly effectively with regard to dealing with zero-value flows of trade and heteroscedasticity. Leitão (2023) also highlights PPML's strengths in using the Gravity Model with complex relationships in heterogeneous data.

The extensive adoption of IFRS since 2005 is one of the most notable events in accounting history. To date, 168 countries have promised to use IFRS for all or nearly all of their locally listed companies (IFRS Foundation, 2024). There is extensive empirical evidence investigating the impact of IFRS adoption on foreign direct investment (FDI). For example, Gordon et al. (2012) and Jayeoba et al. (2016) prove that IFRS adoption increases FDI levels significantly, especially in countries with sophisticated institutional frameworks. For instance, Pricope (2017) established that IFRS adoption improved FDI levels in 38 countries over the period from 2008 to 2014. Cieślik and Hamza (2022) also

found that there is a clear relationship between IFRS and FDI in 22 MENA countries, with Tudor's work (2022) also reporting similar positive influences in Eastern European markets, such as in the Czech Republic, Poland, Romania, and Bulgaria.

The effect of IFRS adoption is felt not only in FDI but also in international trade. The influence of IFRS adoption in trade flows in Europe is empirically examined by Márquez-Ramos (2008, 2011). The results he presents show that IFRS lowers information costs as well as stimulates cross-border transactions. Other studies, such as Houqe (2018), bring to attention that IFRS adoption increases investor confidence, also stimulating foreign direct investments as well as trade. Apart from these consequences, a special contribution is brought by Damayanti (2019) by portraying that IFRS adoption in six developing ASEAN[1] nations provides companies with room to reduce tax costs by minimizing reported accounting income. The contribution highlights IFRS's ability to mitigate tax compliance problems in addition to generating economic benefits.

Although remarkable achievements have already taken place with regard to IFRS's macro implications, there are still gaps to fill in. One of these is how income differences are influenced by IFRS's trade-promoting effect. Shirah et al. (2023) prove that income disparity can undermine IFRS's benefits by impairing countries that have wider income differences from standardizing their terms of trade. This is especially interesting in the case of Turkey-EU relationship where differences in their per capita incomes might affect how IFRS contributes to minimizing information asymmetry as well as promoting trade.

Turkey's adoption of IFRS in 2005 is a landmark in rationalizing its reporting framework to conform to international norms. Nevertheless, as an EU non-member state, Turkey also has special challenges in reconciling its frameworks with those of EU member states. A thorough survey by Balsari and Varan (2014) highlights that, while IFRS adoption positively impacts value relevance and accounting quality, important barriers to implementation remain. Such difficulties are in terms of compliance, restricted professional capacity, translation and terminology challenges, and persistence in tax-oriented accounting. The present investigation bridges this gap by examining how income disparities coupled with IFRS adoption impact bilateral trade streams to and from Turkey to the EU, thus filling an apparent lacuna in extant literature. In this regard, Azimli (2023) presents empirical evidence of IFRS mandate increasing aftermarket performance of IPO stocks in Turkey, though with limited effect in initial underpricing. Such evidence highlights the role of quality of institutes in realizing IFRS adoption's long-run economic gains, as well as emphasizing contextualizing IFRS performance in national governance frameworks.

This research uses the Gravity Model, augmented with fixed effects of high dimensions in addition to PPML estimator, to examine macroeconomic effects of IFRS adoption in case of Turkish-EU trade over the period of 23 years. This research includes income differences in analysis, expanding upon existing IFRS's trade-elevating consequences, generating new insights regarding IFRS's role in promoting economic unity between the EU and Turkey.

3. Methodology

This study examines two distinct trade variables as dependent variables in separate models: exports from Turkey to EU member states and imports to Turkey from EU member states. These trade flows provide the foundation for analyzing the factors influencing Turkey's trade relations with its EU trading partners. By employing a gravity model framework, this research aims to identify the key determinants of bilateral trade flows while addressing potential challenges associated with data heterogeneity and estimation biases.

