

## Current Account Imbalances in Asia's Countries: The Contributing Elements

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### Abstract

The current account has emerged as one of the primary indicators of external imbalances in the global economy, and it may be used to assess the strength of a nation's economy. Since the 1990s, it has been a prevalent trend for Asia region to always demonstrate a current account surplus condition and continue to reinforce in the early 2000s. Although it experiences a huge drop of current account balance in 2009 during the mortgage crisis period, the region persists in its current account surplus. Hence, the aim of this study is to assess the determinants of current account imbalances in Asia region. This study is a panel regression model that covered a total of 48 Asia countries from 1990 to 2021 annually. The dependent variable is current account balance and the independent variables are fiscal balance, public debt, age dependency ratio for old, age dependency ratio for young, ICT, and real GDP. The empirical methods that employed are including of panel unit root tests, panel cointegration tests, and pooled mean group (PMG) estimation. The major finding demonstrates that the determinants of current account imbalances are fiscal balance, public debt, age dependency ratio for old, age dependency ratio for young, and real GDP.

**Keywords:** Age Dependency Ratio, Current Account Balance, Fiscal Balance, Panel Model, Public Debt

### Introduction

Current account has become the main markers of external imbalances in the economy of the world (Afonso & Opoku, 2018), where current account can be used to measure the economy health of country. According to the economic theory, current account reaches equilibrium or balance when its value is equal to zero. However, in contradict, a current account imbalance indicates that there is deficit or surplus situation occurred. When current account is in deficit, means that the country's expenditures exceed its income and imports more than exports (Makrevska-Disovska & Trpkova-Nestorovska, 2016). On the other hand, in current account surplus situation, country will export more than imports and leads to the income exceeding the expenses.

Asia’s countries have different current account situation than one another. Overall, nevertheless, many Asia countries in recent years experiences current account surpluses. According to the Figure 1, Asia region always demonstrates a current account surplus condition and achieve a peak in 2007 at 6.02% of GDP. Although it experiences a huge drop of current account balance in 2009 during the mortgage crisis period, the region maintains the current account surplus. Additionally, IMF mentioned that the current account surplus for the Asia-Pacific region is about 1.60% of GDP in 2018, which is a modest decline from 2017 but still denotes a surplus. This surplus can be attributable to several Asia countries’ robust export-driven economies, notably those of China, Hong Kong, Japan, South Korea, and Taiwan. These nations have kept producing products and services that are in great demand across the world, which has led to a surplus in current account balances. Likewise, Table 1 illustrates that China ranks the first in export share in 2021 at 12.9% among Asia countries.

