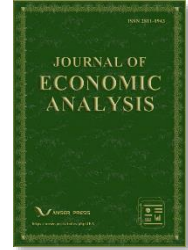




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## Economic Policies and Balance of Payments Across Global Income Groups

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### ABSTRACT

This research paper investigates the policy impact of tariff, interest rate, and political stability on balance of payments among three income groups classified by the World Bank. The global panel data is taken from the World Bank from 2002 to 2022 and divided into three groups based on the classification on per capita income into High Income, Upper middle income, and Lower middle-income countries. This study explores how these variables impact balance of payments in different economic conditions and if their impact is different. The study employed in this paper is the Panel Least Squares, Fixed Effects Regression, GMM and Dumitrescu panel granger causality tests. The findings do confirm that these variables indeed have unlike impacts in the selected groups and the importance of tariff and interest rate as a policy tool cannot be sidelined. This research contributes to a deeper understanding of the complex relationship between macroeconomic variables within each income group also highlighting the importance of political stability for economic outlook.

### KEYWORDS

Tariff; interest rate; political stability; balance of payment; higher income countries; upper middle-income countries; lower middle-income countries

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## 1. Introduction

Recently, numerous global economies have found themselves trapped in the complication of negative balances within their current accounts. This is due to the intense impacts of the Covid-19 pandemic and the Russo-Ukrainian conflict which was further intensified by the rise in interest rate. The global surge in interest rates has triggered inflation, driving it upwards and catalyzing associated crises (Liadze et al., 2022). Simultaneously, these global events have ignited political disruptions, with public discontentment from the soaring cost of living to government Covid-19 policies and the risen costs of trade due to post-Russo-Ukrainian conflict. It is no doubt that after these two notable events, there is a global rise in the cost of living and it is not expected to be reduced any time soon. In the light of this, this study undertakes a comprehensive exploration aimed at resolving the complex interplay of tariffs, interest rates, and political stability on the balance of payments.

With the help of international trade and competitive advantage, the country's economies earn foreign exchange and help them with these inflows and is a critical pillar in defining a country's economic strength (Singh, 2010). The deterioration of a nation's account balances can worsen economic conditions, modelling unfavorable projections and signaling a need for some intervention. Undoubtedly, the balance of payments challenges that are currently faced by several economies and after the recent global pandemic and war has a significant contributing factor to bad economic performance. The balance of payment (BOP) is one of the most crucial factors that decides the country's economic position. Many developed and developing countries experience a negative BOP and this shows a record of all transactions of an economy with the rest of the world. To achieve price stability and favorable BOP, economies focus mainly on monetary policy. There are many empirical studies and findings about the macroeconomic variables affecting BOP differently in both developing and least developing economies (Sultani & Faisal, 2024). A country cannot survive solely on its own and it needs to trade with other countries to fulfil the requirements of its people. However, sometimes doing so can be harmful as it increases the burden of dollarization (Jamil et al., 2023). The BOP issues have always been a central focus for economists and there was an increasing deficit in the 1980's, then in 2000's Bianchi et al. (2014) and recently again due to the current global events. Therefore, countries should employ policies that can help them achieve growth. Countries should also make continuous efforts to improve supply and demand and find an economic growth model that helps them.

In the contemporary landscape of modernization, a nation's economic progress is intricately tied to its BOP position. A balance BOP signifies a robust economic stance, and it sums up all international transactions with the rest of the world over a given period (Thirlwall, 2021). Historically, countries coping with weaker economies have often found themselves trapped in BOP challenges (Alejandro, 1963; Krugman & Taylor, 1978). During the mid-20th century, strategies such as import substitution policies and tariff imposition were prevalent in events to foster industrialization and rectify BOP deficits (Irwin, 2021). Notable success stories like Japan and the Asian Tigers bear testimony that the efficacy of government interventions, with tariffs emerging are the instrumental drivers of economic growth (O'Rourke, 2000; Schularick & Solomou, 2011; Wade, 2018). However, in the late 20th century the imposition of tariffs was discouraged; economists have argued that it is not an effective solution. They believed that effectiveness of tariffs may falter in contexts where the export capacities are limited, and imports exhibit inelastic tendencies (Pinzón-Fuchs, 2019). But, in recent years, the trade openness support has declined, and the relevant parties have started speaking in favor of protectionist policies and imposition of tariffs, especially in developed countries like USA (Kreuter & Riccaboni, 2023). Delpeuch et al. (2024) also concluded that practices of protectionism are on the rise amongst G20 countries and are economically significant.

Furthermore, there has been a rise in global interest rates for the past 3 years. The nations often recalibrate their monetary policies during financial crises, aiming to channel domestic and foreign investments while mitigating inflationary pressures (Bernanke, 2020). In this intricate economic dance, interest rates wield considerable influence, dictating levels of savings and investments and exerting substantial pressure on the BOP by

modulating income levels. Moreover, the underpinning of political stability has emerged as a linchpin for economic equilibrium. Defined as the absence of political violence and social unrest leading to regime changes, political stability forms the bedrock upon which economic stability is built. Nations characterized by political stability experience minimal disruptions across social and political institutions (World Bank). Conversely, political instability can wreak havoc on economic growth, stemming from discord between the political system and the quality of political institutions (Aisen & Veiga, 2013; Blanco & Grier, 2009; Goldstone et al., 2010).

Amidst a vast expanse of literature delving into the nexus between tariffs and BOP (Furceri et al., 2022; Roeger & Welfens, 2022), monetary policy and BOP (Knoester & Sinderen, 2007; Lahiri & Vegh, 2000; Mallick, 2022; Moreno-Brid, 2003), and political stability and economic growth (Aisen & Veiga, 2013; Altayligil & Çetrez, 2020; Hamdaoui et al., 2021; Okafor, 2015), this research distinguishes itself through its holistic examination of the interconnected relationship between tariffs, interest rates, political stability, and the BOP. Although past studies have broadly examined the connection between tariffs and BOP, the recent literature tends to ignore it. Additionally, the prevalent focus on exchange rates as a monetary tool has eclipsed investigations into the relationship between interest rates and BOP. Besides, the inclusion of political stability in the analysis is an essential pillar considering the increased political instability globally. By addressing these gaps, this study aims to contribute to existing literature and offer a comprehensive viewpoint on BOP, providing valuable insights for both academic and policy formulation.

In addition, this study adopts a global view point and applies the latest dynamic panel data model based of generalized method of moments developed by Arellano and Bover (1995) and Blundell and Bond (1998) spanning (21 years), 2002-2022 for three income groups classified by the World Bank: High-Income Countries, Upper-Middle Income Countries, and Lower-Middle Income Countries; spanning from 2002 to 2022. A visible gap exists in the literature regarding the examination of these variables' relationships on a global scale and the impact it has within these income groups. Thus, the study sets out to investigate the impacts of tariffs, interest rates, and political stability on the BOP across these income groups in the given timeframe. For this purpose, several fundamental questions are posed: What is the impact of tariffs, interest rates, and political stability on the balance of payments? Are there any structural breaks in the balance of payments? If so, how do these breaks affect the model? Does the relationship between tariffs, interest rates, and political stability affect differently across income groups? To address these inquiries, the study employs Panel Ordinary Least Square, Fixed effects, Generalized method of moments estimation and Dumitrescu Panel Granger Causality tests<sup>1</sup>.