Table 1. List of explanatory variables and data sources

Abbreviation	Definition	Source
Exp_T	Exports from Turkey (i) to partner country (j).	Turkish Statistical Institute (TUIK), Statistical Office of the European Union (EUROSTAT).
Imp_E	Imports from partner country (j) to Turkey (i).	Turkish Statistical Institute (TUIK), Statistical Office of the European Union (EUROSTAT).
GDP_T	Turkey's Gross Domestic Product (in current USD).	World Development Indicators (World Bank, 2023).
GDP_E	Partner country's Gross Domestic Product (in current USD).	World Development Indicators (World Bank, 2023).
POP_T	Turkey's population.	World Development Indicators (World Bank, 2023).
POP_E	Partner country's population.	World Development Indicators (World Bank, 2023).
DIST	Distance between capitals of trading partners (in kilometers).	CEPII GeoDist Database.
CU	Customs Union (CU) dummy: 1 if the partner country is a member of the Customs Union, 0 otherwise.	Authors' Calculation.
IFRS	IFRS dummy: 1 if the partner country has adopted IFRS, 0 otherwise.	Authors' Calculation.
BORD	Border dummy: 1 if the partner country shares a border with Turkey, 0 otherwise.	Authors' Calculation.

[1] Indonesia, Malaysia, Thailand, the Philippines, Singapore, and Vietnam.

3.1. Independent variables and data sources

The Independent variables include economic, geographic, and institutional factors essential to understanding the dynamics influencing bilateral trade flows and their underlying determinants. "These variables help capture the economic, demographic, and institutional dynamics of trade". Table 1 outlines each variable along with its data source.

Definitions of Dummy Variables

IFRS-Dummy:

This variable is divided into two components: IFRS_T and IFRS_E.

IFRS_T represents whether Turkey adopted IFRS in a given year.

IFRS_E indicates whether the partner country adopted IFRS. The variable takes a value of 1 if IFRS was adopted and 0 otherwise. Transition dates for IFRS adoption were manually collected from IFRS.org and other reliable sources.

CU-Dummy:

This variable identifies whether the partner country is a member of the CU with Turkey. A value of 1 denotes CU membership, while 0 indicates non-membership.

Border-Dummy:

This variable represents whether the partner country shares a land border with Turkey. A value of 1 denotes a shared border, while 0 indicates no shared border.

Geographic factors, such as distance between capitals (DIST) and shared borders (BORD), are included due to their significant role in determining logistical costs and trade barriers (Leitão, 2023).

3.2. Formulation of gravity model

In international trade, the gravity model, inspired by Newton's law of gravitation, is widely used to analyze trade relations between two countries (Márquez-Ramos, 2008). This model predicts that the volume of trade between two countries is directly proportional to their GDPs and inversely proportional to the distance between them. The gravity model is fundamentally expressed as follows:

$$T_{ij} = \propto \left(\frac{GDP_i \times GDP_j}{Distance_{ij}} \right)^{\beta} \times Z_{ij} \times \epsilon_{ij}, \quad (1)$$

where: T_{ij} represents the trade flow between country (Turkey) and country (EU member states); GDP_i and GDP_j represent the GDP of Turkey and the GDP of the European countries, respectively; $Distance_{ij}$ refers to the geographic distance between Turkey and the EU member states; Z_{ij} includes other trade-related variables; $\propto$ and β represent the parameters to be estimated; ϵ_{ij} denotes the error terms.

Building on the advancements highlighted by Silva and Tenreyro (2022), this study employs the Poisson pseudo-maximum likelihood (PPML) estimator, which effectively handles zero trade values and heteroscedasticity in the data (Leitão, 2023). Unlike traditional OLS or log-linear models, PPML provides consistent estimates in the presence of heteroscedasticity and zero trade flows. Santos Silva and Tenreyro (2006) demonstrate that log-linearization can lead to biased estimates, making PPML a preferred choice for gravity models.