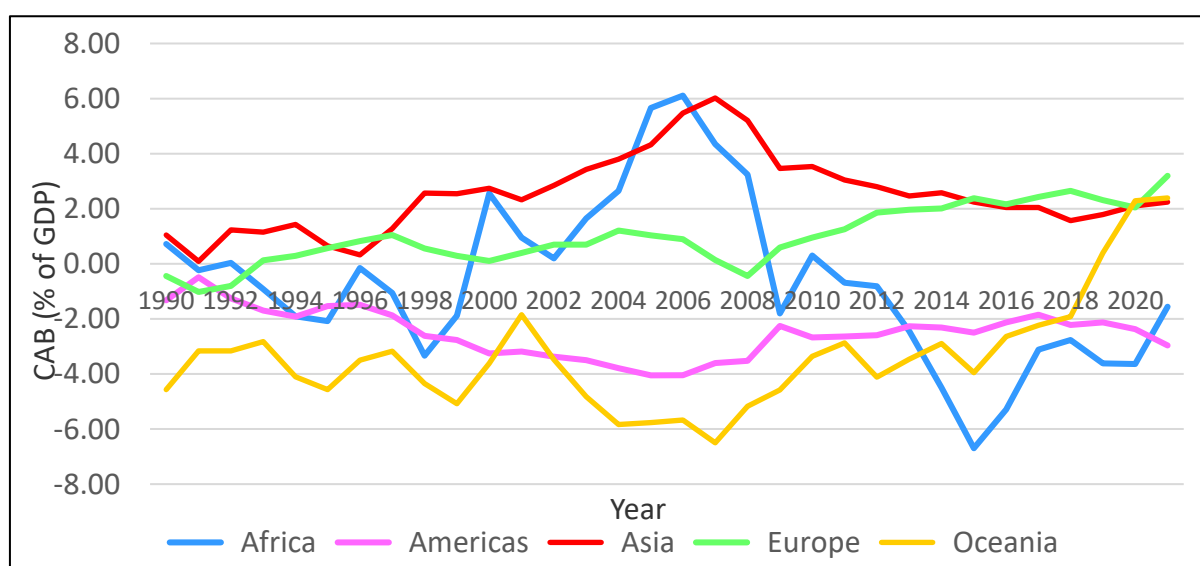


Figure 1. World Current Account Balance (CAB) by Regions from 1990 to 2021  
Source: UNCTAD (2022)

Table 1

Current Accounts of Leading Exporters (Goods and Services) Countries of Asia in 2021

Economy (Ranked by export share)	CAB		Trade balance	Exports		Imports	
	Value (Billions USD)	Ratio of GDP (%)		Value (Billions USD)	Share of world (%)	Share in world (%)	Share in world (%)
China	317	1.8	514	12.9		11.5	
Hong Kong	42	11.3	18	2.7		2.7	
Singapore	72	18.7	125	2.6		2.3	
India	-35	-1.1	-133	2.3		2.9	
Taiwan	115	14.6	103	1.8		1.5	

Note: Total number of countries are 50. CAB denotes current account balance.

Source: Handbook of Statistics, UNCTAD (2022)

Moreover, Asia has made incredible economic growth during the past few decades, because mostly the Asia countries are developing countries. The developing economies process has

driven Asia region to have current account surplus. Gruber and Kamin (2007) also justified the same phenomena of current account in developing economies of Asia region. Apart, due to the breakout of Covid-19 pandemic lately, has brought Asia countries' current account surplus to experience a significant impact of decline. The pandemic led to the situation of lockdown that has interrupted the global supply chains, reduced the demand of goods and services, caused the slowdown in economic activities, and limited the tourism revenue. Yet, in accordance with Sharma (2020), current account deficits in emerging countries in Asia region are advantageous in the short run to boost the domestic productivity, but it is harmful to the long run economic health.

On the other hand, Cecchetti et al (2011) mentioned that public debt has become the core of concern due to the rising of high debt level. When the consumption of country exceed its income and is not capable of making productive investment, this will lead to the fiscal deficit and hence, increase the country's debt level and moves the current account to deficit. This may be caused by various reasons, including high government spending, low interest rate, and economic downturns (e.g., Covid-19 pandemic). Recently, there has been a significant rise in public debt level of Asia countries due to the impact of Covid-19 pandemic. There was a relatively low public debt levels in Asia region before the pandemic. However, the impact of Covid-19 has raised the public debt level due to the spending on Covid-19 relief measures. Furthermore, among the Asia countries, Japan is the country with highest indebtedness. This is due to the rapidly raise in Japan's debt on the combination of primary debt and the high real interest rate (Guillemette and Stráský, 2015). In addition, the rapid aging population in Japan also bring to the pressure on country's welfare system which requires significantly high public spending, and later leads to the increase in public debt level and induces current account deficit. In contrast, Macao is the least indebted country with 0% of debt-to-GDP ratio. This is because of the combination of factors on its strong tourism and gaming industry, low public spending, and relatively small and open economy that is highly responsive to global economic demand.