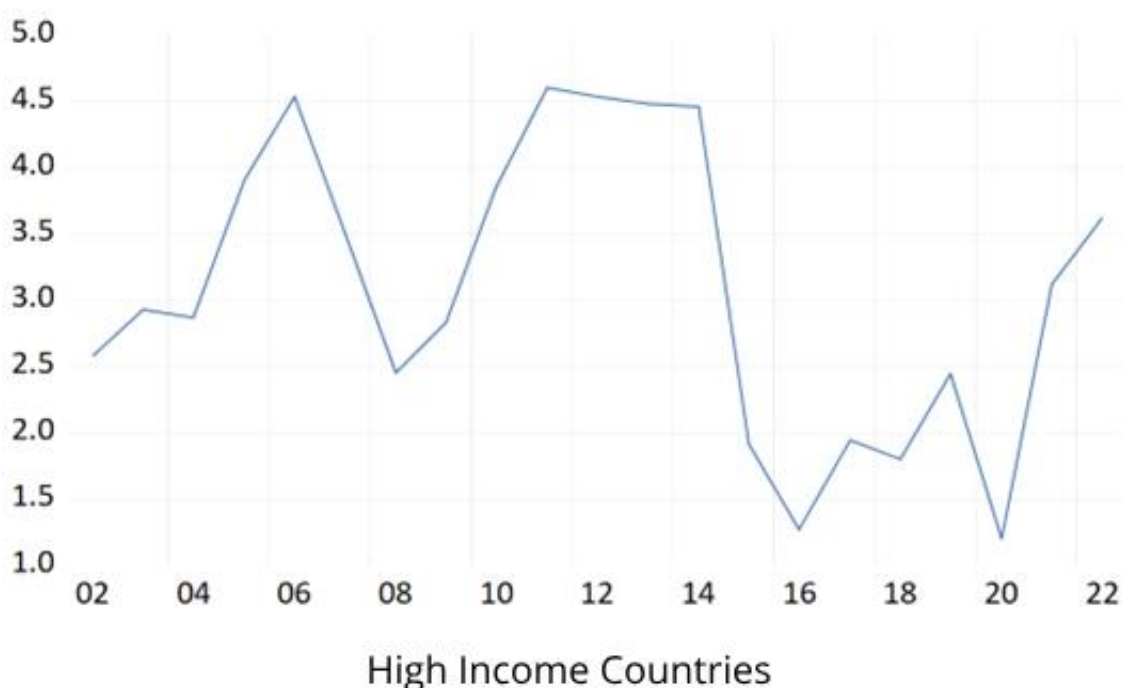
Discussing the theoretical perspective, the study is grounded in a post-Keynesian perspective; the study underscores global uncertainty and advocates for government intervention to stabilize economies. Economic growth is basically nonuniform and is subject to influences, ranging from demand dynamics to political maneuvers and governmental actions. The macroeconomic theories of Keynes and Friedman are significant in the current uncertain time experienced by economies. Many countries are now employing these tactics as the basis for making economic policies. In this era of economic uncertainty, any changes in investment, consumption and government spending can increase economic activity (Aganbegyan, 2022). The total output of the economy, also called the Gross Domestic Product, depends on four factors which are consumption, investment, government spending and net exports. The governments of these economies aim to increase this with their policies and this involvement can increase economic activity and bring stability (Jahan et al., 2014). The monetary theory developed by Friedman and Schwartz after the great US depression emphasized money supply to control inflation, achieve economic stability and the governments to take part in controlling the money and bringing stability. Different policies are made by changing the interest rate and money supply with motive to increase growth. The expansionary monetary policy will increase the aggregate demand that will help achieve economic growth, money, and hence the demand for and

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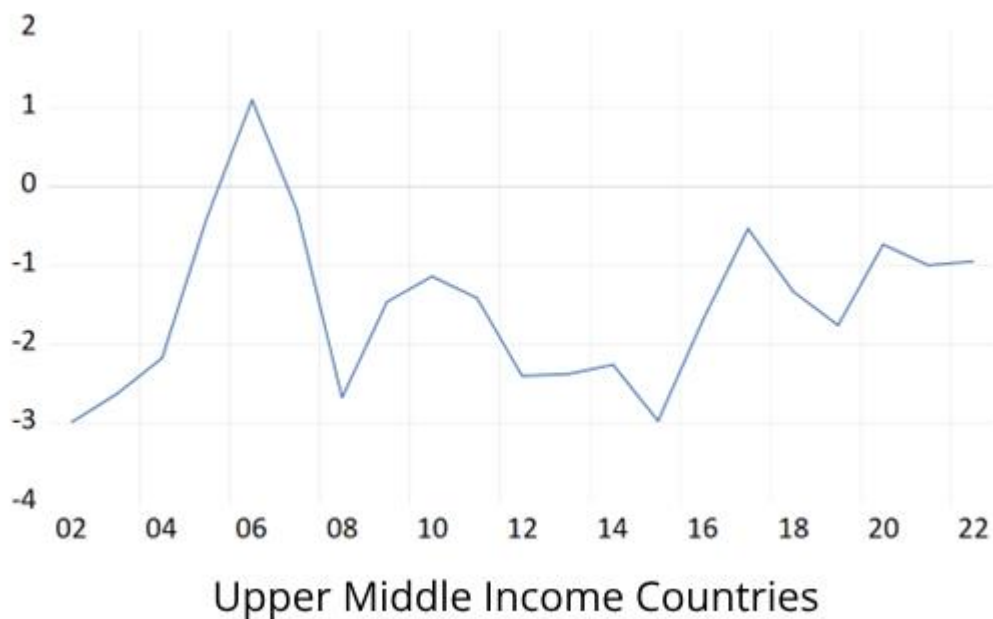
<sup>1</sup> See (Bai et al., 2025; Cai et al., 2022; Ho et al., 2021; Jiang et al., 2023; Kong et al., 2015; Meng et al., 2023)

supply of money supplied by the central bank. The money demand is a function of variables like interest and inflation and the theory presents that it can be predicted and controlled by these variables (Kantor, 2022). The Keynes theory asserts that aggregate demand by households, businesses and government is the primary driving force of the economy and there is some recent discussion on the relationship of Keynes theory by (Peacock & Shaw, 2024; Sultani & Faisal, 2024). The theory of fiscal policy and monetary policy is associated with Keynes economic perspective and comprises of all the government's income and spending. It advocates that fiscal policy such as government spending and tax cuts stimulates the demand and takes the economy out of the recession. It not only highlights the importance of monetary policy but also stresses that the fiscal policy is more efficient because if the interest rates are already exceptionally low, it is not that impactful. The Monetary Approach to Balance of Payment Theory (MABOP theory) also sheds light on the country's money supply and BOP performance (Aghevli, 1975). These are among some tools that are widely accepted to control spending and consumption. The tariffs in the study might play an important role in controlling the imports and therefore can be related to the government's goal to reduce consumption of foreign goods and thereby foster the BOP whereas the interest rates also controls the money supply and may impact on the country's BOP position (Blecker, 2021; Blecker & Setterfield, 2019; Lavoie, 2014; Marangos, 2004; Stockhammer, 2021). By demonstrating the intricate relationships among the variables under scrutiny, the study endeavors to untangle the causal forces shaping demand-driven economies, thereby aiding in navigating the inherent uncertainties that pass through the global markets in the targeted income groups of the study.