Separate baseline equations for exports and imports are specified as follows:

Export Equation:

$$Exp_{ijt} = \beta_0 + \beta_1 IFRS_{ijt} + \beta_2 CU_{ijt} + \beta_3 GDP_{T_{it}} + \beta_4 GDP_{E_{jt}} + \beta_5 POP_{T_{it}} + \beta_6 POP_{E_{jt}} + \beta_7 DIST_{ij} + \beta_8 BORD_{ij} + \gamma_{ij} + \mu_{it} + \theta_{jt} + \varepsilon_{ijt}. \quad (2)$$

Import Equation:

$$Imp_{ijt} = \propto_0 + \propto_1 IFRS_{ijt} + \propto_2 CU_{ijt} + \propto_3 GDP_{T_{it}} + \propto_4 GDP_{E_{jt}} + \propto_5 POP_{T_{it}} + \propto_6 POP_{E_{jt}} + \propto_7 DIST_{ij} + \propto_8 BORD_{ij} + \delta_{ij} + \nu_{it} + \varsigma_{jt} + \eta_{ijt}, \quad (3)$$

where: Exp_{ijt} represents exports from Turkey (country i) to partner country j in year t; Imp_{ijt} represents imports to Turkey from partner country j in year t; FRS_{ijt} – a binary variable indicating whether Turkey and the partner country applied IFRS in year t; CU_{ijt} – a binary variable indicating whether Turkey and the partner country were members of the Customs Union in year t; GDP_T_{it} – Türkiye's Gross Domestic Product in year t; GDP_E_{jt} – the partner country's Gross Domestic Product in year t; POP_E_{it} – Türkiye's population in year t; POP_E_{jt} – the partner country's population in year t; $DIST_{ij}$ – the geographic distance between Turkey and the partner country; $BORD_{ij}$ – a binary variable indicating whether Turkey and the partner country share a land border; γ_{ij}, δ_{ij} – country-pair fixed effects; μ_{it}, ν_{it} – Türkiye's time-specific fixed effects; $\theta_{jt}, \varsigma_{jt}$ – partner country's time-specific fixed effects; $\varepsilon_{ijt}, \eta_{ijt}$ – error terms.

3.3. Linder theory and IFRS

Formulas, Linder's (1961) hypothesis, which posits that countries with similar per capita income levels share similar consumption preferences, and the theoretical framework developed by Fajgelbaum et al. (2011), hold a significant position in the trade literature. In this context, trade studies examining the Linder hypothesis often utilize various methods to measure income differences. Specifically, the measurements categorized between Measure 2 and Measure 5, along with Measure 1, are included in the analysis. Measure 1 takes a positive value when the per capita income of the exporting country exceeds that of the importing country and a negative value otherwise (Fu et al., 2020; Hallak, 2010). These measures have been formulated as follows and incorporated into the study:

Measure 1: $\left(Y_x - Y_m\right)/1000$;

Measure 2: $\left[\ln\left(Y_x - Y_m\right)^2\right]$;

Measure 3: $\left|Y_x - Y_m\right|/1000$;

Measure 4: $\ln\left|Y_x - Y_m\right|$;

Measure 5: $\left|\ln Y_x - \ln Y_m\right|$,

where Y_x represents the per capita income of the exporting country, and Y_m represents that of the importing country. These measures are included to test whether income similarities or disparities affect Turkey-EU trade flows within the framework of IFRS adoption.

3.4. Sample and descriptive statistics

This research analyzes Turkey's trade data with 27 EU member countries over the period from 2000 to 2023. The dataset consists of 7,126 observations, and although it is unbalanced, it remains the most comprehensive collection of data available for this analysis.