Apart from that, Asia is the world's largest continent with highest growth rate in population. Gudmundsson and Zoega (2014) argued that the demographic shift involves the dependency ratios can be adopted to highlight the change in current account. The different age dependency can influence the current account balance according to the life-cycle hypothesis based on their consumptions pattern and savings behavior. The rise in dependent population will cause domestic expenditure to increase and national savings to decline, which will expand debt levels, give rise to fiscal deficit, and causes a sizable current account deficit. The reason is due to the high expenditures in pension and healthcare systems, the low participation in labor force, and the reduction in taxation income. Thus, this motivates the interest to incorporate age dependency ratios into the model to investigate how they impact the current account balance.

The research gap of this study on the contributing elements of current account imbalances covers the Asia region and inclusion of independent variables that are rarely been employed. Previously, the research studies mostly were on Euro region, ASEAN region or single country. So far, however, there has been little discussion about the Asia region. Thus, it is important to study the whole Asia region because Asia countries have been a major contributor to the global economic growth and they are continuing in playing significant role in shaping the

global economy in coming years. Besides, the common trends and patterns across the region can easily be identified and likely facilitate the cross-country comparisons and benchmarking. Moreover, the age dependency ratio can explain the impact of demographic trends on the saving behavior and consumption style, which is based on the life-cycle hypothesis. Likewise, ICT can provide an insight into the impact of technology on country's trade balance and the competitiveness and productivity of economy. However, far too little attention has been paid, hence, it drives the interest to conduct a study with objective to assess the determinants of current account imbalances in 48 Asia countries.

### **Literature Review**

Gu et al (2020) emphasized that the global current account imbalances that breakout is mostly caused by the recent worsening of trade disputes between U.S. and China and other nations. Today, the current account balance is twice as high as the level of output in the mid-1980s (Bracke et al., 2010). Besides, Keys et al (2010) mentioned that the serious current account imbalances are influenced by many factors. Therefore, this chapter is constructed to investigate the earlier research studies on the variables affecting the current account balance.

Firstly, based on twin deficit hypothesis, fiscal deficit is strongly associated with current account, where fiscal account has become the main pillar in affecting current account balance (Ganchev et al., 2012). In addition, economic theory also mentioned that fiscal deficit will bring to the current account deficit and vice versa (Okoli et al., 2021). Handoyo et al (2020) examined on Indonesia from 1990 to 2015 by using ARDL posited that fiscal balance and current account balance demonstrate positive nexus in long run. Besides, with the same research objective, Magoti et al (2020) studied East African countries from 2004 to 2018 concluded that in long run there is also positive relationship among current account balance and fiscal balance. However, there is a study carried out by Okoli et al (2021) on BRICS countries suggested an opposite result that the effect of budget deficit on current account deficit is negatively significant in long run. Additionally, the studies by Su and Nguyen (2021) on 31 OECD countries from 2002 to 2017 and Sahoo et al (2022) on India proposed that fiscal balance is significant and positively linked to current account balance.

Debt is the amount that a country owes to lenders and is used to finance its fiscal deficit or expand its infrastructure. In 2013, Lazar and Andreica reported that the current account deficit in South Euro is strong and positively affect the public debt. However, for North Euro, public debt only has small influence. Moreover, Neaime (2015) investigated Lebanon from 1970 to 2013 and discovered that debt do not have significant effect to current account and is not sustainable. On the other hand, Samsu and Ismail (2020) presented a comprehensive review on 13 middle-income countries from 1970 to 2013, they also found that debt is positively and significantly link to current account position in long run.

According to Chinn and Prasad (2003), the age dependency ratio is a crucial factor in examining the current account balance. A study by Girma (2018) on Ethiopia analyzed that there is positive relationship between current account balance and age dependency ratio in long run, whereas in short run there is negative statistically significant relationship. Furthermore, in a different study, Behera and Yadav (2019) examined India from 1980 to 2012 by employing time series model proposed that rise in age dependency will rise the current account deficit significantly. Recently, Sahoo et al (2022) gave a comprehensive review on

investigating the determinants of current account balance, they summarized that age dependency ratio is significantly negative influence the current account balance.