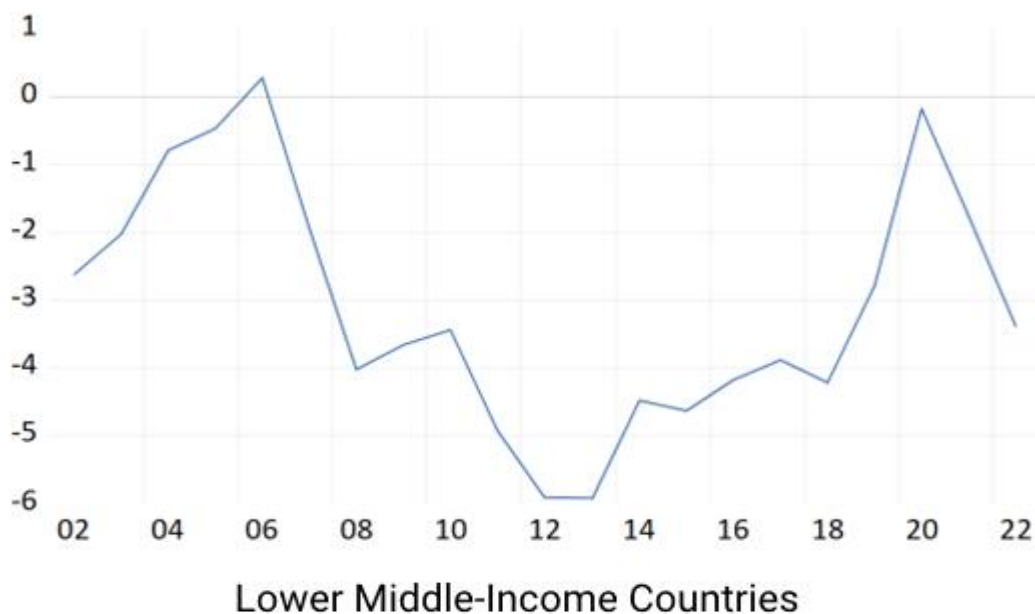
The graphs below show the current account balances of the income groups selected in the study from 2002 to 2022 (Figures 1-3).



**Figure 1.** Mean of current account balances for 25 high income countries shown in Table 1 included from 2002 to 2022.



**Figure 2.** Mean of current account balances for 25 high income countries shown in Table 1 included from 2002 to 2022.



**Figure 3.** Mean of current account balances for 31 lower middle-income countries shown in Table 1 included from 2002 to 2022.

In these graphs above, we can see a major shift in the current account balances. For high income countries these shifts can be seen in 2008, 2014 and 2020. These shifts might be due to the global financial crisis of 2008, the global oil crisis of 2014 and the covid-19 pandemic of 2020. For upper middle-income countries, the shifts are in 2005, 2014 and 2020. In lower middle-income countries we can see the shifts in the years 2006 to 2008 and in 2020. The significant structural break will be tested through a structural break test and will be included in the

research model. Bianchi et al. (2014) also test for the structural break and analyze current account balance for different economies and concluded that the forecasts changed during structural breaks.

The rest of the paper is structured as follows: Section 2 presents the literature, Section 3 presents data and methodology, Section 4 presents results and discussion and finally Section 5 presents the conclusion.

## 2. Literature Review

In the comprehensive literature reviewed, there are numerous studies that seek the analysis of factors and determinants affecting the balance of payments. These factors contain, but are not limited to, exchange rates, economic growth, public and private savings, and other pertinent variables. In this section we are discussing studies related to tariffs, interest rates and political stability.

There is mixed literature available on the efficacy of tariffs as a policy tool. As mentioned, due to the high prevalence of tariffs as a promising growth strategy in early 1950s, a considerable amount of research is available in the past; however as economic perspective evolved, the imposition of tariffs was discouraged and trade openness started widely adopted and policy makers discouraged tariffs (Irwin, 2021). Therefore, contemporary studies on this topic are comparatively limited. Hadili et al. (2020); Stiglitz (2000) argue that the results of trade liberalization are still unclear on the BOP and may lead to deficits in the current account. It may also promote income inequality in the developing countries (Bumann & Lensink, 2016). Van Wijnbergen (1987) concludes that a permanent tariff has no effect on the current account, while a temporary increase can lead to current account improvement. Roeger and Welfens (2022) also concluded that tariff do not impact on the current account balance. McCombie (1993) also quotes Cambridge Policy Economic Group saying that import controls are less inflationary than the devaluation policies. Parikh (2006) asserts trade liberalization improves trade growth, but this growth negatively influences trade balance and causes deterioration in current account. Moreover, Pacheco-López and Thirlwall (2007) conclude that trade liberalization brings financial imbalances in the current account. Petersmann (2019) concludes that liberalization from developed countries could resolve the debt issues of developing nations. Restrictive trade policy also leads to decline in economic growth (IMF and World Bank), analyzed by Manwa et al. (2019) through research on restrictive trade policy in 5 South African Customs Union (SACU) countries and concluded a weak relationship between trade liberalization and economic growth. Hallwood (2021) studies two cases, one almost 50 years ago, when Nixon administration depreciated the dollar attributed to U.S. economy facing negative trade balance. This is due to overvaluation of the currency and the second case discusses the Trump administration where they imposed trade tariffs on some countries in which they manipulated their exchange rate to benefit their international trade. This study argues that the tariffs don't improve the GDP or consumer welfare as it affects industrial production, but it helps maintain the country's trade balance by reducing the imports. Therefore, tariffs are ranked as second-best policy after Nixon, and it is suggested that the government should tax the foreign holdings of US securities by foreign investors to resolve the overvaluation of the currency and suggest future research on the long run effects of the trade barriers. Barattieri et al. (2021) investigates the macroeconomic effects of protectionism in 21 small economies, using high frequency trade policy data from 1999 to 2016. Their outcomes disclose that protectionism can be used as a supply shock that causes reduction in output and increase in inflation, while exhibiting a partial positive impact on the trade balance. They also term protectionism as recessionary and inflationary and remains costly regardless of exchange rate traps. However, we should note that this study is restricted to small economy models thus future research is proposed to investigate the impact of tariffs on larger economies. The rise and fall of import substitution was considered a promising strategy for the developing countries in the beginning of 1950s, but slowly, due to the lack of uniformity in consensus, it received criticism, and its effectiveness was questioned, and the empirical studies further contributed to its decline as a policy idea. As the main goal of this policy is to restrict imports and promote industrialization, it is still considered useful today (Irwin, 2021). Benz and Jaax (2022) used

the OECD Services Trade Restrictiveness Index to measure the regulatory barriers to study barriers leading to slower services trade. Although in the last 20 years, the data shows growth in trade, it is slower due to the regulatory barriers. Therefore, these barriers should be relaxed to promote trade in services. Importantly, Kreuter and Riccaboni (2023) investigate the impact of tariffs on intermediate goods in the U.S. following the global financial crises. It uses network models and finds that the tariffs can lead to a decrease in GDP and consumer welfare due to direct and indirect network effects. It further proposes exploration into the long-term effects of trade barriers.