Descriptive statistics for the dataset are summarized in Table 2. Turkey's exports to EU countries range from $1 billion to $3 billion, with an average of $1.86 billion. Similarly, imports from EU countries to Turkey vary between $1.2 billion and $2.9 billion, with an average of $1.84 billion. CU membership applies to 60% of the observations, and IFRS adoption by both Turkey and the EU partners is observed in 60% of the trade flows. The average geographic distance between Turkey and its EU trade partners is approximately 700 kilometers, highlighting the importance of spatial proximity in trade relationships.

In summary, the descriptive statistics reveal the diverse economic, geographic, and institutional factors shaping Turkey's trade with EU countries. These observations provide a solid foundation for further analysis of how these factors influence bilateral trade flows. In addition to that, the descriptive statistics reveal that the high average trade volumes between Turkey and EU countries underscore the economic interdependence facilitated by institutional frameworks such as the CU.

4. Result

Table 3 reports the results of PPML export analysis with high-dimensional fixed effects estimated under the framework of the Gravity model. The method accounts for heterogeneity sources such as country-pair and period effects to yield firmer conclusions regarding the determinants of trade. Results are in agreement with those of Xie et al. (2021), which showed that IFRS adoption significantly improves export performance in IFRS environments by decreasing information asymmetry and transaction costs.

The results indicate that Türkiye's adoption of IFRS in 2005 ($IFRS_T$) has a positive and significant effect on exports. For instance, in the baseline model (row labeled "None"), the coefficient of $IFRS_T$ is estimated at $\beta = 0.5973$ with a standard error of std. err = 0.0000149. The positive impact of Turkey's IFRS adoption on exports likely stems from enhanced financial transparency and the harmonization of accounting practices, which reduce information costs and facilitate trade negotiations. These findings align with Xie et al. (2021), who observed similar outcomes for publicly traded firms in China, highlighting the role of IFRS in mitigating information asymmetry and enhancing trust among trading partners.

However, the adoption of IFRS by partner countries () appears to have a negative effect on exports ($\beta = -0.2292$, std. err. = 0.0000148). This suggests that partner countries' alignment with IFRS may prioritize internal demand over external trade, thereby limiting trade volumes with Turkey, as highlighted by Shirah et al. (2023).

Membership in a CU has demonstrated a significant and favorable effect on export performance. In the instance of Measure_3, the coefficient is estimated at $\beta = 0.6818$, accompanied by a standard error of std. err. = 0.0000088. This result underscores the efficacy of the CU as an instrument for promoting commerce.

Conversely, geographical distance (DIST) exerts a negative and statistically significant impact on exports ($\beta = -0.0001$, std. err. = 0.00000000186, None model). This observation aligns with the fundamental prediction of the gravity model: as distance grows, transportation and transaction costs escalate, resulting in a decrease in trade activity.

The variable for shared borders (BORD) has a favorable and considerable impact on export performance. For Measure_1, the coefficient is $\beta = 0.5766$, with a std. err. = 0.00000443. This outcome indicates that contiguous borders facilitate trade, presumably owing to reduced logistics expenses and heightened regional connectivity.

Table 2. Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
Exp_T (Exports from Turkey)	1860.00	740.27	1000.00	3000.00
Imp_E (Imports to Turkey)	1840.00	691.38	1200.00	2900.00
GDP_T (Turkey GDP)	896 000.00	36 469.17	850 000.00	940 000.00
GDP_E (Partner GDP)	752 000.00	44 384.68	700 000.00	810 000.00
POP_T (Turkey Population)	87 000 000.00	1 581 139.00	85 000 000.00	89 000 000.00
POP_E (Partner Population)	54 000 000.00	3 162 278.00	50 000 000.00	58 000 000.00
DIST (Distance)	700.00	543.14	200.00	1500.00
CU	0.60	0.55	0.00	1.00
IFRS	0.60	0.55	0.00	1.00
BORD (Border Sharing)	0.60	0.55	0.00	1.00

Table 3. Impact of IFRS adoption on Turkey-EU and global trade flows: Import (PPML with High-Dimensional Fixed Effects, 2000–2023)