On the other hand, Cavdar and Aydin (2015) claim that real GDP demonstrates how susceptible the economy is to financial crises, especially when the GDP growth rate is low. Likewise, when a nation's real GDP is low, it will require capital to satisfy its investment needs, which will result in a current account deficit in the early stages of the nation's growth (Brissimis et al., 2013). As highlighted Das (2016), real GDP has a significant negative impact on current account balance in both developing and developed countries. In addition, the above finding is consistent with the studies by (Bucevska, 2018; Girma, 2018). They revealed that real GDP is negatively statistically significant to current account balance. However, interestingly, this is contrary to a study by (Feriyanto, 2020). Feriyanto (2020) adopts ECM model on Indonesia from 2000 to 2017 and found that in short run and long run, real GDP has no significant influence on current account.

Next, Ozcan (2018) mentioned that with the current wave of globalization, the value of employing technology in our daily lives has risen. Whereby the Internet has developed into the biggest market in the world (Lin, 2015). Additionally, the insufficient information on trading can be solved by employing the usage of ICT to reduce trade barriers (Wang & Choi, 2019). Therefore, ICT can help to improve the trade export volume by boosting the economic growth and later, indirectly moving the current account to surplus. Research findings by Toader et al (2018) pointed out that ICT infrastructure has positive and highly significant impact on economic growth. Similarly, Wang and Choi (2019) found that the effect of ICT on trade is greater over time in BRICS countries. Furthermore, according to Kurniawati (2022), the study on Asian countries proposed that ICT has a statistically significant effect on Asia's economic growth.

### **Data and Methodology**

In this research study, the involved countries are including of 48 Asia countries from 1990 to 2021 annually with a balanced panel approach. The dependent variable is current account balance and the independent variables are fiscal balance, public debt, age dependency ratio for old, age dependency ratio for young, ICT, and real GDP. All the data is retrieved from the World Bank, World Development Indicator, IMF, World Economic Outlook and UNCTAD database. The 48 Asia countries are including of Afghanistan, Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Georgia, Hong Kong, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kazakhstan, Korea, Kuwait, Kyrgyzstan, Laos, Lebanon, Macau, Malaysia, Maldives, Mongolia, Myanmar, Nepal, Oman, Pakistan, Philippines, Qatar, Saudi Arabia, Singapore, Sri Lanka, Syrian Arab Republic, Taiwan, Tajikistan, Thailand, Timor-Leste, Turkey, Turkmenistan, UAE, Uzbekistan, Vietnam, and Yemen. Furthermore, the methodologies adopted are panel unit root tests, panel cointegration tests, and pooled mean group (PMG) estimation.

### *Data Descriptions*

The current account balance is the summed as the trade balance, net current transfers, and the total foreign net income, which is the primary measure of economic health. Fiscal balance is the total income of the government from taxes and the sale of its assets, minus all the expenses. However, the term "fiscal deficit" describes the circumstance in which the government's expenses exceed its receipts (Rashidi et al., 2023). Moreover, public debt

entails the entire amount that the government has borrowed to cover its development budget, including all obligations. On the other hand, the dependency ratios for people of different ages are as separate variables, where age dependency ratio for old indicates the ratio of people that are older than 64 and age dependency ratio for young implies the ratio of people that are under 15. Besides, the proxy for ICT is the individuals using the internet. Next, the value of all goods and services that a nation's economy generates annually serves as a measure of real GDP (Emehelu, 2021).

### *Empirical Model*

The balanced panel data model for this research study is expressed with logarithm and presented as the following.

$$LCAB_{it} = \alpha + \beta_1 LFB_{it} + \beta_2 LPD_{it} + \beta_3 LADRO_{it} + \beta_4 LADRY_{it} + \beta_5 LICT_{it} + \beta_6 LRGDP_{it} + \varepsilon_{it}$$

where CAB indicates current account balance (% of GDP); FB denotes fiscal balance (% of GDP); PD represents public debt (% of GDP); ADRO implies age dependency ratio for old (% of working-age population); ADRY signifies age dependency ratio for young (% of working-age population); ICT represents the individuals using the internet (% of population); and RGDP is real GDP (USD at constant prices in 2015 in millions).