While numerous studies have investigated the impact of exchange rates on the BOP, research on the influence of interest rates remains comparatively limited. For the relationship between interest rate and BOP, there is mixed literature available. For instance, Lahiri and Vegh (2000) investigate the possible use of interest rates to delay the BOP crisis and observe that it can be an effective tool within certain limits because after a certain point there would be negative consequences and may lead to high inflation. The interest rate is a monetary tool that is used to control inflation but for developing countries, the rise leads to increased cost of borrowing which in turn leads to rise in inflation and is passed to the consumers (Bird, 2010). Iacoviello and Navarro (2019) investigate the effects of changes in US monetary policy on foreign economies by using a massive 50-year data set comprising of 50 countries. The research also considers the factors like the exchange rate, trade openness and external sensitivity, and tests the data for within and between countries determinants and thereby not using the fixed effects. They find that the increase in the interest rates decreases GDP in economies as much as it decreases in US and the effects are more observed in the emerging economies than in advanced economies. Oluwole and Oloyede (2020) study a panel of west African countries from 1976 and 2016 for exploring the impact of monetary policy on BOP. The results from ARDL and fixed effects model indicate a positive relationship between interest rate and net foreign assets. Sujianto (2020) also concluded a positive relationship of interest rates with BOP. Neaime and Gaysset (2022) investigate the role of monetary policy in challenges faced by the Middle East North African (MENA) countries after the Covid-19 pandemic and suggest financial stability as the main goal and propose structural reforms to achieve macroeconomic stability and fiscal control. Alshubiri (2022) studies the relationship of interest rates, exchange rates and political stability with foreign direct investment. The results for G7 and GCC countries are compared and there was one common factor found in both groups. It was the long-term positive relationship of real interest rates with foreign direct investment. Khan (2023) analyses of the relationship between monetary policy and BOP in 17 developing countries from 1982 to 2019. The research highlights monetary policy as a valuable tool in shaping BOP. It finds significant country-level relationships and bidirectional causality and that interest rates have a negative impact on net foreign assets. Hussain et al. (2024) study the current account deficit and trade balance deficit and conclude that the fiscal policy is effective when the interest rates are supportive of that. They explain this considering the Mundell-Fleming model that the higher capital inflows cause the appreciation of exchange rates that undermines the current account. Moreover, liberalization could cause a currency crisis in countries with weak financial systems which further makes the current account weak (Baharumshah et al., 2019).

Political stability has not been much related to the BOP in previous studies. However, we could find its association with variables like growth, investment, and inflation etc. The research of Aisen and Veiga (2006) investigate the causes of inflation globally. They took the panel data from 100 countries from 1960 to 1999 and apply advance techniques like GMM estimation on dynamic panel data. The key factors used to analyze the relationship are political stability, institutions and economic structures. The results reveal that political instability causes high inflation whereas economic freedom and democracy are related to lower inflation. Therefore, for stable inflation rates, economic freedom and democracy are crucial factors and there should be political reforms for reducing inflation, especially in the developing countries. Bird (2010) also concludes that due to instability in the developing countries the conventional macroeconomic policies might be in vain. It was established by Cheung et al. (2013) that quality of institutions affects global imbalances. Uddin et al. (2017) probe the impact of political stability

on economic growth through 120 countries from 1996 to 2014 and employs Dynamic two-step GMM and quantile regression. The results interpret that the political stability is a key factor for economic growth and there is high political instability among many of the Organization of Islamic Corporation (OIC) countries which bars them from economic growth. The researchers recommend economic and political reforms to combat corruption, promote advance economic diversification and harmony between OIC countries, otherwise these countries may face the same fate as other middle eastern and north African countries. In another research for African countries, it was concluded that political instability negatively affects economic growth that further leads to political uncertainty and conflict (Dalyop, 2018). Zeeshan et al. (2022) analyze the relationship between corruption, political instability, natural resources, and economic growth for Pakistan. They applied ARDL & NARDL models and utilize secondary data from 1996 to 2018. The findings reveal corruption has a short-term positive relationship with economic growth with a negative outcome overall. Whereas political instability has negative relationships both in the long and short run. Overall, the research provides valuable insights for policy makers and suggests future research using the same variables in context with other variables. Alshubiri (2022) analyses the Gulf Cooperation Council (GCC) and G7 countries and found long term significant negative relationship between political stability and foreign direct investment for GCC countries but insignificant relationship for G7 countries. It was concluded that market forces should determine the interest rates, and sustainable foreign direct investment can be used for promoting political stability in developing and developed countries. Okara (2023) examined 116 developing countries and concludes that FDI leads to political stability and highlighted that it promotes human rights and maintains stability which not only leads to economic stability but also good governance and societal wellbeing. A sound government of industrialized countries formulates budgets that improves current account balances, and this improvement is achieved by upgrading national saving (Chinn & Ito, 2007). More recently, Chletsos and Sintos (2024) examine the effect of political stability on financial development among a panel data of 123 countries from 1980 to 2017. They used the financial development index from IMF and applied GMM estimators to address the endogeneity issue. The findings indicate a strong positive correlation between political stability and financial development and discusses the importance of political stability in fostering the government effectiveness, financial liberalization and democratic governance which promotes financial development. They also suggest future research on specific channels and mechanisms which are politically unstable.

### 3. Research Methodology

#### 3.1. Data Description

Our research focuses on investigating the long-term associations among key economic indicators, namely the balance of payments (BoP), tariffs (TaF), interest rates (InT), and political stability (PoL), as outlined in Table 2. The study also used foreign direct investments and population growth rate as control variables shown in Table 2. Several other control variables were also added with the help of literature, but the selected ones are identified by continuous trial and error methods and checking their impact on the research model. Foreign direct investment is taken as a percentage of GDP and is one of the most important tools to identify the dominance of foreign investors in the Economy (Cole, 2015; Dixon & Boswell, 1996; Kentor & Boswell, 2003; Kerrissey & Schuhrke, 2016). As per classical theory, there is positive and negative relationship with economic growth according to the dependency theory (Mejia, 2024). Moreover, an increase in the population growth rate increases the number of people under working age population and may lead to a decrease in the economic growth (Mejia, 2024; Sheehy, 1996). The dataset utilized encompasses the annual data for world countries and we have divided the countries into high income, upper middle income and lower middle-income countries categorized by income levels (high income, upper-middle-income, and lower-middle-income) as defined by the World Bank. The dataset is taken from World



Bank Indicators and World Governance Indicators covering the period of 2002 to 2022. The starting date is selected due to the availability of data for political stability as available regular data is published after 2002. The sample countries in each income group selected for this research are depicted in Table 1. We have 25 countries in high income countries, 26 countries in upper middle-income countries and 31 countries in lower middle-income countries. Descriptive statistics for all income groups are detailed in Table 3. We also planned to take the low-income countries as well but unfortunately due to data unavailability, the low-income countries group is not included. Moreover, certain countries within the three researched groups were omitted due to limited or no data availability.