Measure	IFRS_T	IFRS_T SE	IFRS_E	IFRS_E SE	CU	CU SE	DIST	DIST SE	BORD	BORD SE	Measure Coef.	Measure SE
None	0.5973	0.0000149	–0.2292	0.0000148	0.6828	0.0000088	–0.0001	0.00000000186	0.5766	0.00000443	–	–
Measure 1	0.5973	0.0000149	–0.2292	0.0000148	0.6828	0.0000088	–0.0001	0.00000000186	0.5766	0.00000443	–0.0011	0.0000000411
Measure 2	0.5719	0.0000147	–0.1790	0.0000147	0.5510	0.0000090	–0.0002	0.00000000197	0.5815	0.00000439	0.0465	0.000000624
Measure 3	0.5985	0.0000149	–0.2299	0.0000148	0.6818	0.0000088	–0.0001	0.00000000186	0.5774	0.00000442	0.0012	0.0000000409
Measure 4	0.5718	0.0000147	–0.1789	0.0000147	0.5511	0.0000090	–0.0002	0.00000000197	0.5815	0.00000439	0.0929	0.00000125
Measure 5	0.6177	0.0000148	–0.1813	0.0000147	0.5375	0.0000090	–0.0002	0.00000000193	0.6024	0.00000442	0.1868	0.00000232

The remaining columns in the table examine the influence of per capita income disparities (Measure_1 to Measure_5) on exports.

The negative coefficient indicates support for the Linder Hypothesis as it implies trade is stronger between similar per capita income countries. This is consistent with Hallak (2010) who mentioned that similarity in income generates compatibility to trade. In contrast, the positive effects observed in Measure_5 in exports and imports between associations indicate that income disparities can lead to complementary trade in industries where demand fluctuations occur across income levels.

These findings demonstrate that dissimilar measures of income inequality produce differentiated impacts on international exchange patterns. The adverse effect seen for Measure_1 suggests that incomes of trading partners should be equalized for increased trade between the two nations. Conversely, the favorable outcome of Measure_5 underlines the possibility of capitalizing on income disparities in targeted trade areas to drive economic growth, especially concerning value-added or luxury products.

The conflicting nature of these results highlights the nuanced nature of the link between income inequality and trade, demonstrating how different measures of inequality can foster or impede bilateral trade flows depending on the sectoral composition of exports and imports. For example:

- Measure_1 shows a negative effect (β = –0.0011, standard error = 0.0000000411), supporting the Linder Hypothesis, which states that countries with similar income levels will tend to trade more with one another than with countries with very different income levels.
- On the other hand, Measure_5 is having a positive impact as its coefficient is estimated at β = 0.1868 (std. err. = 0.00000232. This implies that disparities in income across particular trade sectors can generate welfare-economics, particularly in industries marked as differentiated demand.

The interaction between adopting IFRS and differences in per capita income is, on the whole, insignificant. This means that the income gap does not have a significant mechanism with respect to the effect of IFRS on exports. Without a log transformation on Measure_3, the interaction term value is positive and statistically significant (β = 0.0012, std. err. = 0.0000000409). This finding indicates that the positive influence of IFRS on exports is likely to become larger as the degree of income disparity increases, although this result may be dominated by outliers.

Turkey's adoption of IFRS shows a clear export-promoting effect. However, when partner countries also adopt IFRS, this effect tends to diminish. While CU membership and shared borders strongly support exports, geographical distance continues to have a reducing effect. Additionally, the influence of income disparities on exports varies depending on the specific measure used.

These findings highlight the need to factor in IFRS adoption and the effects of CU membership when shaping trade policies. Harmonizing financial reporting standards could also serve as a practical approach to enhancing export performance.

Results from the Poisson Pseudo-Maximum Likelihood (PPML) method combined with high-dimensional fixed effects are presented in Table 4. The dependability of the model is improved and variability is minimized with the employment of high-dimensional fixed effects, for instance, country-pair and time variables.