### *Panel Unit Root Tests*

Panel unit root tests are adopted to determine if a process that will vary over time is stationary. The panel unit root tests that are employed in this study are Levin et al. (2002) and Im et al. (2003). The hypothesis rule is tabulated as below. When  $t$ -stat is greater than significance value,  $H_0$  will be rejected, and vice versa.

$H_0$ : Unit root exists (non-stationary)

$H_a$ : No unit root (stationary)

### *Panel Cointegration Tests*

The primary purpose of the cointegration test is to investigate the equilibrium long-term relationship between variables. The cointegration test expresses whether the cointegration vector is feasible, and the coefficient can be used to mean a long-term equilibrium. Pedroni (1999); Kao (1999) panel cointegration tests are employed in this study.

### *Pooled Mean Group (PMG) Estimation*

PMG is used to analyse the non-stationary dynamic panels with heterogenous across unit (Pesaran et al., 1999). Besides, PMG highlights the adjustment between the short run and long run where it allows the intercept, error variance, and short run coefficients to differ freely across groups while maintaining the long run coefficients (Bangake & Eggoh, 2012).

## **Empirical Findings**

### *Panel Unit Root Tests*

The results of Levin et al (2002); Im et al (2003) panel unit root tests are tabulated in the Table 2. The results for both panel unit root tests show that variables are significant at first difference,  $I(1)$  which rejecting the null hypothesis. Hence, there is no unit root exists.



Table 2

*Levin et al (2002); Im et al (2003) Panel Unit Root Tests Results*

Test Statistics				
	LLC	IPS	LLC	IPS
	Individual Intercept		Individual Intercept and Trend	
	Level			
LCAB	- 5.9715(0.0000)*	- 8.0381(0.0000)*	- 6.2940(0.0000)*	- 6.5844(0.0000)*
LFB	- 15.5826(0.0000)*	- 17.2402(0.0000)*	9.9208(1.0000)	- 11.7896(0.0000)*
LPD	-1.1026(0.1351)	- 1.5195(0.0643)*	1.9779(0.9760)	1.4740(0.9298)
LADRO	9.6583(1.0000)	10.6437(1.0000)	10.3808(1.0000)	11.2208(1.0000)
LADRY	- 11.2796(0.0000)*	- 4.2143(0.0000)*	- 6.0831(0.0000)*	4.6232(1.0000)
LICT	11.0513(1.0000)	22.6919(1.0000)	2.0214(0.9784)	6.9207(1.0000)
LRGDP	4.4759(1.0000)	10.1974(1.0000)	- 2.2892(0.0110)*	1.2753(0.8989)
	First Difference			
				0.6191(0.2679)
$\Delta$ LCAB	- 39.4396(0.0000)*	- 34.1403(0.0000)*	- 29.2822(0.0000)*	- 29.8210(0.0000)*
$\Delta$ LFB	- 30.4627(0.0000)*	- 41.4041(0.0000)*	- 25.9334(0.0000)*	- 37.4724(0.0000)*
$\Delta$ LPD	- 14.2009(0.0000)*	- 20.3183(0.0000)*	- 13.0485(0.0000)*	- 19.3587(0.0000)*
$\Delta$ LADRO		6.0245(1.0000)	12.7458(1.0000)	9.8118(1.0000)
$\Delta$ LADRY	10.7576(1.0000)*		3.9414(1.0000)	5.7341(1.0000)
	2.9335(0.0983)*	3.0896(0.0990)*		
$\Delta$ LICT	- 4.5101(0.0000)*	- 7.7093(0.0000)*	- 3.9405(0.0000)*	- 11.5480(0.0000)*
$\Delta$ LRGDP	- 15.6630(0.0000)*	- 17.8835(0.0000)*	- 11.5642(0.0000)*	- 13.5258(0.0000)*

Notes: LLC indicated the Levin et al (2002) and IPS indicates Im et al (2003) panel unit root tests. The LLC examines the null hypothesis of non-stationary variables. The parenthesized values are the probability of rejection. Asterisks (\*) indicates statistically significant at 10 percent level. Variables all are in log form.