The variables under consideration include the dependent variable Current Account Balance as a percentage of GDP, independent variables Tariff Rate as applied mean of all products percentage, Real Interest Rate as lending rate adjusted for inflation percentage, Political Stability as index between -2.5 to +2.5 and control variables like Foreign Direct Investment as net inflows percentage and Population growth rate as percentage increase. These variables are denoted as BoP, TaF, InT, and PoL, respectively. The units of measurement and sources are outlined in Table 2, showcasing the comprehensive nature of the data.

**Table 1.** Sample Countries.

High Income Countries	Upper Middle-Income Countries	Lower Middle-Income Countries
Australia	Albania	Algeria
Bahrain	Argentina	Angola
Brunei Darussalam	Armenia	Bangladesh
Canada	Azerbaijan	Benin
Chile	Belarus	Bolivia
Croatia	Botswana	Cote d'Ivoire
Czechia	Brazil	Egypt, Arab Rep.
Hungary	Bulgaria	Eswatini
Iceland	China	Haiti
Italy	Colombia	Honduras
Japan	Costa Rica	India
Korea, Rep.	Dominican Republic	Jordan
Kuwait	Georgia	Kenya
Malta	Guatemala	Kyrgyz Republic
Netherlands	Indonesia	Lebanon
New Zealand	Malaysia	Lesotho
Norway	Mexico	Mauritania
Oman	Moldova	Mongolia
Panama	Namibia	Myanmar
Romania	North Macedonia	Nicaragua
Singapore	Paraguay	Nigeria
Sweden	Peru	Pakistan
Switzerland	Russian Federation	Papua New Guinea
United Kingdom	South Africa	Philippines
United States	Suriname	Senegal
	Thailand	Sri Lanka
		Tajikistan
		Tanzania
		Ukraine
		Viet Nam
		Zambia

*Note: Sample countries divided into 3 groups by the World Bank based on Gross National Income (GNI) income. High-Income Countries having Gross National Income of \$13206 or more, Upper Middle-Income Countries between \$4256 to \$13205 and Lower-middle income countries between \$1086 to \$4255.*

**Table 2.** Description of Data.

Variables	Denoted as	Units	Source
Current Account Balance	BoP	% of GDP	World Development Indicator
Tariff Rate	TaF	Applied, simple mean all products %	World Development Indicator
Real Interest Rate	InT	Lending interest rate adjusted for inflation %	World Development Indicator
Political Stability	PoL	Absence of political violence (Index between -2.5 to +2.5)	World Governance Indicator
Foreign Direct Investment	FdI	Net inflows (% of GDP)	World Development Indicator
Population Growth	PoP	(annual %)	World Development Indicator

**Table 3.** Descriptive Statistics.

Groups	Variables	Mean	Std. Dev	Obs
High Income Countries	BoP	3.08	10.67	525
	TaF	3.32	1.83	525
	InT	2.72	8.81	525
	PoL	0.76	0.50	525
	FdI	8.40	32.54	525
	PoP	1.04	1.56	525
Upper Middle-Income Countries	BoP	-1.51	7.89	546
	TaF	6.99	3.40	546
	InT	6.06	9.78	546
	PoL	-0.25	0.62	546
	FdI	3.88	4.93	546
	PoP	0.69	0.91	546
Lower Middle-Income Countries	BoP	-3.08	8.71	651
	TaF	9.25	4.63	651
	InT	5.71	8.04	651
	PoL	-0.72	0.71	651
	FdI	3.24	4.73	651
	PoP	1.84	1.39	651

Source: Author's own computations. Countries grouped on World Bank classification. Std.Dev: Standard Deviation, Obs: Observation, BoP: Balance of Payments, TaF: Tariff, InT: Interest Rate, PoL: Political Stability Index, FdI: Foreign Direct Investment and PoP: Population Growth Rate.

### 3.2. Structural Break Test

Following the research question about the structural break and their impact, the structural break following Bai and Perron (2003) is applied. The test gives a single break that will be included in the model. The results are shown in Table 4. These breaks can be verified from the graphs presented earlier, where they have shown a significant shift from rising to a declining trend near these break dates. We could have tested for more breaks but due to the limited number of years, getting more than two breaks is not possible. We have created a dummy variable in which we give the number zero to the years before the break year and 1 to the years after the break. For high income countries we get a break in the year 2014; for the upper middle-income countries we get a break in the year 2004; and for the lower middle-income countries we get a break in the year 2003. As the time in the sample data set starts from 2002 till 2022, we expect the break in the high-income countries will have a significant impact on the model. This is because it is coming in the middle of our data whereas the breaks in the other two groups are at the very beginning,

so we don't expect them to have a significant impact on the research model<sup>2</sup>.

**Table 4.** Structural Break Test.

Group	Test Statistics	Break Point	P Value
High Income Countries	-6.10*	2014	0.00
Upper Middle-Income Countries	-7.30*	2004	0.00
Lower Middle-Income Countries	-5.61*	2003	0.00

Note: \* Denotes failure to reject null hypothesis of no break.

### 3.3. GMM & Endogeneity

Prior to GMM we study the Pooled Mean Group with Autoregressive Distributed Lag (PMG-ARDL) methodology developed by (Pesaran et al., 2001), the Cross-Sectional ARDL (CS-ARDL) method introduced by Pesaran (2006) and further refined by (Chudik & Pesaran, 2015). This dual-method approach considers that the variables under examination exhibited both I (0) and I (1) characteristics. In cases where this mixed integration status is observed, the panel ARDL-PMG technique is deemed appropriate. However, due to the presence of cross-sectional dependence, the studies additionally conduct the cross-sectional ARDL, an augmented and advanced version of the conventional panel ARDL-PMG method (Raza et al., 2024; Sadiq et al., 2023; Yadav & Mahalik, 2024; Zhongwei & Liu, 2022). The techniques, however, are suitable when the time periods T of observations is more than cross sections N, they don't address the endogeneity issues and yet more effective for time series data. As there is a potential for the presence of endogeneity in our data set having N more than T and the variables like tariff, interest rate, political stability and BOP could also correlate with each other. It is important to address the endogeneity issues because the variable like political stability might increase with an increase in economic performance and political instability could lead to a worse economy. Similarly, the higher interest rates could result in instability and tariffs could also increase or decrease after experiencing economic shocks.