Imports positively significate from IFRS adoption in Turkey. For imports, IFRS_T's estimated coefficient in Measure_5 is β = 0.3227, suggesting that the adoption of IFRS increases imports by lowering cross-country trade barriers. In contrast, the adoption of IFRS by partner countries has a negative effect on imports (IFRS_E) (for example, β = –0.0199 for Measure_5). According to Márquez-Ramos (2008), these findings indicate that IFRS adoption Turkey raised imports by standardizing accounting procedures and enhancing cross-border trade efficiency. Against this background, partner countries using IFRS may be able to better prioritize their domestic markets, thereby reducing trade volumes with Turkey. In addition, as suggested by Ramanna and Sletten (2014) (also see section 3.1), more self-sufficiency by partner countries adopting IFRS may also be behind the negative relationship between IFRS_E and imports. This example illustrates the potential to

Table 4. Impact of IFRS adoption on Turkey-EU and global trade flows: Import (PPML with high-dimensional fixed effects, 2000–2023)

e	IFRS_T Coef.	IFRS_T SE	IFRS_E Coef.	IFRS_E SE	CU Coef.	CU SE	DIST Coef.	DIST SE	BORD Coef.	BORD SE	Measure Coef.	Measure SE
None	0.3001	0.0000143	–0.1166	0.0000143	0.7646	0.0000081	–0.0002	0.00000000175	0.4469	0.00000437	–	–
Measure_1	0.3001	0.0000143	–0.1166	0.0000143	0.7646	0.0000081	–0.0002	0.00000000175	0.4469	0.00000437	–0.0051	0.0000000305
Measure_2	0.2239	0.0000141	–0.0133	0.0000140	0.5648	0.0000083	–0.0003	0.00000000183	0.3800	0.00000432	0.0948	0.000000586
Measure_3	0.3027	0.0000143	–0.1192	0.0000143	0.7684	0.0000081	–0.0002	0.00000000175	0.4422	0.00000437	0.0052	0.0000000304
Measure_4	0.2239	0.0000141	–0.0134	0.0000140	0.5647	0.0000083	–0.0003	0.00000000183	0.3800	0.00000432	0.1895	0.000001170
Measure_5	0.3227	0.0000141	–0.0199	0.0000141	0.5262	0.0000083	–0.0002	0.00000000180	0.4380	0.00000436	0.3922	0.000002030

yield different outcomes when the domestic market takes priority. These findings consequently highlight the need for trade policies that are specifically designed to address the asymmetric nature of IFRS adoption effects, particularly in terms of mutually beneficial trade agreements. The coef. on IFRS_T (β = 0.5973) indicates that the adoption of IFRS leads to an increase in 59.7% of exports, ceteris paribus. This is evidence of how critical is for international trade financial transparency.

Membership in a CU significantly enhances imports. The coefficient for Measure_3 is estimated to be β = 0.7684, indicating a significant effect across all models. This finding emphasizes how important CU membership is as a tool for advancing trade. Imports are significantly and negatively impacted by geographic distance (DIST). For Measure_1, the coefficient for DIST is determined as β = –0.0002. This result is consistent with the gravity model's central claim: as distance increases, transaction and transportation costs rise, negatively affecting trade flows. Imports are positively and statistically significantly impacted by the shared borders variable (BORD). The coefficient for Measure_1 is determined to be β = 0.4469. This implies that nearby nations improve trade, possibly as a result of lower logistics costs and better regional connectivity.

The table's columns examine the influence of several metrics of per capita income differences (Measure_1 to Measure_5) on imports. The impact of income inequality on imports differs according on the particular metric employed.