#### Panel Cointegration Tests

In panel cointegration tests, Pedroni (1999); Kao (1999) are employed to test the long run cointegration of between variables. The  $H_0$  is no cointegration (no long run) and the  $H_a$  is variables are cointegrated (long run exists). According to the Pedroni (1999) panel cointegration test result tabulates in Table 3, there are four out of seven majority of variables are significant to 10% of significance level. This indicates that there is sufficient proof to reject the  $H_0$ . Moreover, the  $p$ -value of Kao (1999) panel cointegration test is smaller than significance level, therefore it also rejects the  $H_0$ . In conclude, variables are cointegrated in long run.

Table 3

*Pedroni (1999); Kao (1999) Panel Cointegration Tests Results*

<b>A. Pedroni Residual Cointegration Test</b>	
Panel cointegration statistics (within-dimension)	
Panel $v$ -statistics	0.0288(0.4885)
Panel $\rho$ -statistics	4.9204(1.0000)
Panel $PP$ -statistics	-4.1181(0.0000)*
Panel $ADF$ -statistics	-1.6491(0.0496)*
Group mean panel cointegration statistics (between-dimension)	
Group $\rho$ -statistics	6.5461(1.0000)
Group $PP$ -statistics	-11.0433(0.0000)*
Group $ADF$ -statistics	-8.3234(0.0000)*
<b>B. Kao Residual Cointegration Test</b>	
ADF	7.9454(0.0000)*

Notes: The number of lag truncations used in the calculation of the seven Pedroni statistics is 6 while Kao ADF statistic is 8. The parenthesized values are the probability of rejection. Asterisks (\*) indicates statistically significant at 10 percent level.

#### *Pooled Mean Group (PMG) Estimation*

In accordance with Bangake and Eggoh (2012), Hausman test is carried out to determine the choice of employing mean group (MG) or pooled mean group (PMG) estimations in a study. According to the Hausman test result shows in Table 4, the  $p$ -value is 0.9913, which is not significant at 5% of significance level. Hence, do not reject the  $H_0$ . This indicates that the study is supporting the PMG estimation. In PMG estimation, the outcomes demonstrate that all variables have a significant relationship to LCAB except LICT that does not have significant effect. Besides, LFB, LPD, and LADRO show a positive and significant relationship to LCAB, whereas LADRY and LRGDP implies a negative significant relationship to LCAB.

The empirical result of LFB indicates that when there is 1% increase in LFB, LCAB will rise by 0.5066%, which corresponds to the twin deficit hypothesis. This finding is consistent with findings of past studies by (Afonso and Opoku, 2018; Bucevska, 2018; Behera and Yadav, 2019; Ahmad et al., 2020; Furceri and Zdzienicka, 2020; Handoyo et al., 2020; Magoti et al., 2020; Magazzino, 2021; Su and Nguyen, 2021; Sahoo et al., 2022). Apart, when there is 1% grow in LPD, LCAB will increase by 0.0833%, where this outcome is coherent to Alam and Taib (2013); Lazar and Andreica (2013); Samsu and Ismail (2020), but contradict to the previous study by Neaime (2015) who argued that debt has no significant effect to CAB.