Therefore, we use Generalized methods of moments (GMM model). It is founded by (Roodman, 2009a, 2009b), which is an extension of (Arellano & Bover, 1995). We select GMM for many reasons like assessing whether the previous level of inequality is related to the present level of inequality. This solves the endogeneity problem, and it is a well-suited technique when the number of cross sections (N) is higher than the number of periods (T). In this study, there are 20 periods (i.e. 2022–2022) for 25 countries in high income, 26 countries in upper middle income and 34 countries in lower middle-income group.

The GMM model can be used for dynamic panel data where the cause-and-effect relationship is dynamic overtime. As in our case we can say that last year's BOP is affecting the current year's BOP. To capture this, the estimation technique uses lags of the dependent variable as explanatory variables and controls for endogeneity. The instruments are called internal instruments as they are from the same econometric model (Roodman, 2009b). Therefore, it provides consistent results in the presence of endogeneity.

The research model of the study is presented as:

$$BoP_{it} = \beta_0 + \beta_1 BoP(-1)_{it} + \beta_2 TaF_{it} + \beta_3 InT_{it} + \beta_4 PoL_{it} + \beta_5 FdI_{it} + \beta_6 PoP_{it} + e_t \quad (1)$$

A step-by-step procedure is to determine how GMM offers robust estimates compared to OLS and fixed-effects estimates. First, OLS is applied followed by a fixed-effects model and GMM with lagged-value of the dependent variable (previous year's balance of payment). This would address the endogeneity concerns, and the suitable estimates would be produced using a rigorous GMM process.

<sup>2</sup> See (Jiang et al., 2020; Qin et al., 2020; Tian et al., 2024; Xiao et al., 2021; Bai 2024; Yang et al., 2024; Xiong et al., 2023; Yang et al., 2024; Zhou et al., 2022)

### 3.4. Dumitrescu Granger Causality

Furthermore, the study will conduct Dumitrescu and Hurlin (2012) causality tests to test the bidirectionality of the relationship. This test confirms bidirectional relationships among the variables, validating the causal connections among most of the variables considered. While it is not a direct test for testing endogeneity, it could serve as a component of it. We can test how the variables of the study are related and if the change in one could lead to another. Importantly, this causality test accounts for heterogeneity in its evaluation.

## 4. Results and Discussion

### 4.1. Descriptive Statistics

The descriptive statistics of the data are shown in Table 3. To know the nature of the data, descriptive statistics is an important assessment to be assumed in any research. The mean BOP for high income countries is 3.08, for upper middle-income countries it is 1.51 and for lower income countries it is negative 3.08. The tariffs rate is the highest in the lower middle-income countries at about 9.25 followed by upper middle-income countries 6.99 and lowest in high income countries 3.32. By this, we can identify that tariffs are highly practiced among lower middle-income countries as compared to high income countries. Interest rates are lowest in the high-income countries at about 2.72 due to stable inflation rates. Political stability is highest in high income countries at about 0.76, followed by upper middle-income countries at about negative 0.25 and lowest in lower middle countries about negative 0.72. Discussing foreign direct investment, we can see that it is highest in the high-income countries followed by the upper middle and lowest in the lower middle-income countries. Moreover, the population growth rate is highest in the lower middle income followed by high income countries and lowest in the upper middle-income countries.

### 4.2. Dynamic Panel Data Estimate

The panel ordinary least square (POLS), followed by fixed effects (FE), and GMM is applied. The POLS is used to analyze many observations and combines cross-sectional and time series. Whereas the fixed effects account for individual features that do not change over time and controls time-invariant. The fixed effects are mostly used when there is omitted variable bias which might be interrelated with the forecasters (Chinn & Ito, 2007).

The results of the study are important to figure out the relationship that exists between BOP and other variables in the model. The POLS results are depicted in Table 5, fixed effects results in Table 6 and GMM results in Table 7. Moreover, the GMM model that we have estimated for all income groups is the two-step difference GMM and the selection is based on the criteria that if the coefficient of the lag dependent variable is greater than the coefficient of the fixed effect, we consider the difference GMM to be appropriate method, if it is lower than the fixed effect then we go with the system GMM (Roodman, 2009a). The Panel ordinary least square results have a sound R square of 0.87, 0.73 and 0.72 for higher, upper middle and lower middle-income groups respectively and shows an overall strong model validity with F-stat also being statistically significant. In estimation of the fixed effects model, the overall R square is 0.85, 0.70 and 0.70 for the three income groups. In the GMM estimation we can see that there is serial correlation in AR (1), but no serial correlation is present in AR (2). Moreover, the Sargan and Hansen statistics are also suitable, validating the instruments.

The POLS, fixed effects and GMM results confirm that the lag of BOP positively impacts the present BOP in all income groups and therefore it confirms the dynamic nature of the panel data. We find that interest rates negatively impact both BOP and political stability. Whereas the tariffs negatively impact the BOP in the case of high-income countries and positively impact the upper middle-income countries. These results are depicted in Table 6, 7 and 8. We also found that the structural break in the high-income countries negatively impacts the BOP, but it was dropped

in the other two groups due to the presence of multicollinearity and as stated earlier, it came in the beginning of data so there were high chances of it being insignificant as well.

#### 4.3. Dumitrescu Granger Causality

Furthermore, as a robust check, we conduct Dumitrescu and Hurlin (2012) causality tests, and the results are presented in Table 8. The normal panel granger test assumes that the coefficients are homogenous. It applies a single model to the entire panel, but the test developed by Dumitrescu and Hurlin (2012) assumes heterogeneous coefficients; second, it aggregates individual tests from each cross section; third, it is suitable for panels having diverse behaviors among entities; and finally, it offers robust findings. These tests confirmed bidirectional relationships among the variables, validating the causal connections amongst most of the variables considered. Specifically, for high income countries, we could find four significant relationships; tariffs impact BOP; BOP impacts interest rates; political stability impacts BOP; and BOP impact political stability. For the upper middle-income countries, we find two significant relationships that tariff impacts BOP and BOP impacts interest rates. Whereas in the lower middle-income countries, we find that tariff impacts BOP, interest rate impacts BOP, BOP impacts interest rates, political stability impacts BOP and BOP impacts political stability. So, there is a bidirectional relationship between political stability and BOP in case of higher income countries and lower middle-income countries and a bidirectional relationship between interest rates and BOP in lower middle-income countries. These findings contribute to the understanding of the intricate relationships among the variables within each income group. Also, the results show the presence of endogeneity as there are two-way relationships. However, there is a one-way relationship between tariffs and BOP.