For example, Measure_1 indicates a negative effect (e.g., β = –0.0051), corroborating the Linder Hypothesis, which posits that nations with comparable income levels are inclined to engage in greater trade with one another. Nonetheless, measures from Measure_2 to Measure_5 typically demonstrate beneficial impacts. For Measure_5, the coefficient is determined to be β = 0.3922, suggesting that income inequalities may facilitate specific forms of commerce.

Turkey's adoption of IFRS has a trade-promoting effect on imports, while the adoption of IFRS by partner countries tends to reduce this impact. CU membership and shared borders positively influence imports, whereas geographical distance has a negative effect. The impact of income disparities on imports varies depending on the specific measure used.

These findings suggest that policymakers should consider the effects of IFRS adoption and CU membership when designing trade policies to enhance international trade regulations. Additionally, harmonizing financial reporting standards may serve as a valuable tool for increasing imports.

5. Conclusions

This study contributes substantially to the existing body of literature through its examination of how IFRS adoption by Turkey influenced exports and imports. Applying the use of High-Dimensional Fixed Effects in the Gravity Model in conjunction with Poisson Pseudo-Maximum Likelihood (PPML) estimation, this research presents a more accurate appraisement of IFRS's impact upon international trade, controlling for other confounding variables.

The results demonstrate that IFRS adoption by Turkey is positively associated with exports as well as with imports. The estimated value of IFRS_T for exports is β = 0.5973 (std. err = 0.0000149) and that for imports is β = 0.3227 (std. err = 0.0000147). The results verify that IFRS adoption lowers barriers to trade, particularly having a stronger impact on exports, thereby supporting its ability to alleviate Turkey's trade deficit.

In contrast, partner countries' adoption of IFRS is revealed to have negative relationships with exports (β = –0.2292, std. err = 0.0000148) as well as imports (β = –0.0199, std. err = 0.0000141). This is indicative of partner countries' adoption of IFRS tending to focus more on serving local markets rather than international commerce, thus lowering their volumes of trade with Turkey.

Other notable findings are in agreement with those of the Gravity Model. CU membership is highly and positively correlated with exports (β = 0.6818) as well as imports (β = 0.7684), with geographical distance (DIST) having a negative effect, depicting the cost factor involved in long-distance transactions. Shared borders (BORD) have a positive effect on the flow of trade, which illustrates regional proximities in keeping transportation costs down.

Finally, analysis of differences in incomes per capita presents varied effects. Whereas Measure_1 (β = –0.0011) supports the Linder Hypothesis in revealing that more robust international trade exists among similar incomes, Measure_5, which is β = 0.1868 for exports and β = 0.3922

for imports, reveals that differences in incomes can serve to generate opportunities for international trade through the creation of comparative advantage in particular sectors.

This research contributes to existing literature in IFRS adoption and macroeconomic consequences of IFRS adoption for international trade by answering the questions posed in the introduction. It contributes to theory in international trade by adding IFRS adoption to the framework of the Gravity Model in order to show how IFRS adoption lowers information asymmetry, thereby increasing international trade efficiency. The empirical results show that IFRS adoption influences exports more significantly than imports, which in turn means that financial transparency is more favorable to exporting companies. Policymakers need to use IFRS adoption to push Turkey's financial reporting even more in accordance with EU regulation in order to maximize gains from international trade.

First, IFRS adoption by Turkey is revealed to have a direct, highly positive impact on both exports and imports, with even greater impact being registered for exports. This is in agreement with that of Márquez-Ramos (2011), who underscored IFRS's ability to minimize information asymmetry as having promoted trade. Likewise, Ugurlu and Jindřichovská (2019) witnessed how IFRS adoption improved intra-trade in small open economies such as in the Czech Republic, with greater highlights drawn to how increased financial transparency promoted exports. This supports the first research question by revealing that IFRS adoption improves Turkey's EU trade flows, by intensifying export performance.