Likewise, LADRO and LADRY have statistically significant effect to LCAB which are supported by (Gossé and Serranito, 2014; Girma, 2018; Behera and Yadav, 2019; Šima, 2020; Sahoo et al., 2022). On the other hand, the rise in 1% of LRGDP will lead to 0.0404% decrease in LCAB. This is consistent with the studies by Cavdar and Aydin (2015); Das (2016); Girma (2018); Ahmad et al (2020); Samsu and Ismail (2020), which stated that RGDP and CAB has negative statistically effect in long run. However, interestingly, this is contrary to studies conducted by Feriyanto (2020) that RGDP has no significant influence on CAB. Furthermore, the empirical outcome indicates that LICT has no significant effect on LCAB. This finding is reveals by Nath



and Liu (2017); Ozcan (2018); Toader et al (2018); Wang and Choi (2019); Kurniawati (2022) that ICT has positive and statistically significant direct effect on economic growth and trade, while ICT only has indirect influence on CAB. The application of ICT can support in raising the exports volume more than imports, later, boost and improve the economic growth. Therefore, enhances the current account to move into surplus. In conclusion, the determinants of current account balance are fiscal balance (FB), public debt (PD), age dependency ratio for old (ADRO), age dependency ratio for young (ADRY), and real GDP (RGDP).

Table 4

*Hausman Test and Pooled Mean Group (PMG) Estimation Result*

<b>PMG Estimation</b>	
LFB	0.5066(0.0000)*
LPD	0.0833(0.0000)*
LADRO	0.7870(0.0000)*
LADRY	-0.2782(0.0000)*
LICT	-0.0315(0.1280)
LRGDP	-0.0404(0.0000)*
<b>Hausman Test</b>	
Chi-square statistics	1.1800
<i>p</i> -value	0.9913

Notes: In PMG estimations, the asterisks (\*) indicates statistically significant at 10% level; while in Hausman test, if *p*-value greater than 5% significance level (0.05), do not reject  $H_0$ .

**Conclusion**

The objective of this study is to assess the determinants of current account imbalances in 48 Asia countries from 1990 to 2021 annually. The dependent variable is CAB, whereas the independent variables are FB, PD, ADRO, ADRY, ICT, and RGDP. The methodologies applied in this study are panel unit root tests, panel cointegration tests, and PMG estimation.

The major outcome of this study demonstrates that the determinants of current account imbalances are fiscal balance, public debt, age dependency ratio for old, age dependency ratio for young, and real GDP. The findings show that fiscal balance, public debt, and age dependency ratio for old perform positively and statistically significant relationship to current account balance. On the other hand, age dependency ratio for young and real GDP indicate a negative statistically significant nexus to current account balance. Nevertheless, ICT does not have significant relationship to current account balance.

From the perspective of recommendations, monetary policy and fiscal policy are suggested. Monetary policy can be used to affect capital flows and currency rates in the context of controlling the current account balance. For instance, a central bank may increase interest rate to attract foreign investment, which might result in an appreciation in the value of the local currency and a depreciation in the current account deficit. On the other hand, fiscal policy may be used to affect saving and investment behavior while controlling the current account balance. An example of fiscal policy is that a government may encourage people to save more and spend less, which can lower imports and enhance the current account balance.

In accordance with King (2021), the Keynesian theory is proposed by John Maynard Keynes in 1930, where it explains the nexus between current account balance and fiscal balance. The Keynesian theory illustrates the positive relationship between current account balance and fiscal balance. When fiscal balance induces an increase, current account balance rises too. This will urge to the appearance of either twin surpluses or twin deficits. Moreover, the Keynesian theory has same argument as the twin deficit hypothesis. On the other hand, the relationship between current account balance and age dependency ratio is explained based on the life-cycle hypothesis. Ganic and Mamuti (2020) mentioned life-cycle hypothesis is describing the consumption and saving pattern of people over lifetime. Modigliani (1986) proposed that life-cycle hypothesis is displayed in hump-shaped, where positive saving appears in working family and negative savings for retired families. The working people tends to save more to maintain their consumption levels during retirement (Jappelli & Modigliani, 1998), whereas old and young age dependency be apt to spend more than save. Likewise, the growth in dependency ratio will urge to reduce in national savings but raise in domestic expenses. At the same time, the current account will move deficits. Hence, increasing the age dependency ratio will lead to a rise in current account deficits. Despite, fiscal balance, age dependency ratios, public debt, and real GDP play important part in affecting the determinants of current account balance in Asia countries.

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