#### 4.4. Robustness of Instruments

Robustness using GMM is essential for ensuring the consistency and validity of econometric models, particularly in the presence of endogeneity, heteroskedasticity and autocorrelation. GMM is an estimation technique that controls moment conditions derived from the data, making it suitable for a variety of economic models. It uses instrumental variables correlated with the endogenous regressors but uncorrelated with the error terms. Additionally, robust standard errors can be employed to correct for any heteroskedasticity or autocorrelation in the data, further enhancing the robustness of the results. This methodological rigor ensures that the estimated coefficients are not only unbiased but also efficient, providing more accurate and dependable inferences. Thus, robust GMM analysis is a convincing tool for econometricists to obtain understandings from datasets while modifying the potential biases and inadequacies that can arise. The Pooled OLS, Fixed Effect, and Difference GMM estimates were applied including the robust commands. Table 5, Table 6, and Table 7 present the Pooled OLS, the Fixed Effect Model, and the two-step difference GMM estimates. It is upward skewed when the lag of the dependent variable's estimate is more than or close to the FE estimate. The estimated difference GMM is therefore valid and accurate, as shown by the robustness check results in Table 6 (Fixed Effects) and 7 (two-step difference GMM), which shows that the coefficient of lagged values of the BOP of the Difference-GMM lie above the values of the fixed effect estimates. Moreover, the results also report on the Sargan and Hansen J statistics values. The Sargan test assumes homoscedasticity and is not robust whereas Hansen test takes robustness into consideration and assumes presence heteroscedasticity. The null hypothesis of the Sargan test states all instruments are valid but relying solely on it might produce unreliable results as it is not taking heteroscedasticity into consideration. While the P value of Sargan test in Table 7 for all income groups is less than 0.05, it indicates invalidity of instruments, hence we prefer Hansen over Sargan as it is robust and assumes heteroscedasticity. The P value of Hansen J statistics for all income groups in Table 7 is greater than 0.05 which means that all instruments are valid with robustness ensuring efficiency and

consistency. The values of AR (1) and AR (2) values also prove that the residuals are not serially correlated with the error term and therefore addresses endogeneity. Subsequently, the results are robust, reliable and valid.

**Table 5.** Panel Regression, 2002 - 2022 (POLS).

Variables	High Income Countries	Upper Middle-Income Countries	Lower Middle Income Countries
L.BoP	0.94*** (0.03)	0.75*** (0.04)	0.77*** (0.03)
TaF	-0.090 (0.08)	0.110 (0.14)	-0.010 (0.05)
InT	-0.15*** (0.06)	-0.07*** (0.02)	-0.058* (0.03)
PoL	-0.843** (0.42)	-0.57* (0.33)	0.090 (0.27)
FdI	0.001 (0.005)	0.18* (0.09)	-0.34*** (0.09)
PoP	-0.050 (0.14)	0.55*** (0.23)	-0.030 (0.16)
D	-0.330 (0.35)	-	-
Observations	500	520	620
R-squared	0.870	0.730	0.720
Number of Countries	25	26	31
F-stat	0.000	0.000	0.000

Note: Robust standard errors in parentheses, \*\*\* $p < 0.01$ , \*\* $p < 0.05$  and \* $p < 0.1$ . Balance of Payments, TaF: Tariff, InT: Interest Rate, PoL: Political Stability Index, FdI: Foreign Direct Investment, PoP: Population Growth Rate and D: Dummy variable at structural break.

**Table 6.** Panel Regression (Fixed Effects), 2002 – 2022.

Variables	High Income Countries	Upper Middle-Income Countries	Lower Middle Income Countries
L.BoP	0.734*** (0.04)	0.61*** (0.03)	0.67*** (0.04)
TaF	-0.130 (0.29)	-0.040 (0.10)	0.090 (0.08)
InT	-0.19** (0.093)	-0.15** (0.07)	-0.04 (0.06)
PoL	0.78 (1.3)	-1.48*** (0.51)	-1.14** (0.53)
FdI	-0.003 (0.002)	-0.4*** (0.05)	-0.33*** (0.07)
PoP	-0.310 (0.23)	0.88 (0.57)	-0.230 (0.20)
D	-0.61 (0.36)	-	-
Observations	500	520	620
R-squared	0.85	0.70	0.70
Number of Countries	25	26	31
F-stat	0.000	0.000	0.000

Note: Robust standard errors in parentheses, \*\*\* $p < 0.01$ , \*\* $p < 0.05$  and \* $p < 0.1$ . Balance of Payments, TaF: Tariff, InT: Interest Rate, PoL: Political Stability Index, FdI: Foreign Direct Investment, PoP: Population Growth Rate and D: Dummy variable at structural break.

**Table 7.** Generalized Moments Methods, 2002- 2022.

Variables	High Income Countries	Upper Middle-Income Countries	Lower Middle Income Countries
L.BoP	0.75*** (0.085)	0.62*** (0.04)	0.69*** (0.04)
TaF	-1.7* (0.93)	2.59*** (0.90)	0.070 (0.09)
InT	-0.21* (0.11)	-0.10 (0.08)	-0.010 (0.05)
PoL	-1.1 (1.89)	-3.01** (1.21)	-1.26** (0.50)
FdI	-0.02* (0.01)	-0.397*** (0.07)	-0.31*** (0.07)
PoP	-1.000** (0.44)	0.940 (0.8)	-0.308 (0.23)
D	-8.33** (3.84)	-	-
Observations	475	494	589
Number of Groups	25	26	31
AR (1)	0.004	0.006	0.001
AR (2)	0.994	0.124	0.06
Sargan Test	0.026	0.000	0.000
Hansen J	0.558	0.258	0.438
Number of Instruments	25	25	25

Note: Robust standard errors in parentheses, \*\*\* $p < 0.01$ , \*\* $p < 0.05$  and \* $p < 0.1$ . Balance of Payments, TaF: Tariff, InT: Interest Rate, PoL: Political Stability Index, FdI: Foreign Direct Investment, PoP: Population Growth Rate and D: Dummy variable at structural break. Xtabond2 robust command used in STATA to get the GMM estimates.

**Table 8.** Dumitrescu and Hurlin (2012) Panel Granger Causality Test.

Group	Hypothesis	W-Stat	Z-Stat	Result
High Income Countries	TaF ==> BoP	3.30	1.76*	Yes
	BoP ==> TaF	1.95	-0.68	No
	InT ==> BoP	2.60	0.49	No
	BoP ==> InT	3.71	2.49**	Yes
	PoL ==> BoP	3.80	2.66***	Yes
	BoP ==> PoL	3.89	2.82***	Yes
Upper Middle-Income Countries	TaF ==> BoP	3.69	2.52**	Yes
	BoP ==> TaF	2.78	0.82	No
	InT ==> BoP	3.06	1.35	No
	BoP ==> InT	3.70	2.57**	Yes
	PoL ==> BoP	3.17	1.51	No
	BoP ==> PoL	3.03	1.29	No
Lower Middle-Income Countries	TaF ==> BoP	3.23	1.80*	Yes
	BoP ==> TaF	2.46	0.25	No
	InT ==> BoP	3.46	2.29**	Yes
	BoP ==> InT	4.65	4.68***	Yes
	PoL ==> BoP	5.31	6.02***	Yes
	BoP ==> PoL	3.50	2.40***	Yes

Note: Significant at 10%, 5% and 1% denoted by \*, \*\* and \*\*\*. Source: Author.

