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Saving, Investment, and Outflows in Pakistan

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Abstract

This paper follows neoclassical theory, in which the current account (CA) reflects domestic imbalance, the difference between investment (I) and saving (S).

In estimating the equation for the fiscal year 2022, we obtained an investment-saving gap (I - S) of two percent of income, whereas the CA was four percent of income. Therefore, when equating (I - S) to the CA, the neoclassical theory stands in jeopardy.

However, we obtained a better fit when we reconsidered S by re-estimating it to account for outflows (KO). S should comprise all domestic earnings that are not consumed, while KO consists of income earned domestically that crosses borders and is transferred abroad. Therefore, KO is lost to domestic saving (Sdom) and I. Ergo, KO should be added to Sdom. We estimated KO for the fiscal year 2022 at 2.3 percent of income using the Mahmood & Chaudry (2020) equation. Therefore, our equation changed to (I - S) + KO = CA after incorporating KO to support the theory.

Estimating the equation gave 1.96 percent + 2.3 percent, which is approximately equal to 4 percent. This equals the CA of four percent. Therefore, we have reestablished the neoclassical investment-saving identity.

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Introduction to the Problem

The current account (CA) reflects the external imbalance. Neoclassical theory states that the CA is equal to the domestic imbalance, which is the difference between investment (I) and saving (S), as in Equation (1).

$$CA = I - S \quad (1)$$

Therefore, "the current account measures the component of the difference in an economy's net foreign asset position attributable to transactions in goods and services, as well as income and transfers" (Ouanes & Thakur, 1997).

We estimated this equation as percentage shares in gross national disposable income (GNDI) (Y) for the fiscal year (FY) 2022:

Where GNDI = PKR 71,487 billion

CA = PKR 3,102 billion = 4.3% of GNDI

I = PKR 10,473 billion = 14.7% of GNDI

S = PKR 9,105 billion = 12.74% of GNDI

Inserting these figures into Equation (1):

4.3% is greater than (14.7% - 12.74%)

i.e., 4.3% > 1.96%

CA equals four percent of income (GNDI) (Y), whereas we obtained an investment-saving gap (I - S) of approximately two percent of income.

Therefore, when we equated the neoclassical macro equation of CA to I - S, it did not hold. Hence, we found this neoclassical theory to be in jeopardy. The CA is well-observed and accounted for on the left side of Equation (1). However, the right side of the equation, (I - S), requires explanation. Accordingly, a conceptual framework that addresses and explains the dichotomy between S and I is required.

There is a macro framework that allows this dichotomy to exist, which is where the neoclassical equation features. This paper uses the neoclassical equation to further investigate how the difference in the gap can be explained.

The following identity represents national saving less investment in an open economy. It explains that the difference between I and domestic saving (S) is equivalent to the gap between exports (X) and imports (M), that is net exports, or the trade balance (X - M).

$$I - S = X - M \tag{2}$$

Equation (2) is derived from two basic identities of national accounts.

The first identity states that gross national disposable income (GNDI) (Y) is the sum of consumption (C), I, and (X - M).

$$Y = C + I + (X - M) \tag{2a}$$

$$S = Y - C \tag{2b}$$

Y is equal to gross national income (GNI) minus current money transfers of outward remittance (OR) plus total inward remittances (IR) to the country.

Therefore,

$$Y = GNI - OR + IR \tag{3}$$

Equation (2b) states that the income that is left after consumption is saved.

A macroeconomic framework is now employed to examine the difference between S and I. This framework states that the gap between I and domestic saving must be offset by a CA deficit. Stating Equation (1) again,

$$CA = I - S \tag{4}$$

The investment-saving gap (I - S) must be financed through borrowing from the rest of the world.

$I > S \rightarrow$ CA deficit (scenario 1)

$S > I \rightarrow$ CA surplus (scenario 2)

In scenario 2, the gap is bridged by lending money to the rest of the world, leading to a CA surplus.

In Equation (4), both CA and I are observed values, but S is an imputed value, as is the case in Pakistan. Therefore, given the ambiguity of S, we reconsider its definition, positing capital outflows (KO) as affecting S. Essentially, we posit a new definition of S that accounts for KO.

S should comprise all domestic earnings that are not consumed. KO consists of domestic income earned—it crosses the border without being consumed.

Since KO is domestic income earned that is not consumed, it should be part of domestic saving (Sdom). However, KO crosses the border and is lost to both Sdom and I.

Ergo, KO is added to Sdom in Equation (5):

$$CA = (I - S) + KO \quad (5)$$

Having estimated KO for FY 2022 to be 2.3 percent of income using Mahmood & Chaudry's (2020) methodology, we insert its value into Equation (5). Using our earlier values for CA, I, and S from Equation (1), we get:

$$4.3\% = 1.96\% + 2.3\%$$

where a sum of 1.96 percent and 2.3 percent equals 4.26 percent, which is approximately equal to the CA of 4.3 percent.

Thus, we have reinstated the neoclassical equation of Sdom from Equation (4) to Equation (5).