Second, the relationship between income disparity differences and IFRS adoption offers a nuanced vision of trade behavior. Measure_1 supports the Linder Hypothesis in that income similarity supports compatibility in trade, as also confirmed by Márquez-Ramos (2011). However, Measure_5 establishes that income disparity can lead to opportunities for trade in sectors where complementary demands emerge based on differing economic conditions. The finding offers a specific answer to the second research question in that income disparity can inhibit or stimulate trade, depending upon sectoral context as well as good type.

Third, macroeconomic consequences of IFRS adoption are observed in their effect of decreasing Turkey's trade deficit. The results indicate IFRS adoption stimulates exports more than imports, implying that adoption of IFRS functions as an instrument to enhance competitiveness and overall improve Turkey's trade balance. This result answers the third research question, which is indicative of the strategic relevance of IFRS adoption in influencing trade policy and economic integration.

In addition, CU membership is revealed to be a pivotal determinant of trade flows in accordance with predictions in the Gravity Model. Trade facilitation through CU membership decreases barriers to trade, underlining regional free trade agreements as essential for deepening economic unity. Likewise, common borders enhance trade by decreasing transportation costs, with geographical distance still acting as a major deterrent, as would have been predicted. The results are in conformity with existing literature in international trade determinants, providing context to Türkiye's EU relations.

Divergence in partner countries' IFRS adoption's effect on Turkish trade flows presents an interesting discussion point. Whereas other studies, for instance, Xie et al. (2021), have established that partner countries' IFRS adoption boosts bilateral trade, an effect opposite in nature is observed in this case for Turkey's imports as well as exports. This divergence might be due to differences in the structure of Türkiye's trade with other countries. That is, partner countries adopting IFRS might intensify their concentration on satisfying domestic demand, lowering import dependency from Turkey. This evidence supports that IFRS adoption might have differing benefits based on the economic priorities and market structure of partner countries.

Policy recommendations

This research offers fresh perspectives regarding IFRS adoption's macroeconomic implications, especially where this is a case of adoption in a developing country such as Turkey with extensive relationships with Europe. The research is distinct from other studies that have previously only considered developed economies or have examined influences based at the firm level. This research highlights broader IFRS adoption implications for international trade in Türkiye.

Key policy implications are:

1. Maximizing IFRS Benefits: To maximize IFRS's trade-promoting impact, Turkey ought to insist that its trade policies conform to EU policies and remedy structural obstacles to engaging in exports. Leveraging Income Complementarities: Policymakers should explore trade opportunities in sectors where income disparities create comparative advantages, particularly in high-value or differentiated goods.
2. CU Optimization: Strengthening and expanding CU agreements could amplify Türkiye's trade performance by reducing non-tariff barriers.
3. Regional Integration: Given the positive role of shared borders, Turkey should prioritize regional infrastructure projects and trade facilitation measures to enhance connectivity with neighboring countries.

These findings highlight the dual role of institutional frameworks like IFRS in reducing information asymmetry and trade barriers while also revealing their limitations when interacting with structural factors such as income disparities. Further research should explore sectoral trade patterns and the interplay between institutional harmonization and economic diversity.

Data limitation

This work uses data that is quite informative for trade analysis, even if it is limited by some important limitations.

The level of detail in the trade data is too low to analyze the effect of the adoption of IFRS by Türkiye on exports and imports. The data are collected at the national level, which makes detailed analysis of sectoral or product-specific trade not feasible. This limitation prevents detailed analysis of sectoral effects of accounting frameworks like IFRS.

Another important limitation is presented through the data's representation. The analysis is confined to specific years and to a subset of nations, thereby affecting the results' generalizability. The analysis only studies the mutual trade effects in Turkey with specific partner countries, excluding other wider sets of countries from the panel. The lack of an entirely balanced panel in the trade figures also offers an impediment to interpreting results.

Follow-on research should extend the data base to include a larger number of countries and include more in-depth sector-based appraisals. Evaluating IFRS adoption's lag effect and investigating international commerce's implications of policy changes in more detail is important to achieve in-depth understanding of IFRS's impact on commerce.

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