## 5. Conclusion and Discussion

The paper investigates the link between BOP, tariffs, interest rate and political stability. Based on three panel

data sets covering high income, upper middle income, and lower middle-income countries distinguished by the World Bank, this research highlights the role of tariffs, interest rates and political stability in shaping the balance of payments. The POLS, fixed effects, GMM and Dumitrescu Hurlin Granger Causality are used to determine the relationships and further strengthen the reliability of the findings by assessing causality relationships.

As the analysis continues, the existence of dynamic relationships in all income groups is confirmed and therefore enhances the reliability and robustness of the model across different economic contexts. One important thing to note is that there is a varied relationship between the groups. For instance, in higher income countries, it is found that tariffs and interest rates have a negative relationship with BOP and there was no significant relationship for political stability found. However, in the upper middle-income countries, there is a positive relationship of tariffs and a negative relationship for political stability and interest rates which had no significant impact. Whereas in the lower middle-income countries we find no relationship of tariff with BOP, but interest rates and political stability impacted negatively.

The findings in high income countries can lead to argument that an increase in interest rates typically lead to increased borrowing costs, which can discourage investment and consumption. This reduction in economic activity can lead to decreased demand for imports and lower domestic production, potentially worsening the BOP position. This is consistent with Khan (2023) but unlike Hussain et al. (2024); Oluwole and Oloyede (2020); Sujianto (2020) mainly because these studies do not target high income countries. For tariffs impacting BOP negatively, it increases the cost of imports but does not bother consumers having high wages in high income countries leading to negative BOP. These findings are consistent with Roeger and Welfens (2022); Van Wijnbergen (1987) but different from Barattieri et al. (2021) because it aims at small economies and Hallwood (2021) as it targets the USA economy. Political stability does not have a relationship since the high-income countries are highly politically stable and changes in regime in short period of duration might not have any impact on the country's BOP. The structural break included in the model also showed a statistically significant relationship with the BOP. The break year came to be 2014 in the structural break test when there was a major oil price collapse that resulted in economic imbalances for both the oil exporting and oil importing countries.

The results of upper middle-income countries have a positive significant relationship of tariffs with BOP which implies that controlling imports and encouraging exports via imposing tariffs works positively for the BOP and indicates that the Tariff structure followed by this group is effective. Also, political stability increases investor confidence ultimately increasing investment, demand and consumption and thus influences BOP. These findings indirectly confirm Alshubiri (2022); however, it is indirectly against Chletsos and Sintos (2024); Okara (2023); Zeeshan et al. (2022) as these studies do not investigate direct relationship between BOP and political stability.

The findings in lower middle-income countries reveal a negative relationship of political stability with BOP like upper middle-income countries but have no significant relationship with tariffs and interest rates. It can be assumed that traditional fiscal and monetary tools are not useful for these countries as they need sound economic policies to revive, and this can be achieved through a sound political system. The control variable foreign direct investment resulted in negative relationships in all income groups which can be reasoned as the income generated from this investment is taken back to the investor countries, most of the material required for these investments is imported and thus results in an increase in the public and government spendings and increase in jobs. The population growth rate also has a negative relationship with BOP.

The study provides valuable insights into the dynamics of BOP and highlights the importance of considering the specific economic conditions of different income groups when formulating policy responses. At the same time, there are some limitations due to non-availability of data in low-income countries. However, relating the results of lower middle-income countries to some extent would be beneficial because it is common that they are struggling with BOP, budget deficits and rely mostly on the traditional fiscal and monetary policies. But these policies are



ineffective because they have a lesser hold in the industrialization and political instability, these countries rely on unavoidable imports. Therefore, it emphasizes the need for further research to explore other potential determinants of external balances, in low-income countries where traditional macroeconomic factors might not be influential. This finding confirms as what Bird (2010) suggests that developing countries need to focus on long term structural change as well with relying on traditional policies by deepening the financial markets for government to efficiently execute the fiscal policies. The recognition of different causal relationships between the variables and the BOP across income groups highlights the importance of policy responses that address the sole economic challenges faced by each group. We found a bilateral relationship between interest rates and BOP for lower middle-income countries, which explains high public debt increases the interest rates which affects the current account balance. These findings are the same as reported by Afonso and Coelho (2024) in their study. We also find a bidirectional relationship between political stability and BOP in high income and lower middle-income countries regarding political stability as an important factor for growth, and these findings also confirm (Alesina et al., 1996; Haider et al., 2011). This indicates that upper middle-income policymakers implement trade policies aimed at promoting exports or maintaining political stability to enhance investor confidence and economic activity and they should carefully consider the potential impact of interest rate changes on the BOP.

Interest rates adjustment to manage inflation or promote economic growth should be done carefully to avoid falling external imbalances. In combination with monetary policy, trade policies can play a role in lowering the negative effects of interest rate changes on the BOP. Implementing measures to promote exports or reduce import dependency can help balance the adverse impact of higher interest rates. Maintaining stable monetary policies is crucial for investor confidence. Fluctuations in interest rates can lead to uncertainty among investors, potentially affecting capital flows and impacting BOP (Bird, 2010; Lahiri & Vegh, 2000). Businesses and investors should be wary of the potential risks associated with interest rate fluctuations. Sudden changes in interest rates, especially in response to external shocks or domestic economic conditions, can significantly impact the BOP and overall macroeconomic stability. The interest rates increase the capital flow by attracting foreign investment seeking higher returns. This may increase the demand for the domestic currency and improve the exchange rate which makes the exports expensive and imports cheaper. Higher interest rates are applied to control inflation and stabilize the currency, but these actions affect the current account balances and weaken it. We can confirm these findings through the Mundell-Fleming model that the increase in capital inflows causes current account deterioration (Baharumshah et al., 2019; Hussain et al., 2024).

The relationship of political stability with BOP provides valuable insights into the broader implications of governance and institutional quality on economic performance as we have seen political stability deteriorates BOP in case of upper middle-income countries. It confirms the Keynesian point of view that high stability leads to high consumption and demand that might lead to negative imbalances. We also found two-way relationships between interest rate, political stability, and BOP in the Dumitrescu panel granger causality test and such findings also confirm the presence of relationships between variables in different economic contexts and may help in proactive policy making rather than being reactive. Investors can monitor interest rates and predict political stability through it and take their decisions. Policymakers should coordinate monetary, fiscal, and trade policies to ensure consistency and effectiveness in managing external balances. Collaboration between relevant government agencies and stakeholders is essential for implementing coherent policy measures that support economic stability and growth. The role of population growth rate and foreign direct investment as control variables is important and it might be considered for further studies as direct and interaction variables influence the BOP in different economic contexts and for countries facing negative population growth rates. The significance of the structural break for the high-income countries shows the importance of breaks impacting the model, we could have significant breaks in other groups as well but due to the short period of years in the sample dataset it was excluded from the model, and

we could leave that as well for future research with longer time periods.

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## Conflict of interest

The manuscript is completely original and there is no conflict of interest.

## Author contributions

Conceptualization, Data curation and Formal analysis: Ayesha Iqbal; Methodology and Software: Ayesha Iqbal and Min Bai, Writing original draft: Ayesha Iqbal; Supervision, validation, review and editing: Min Bai and Abhishek Mukherjee.

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