This paper is structured as follows:

1. We present the conceptual framework used to estimate saving in Pakistan.
2. Applying this framework to estimate a saving equation for FY 2022, we discuss the basic I - S = CA framework in percentage and nominal terms.
3. Next, we provide an estimation of KO, revisit the saving equation, examine saving as estimated by the State Bank of Pakistan (SBP), and estimate a new equation posited for a longer time series from FY 2022 to FY 2024.

A Conceptual Framework to Estimate Saving in Pakistan

A fundamental macroeconomic accounting identity states that S is equal to I. This identity stems from the national income equaling the national product.

The Modeling Lab at the Lahore School of Economics estimated that I was 16 percent of GDP in 2022 (Mahmood et al., 2022). The Ministry of Finance (2022) estimated S to be 12 percent for the same year. This discrepancy highlights a dichotomy that requires a conceptual framework for further investigation.

Our conceptual framework is based on the relationship between S and I and consists of the following key equations:

1. Sdom comprises public saving (Spub) and private saving (Spriv):

   $$Sdom = Spub + Spriv \quad (6)$$

2. In turn, Spub is the difference between taxation (T) and government expenditure (G):

   $$Spub = T - G \quad (7)$$

3. Spriv is Y minus consumption (C):

   $$Spriv = Y - C \quad (8)$$

4. Substituting this decomposition of Sdom into Spub and Spriv from Equation (6) into Equation (4) presents an expanded form in which I minus the sum of Spub and Spriv equals the CA:

   $$CA = I - (Spub + Spriv) \quad (9)$$

5. By substituting Equations (7) and (8) into Equation (9), we obtain the following expression in which I minus the expanded terms for Spub (which is T minus G) and Spriv (which is Y minus C) equals the CA.

   $$CA = I - \{(T - G) + (Y - C)\} \quad (10)$$

Equation (10) serves as an overarching conceptual framework for estimating S available for I.

Estimating Saving and its Components for FY 2022 in Nominal Values (PKR Billion)

Using 2022 data, we estimate our conceptual model in Table 1.

Table 1: Estimating saving in FY 2022 (PKR billion)

Spub = (T - G) **Spriv = (Y - C)** **Sdom = (T - G) + (Y - C)**	
Y (GNDI) (observed)	71,487
C (observed)	57,122
T (observed)	8,035
G (observed)	13,295
I (observed)	10,473
Spub (T - G)	-5,259.9
Spriv (Y - C)	14,365
Sdom {(T - G) + (Y - C)}	9,105

Source: SBP.

For FY 2022, government revenue from federal and provincial tax collection (PKR 8,035 billion) less G (PKR 13,295 billion) equals Spub (PKR -5,259.9 billion).

Spriv (estimated at PKR 14,365 billion) is the difference between Y (PKR 71,487 billion) and C (PKR 57,122 billion).

This yields an Sdom value of PKR 9,105 billion as the sum of Spub (PKR -5,259.9 billion) and Spriv (PKR 14,365 billion).

The CA = I - S Framework in Percentage vs. Nominal Values

For FY 2022, the fundamental equation of CA = I - S can be estimated using both nominal values and percentages of Y to examine whether the equation holds.

We estimate I - S, now as PKR 1,368 billion, as the difference between I (PKR 10,473 billion) and Sdom (PKR 9,105 billion).

When we equate I - S (PKR 1,368 billion) to CA (PKR 3,102 billion) in nominal values, we find that the equation CA = I - S does not hold for FY 2022, resulting in a difference of PKR - 1,734 billion.

PKR 3,102 billion > PKR -1,734 billion

Thus, there is a second gap given by I minus S minus the CA.

I - S - CA = 0

This gap should be zero, but is PKR -1,734 billion. Consequently, a higher level of Sdom is required to equate to the CA to make this I - S - CA gap zero.

Taking these nominal values as percentages of Y, we find I to be 14.7 percent, while Sdom is 12.74 percent of the income gap.

Thus, (I - S) = 1.96 percent of income, while CA, as a percentage of income, is 4.3 percent. Substituting these values into the I - S - CA equation, we find that saving must increase by approximately 2.4 percent to meet the I - S - CA gap.

We find that the neoclassical Equation (4) stands in jeopardy, as the two sides of the equation do not equate. We have attempted to address this issue by revisiting the definition of saving, which, we argue, must now include KO. This is because KO is part of national saving generated within a country but then crosses borders and is, therefore, lost to Sdom, and used instead to finance foreign investment.

Estimation of Capital Outflows

As defined earlier, KO is part of national saving, which consists of income saved in a country but then crosses borders. A significant portion of national savings continues to be invested domestically (Feldstein & Horioka, 1980), but the remainder flows abroad as KO. This signifies that some part of Sdom crosses borders (Feldstein & Bacchetta, 1989).

The key variable to be estimated from the capital account (KA) is KO, which is theorized to include four major components (Mahmood & Chaudry, 2020) derived from the SBP accounting framework for CA and KA.

The essential argument for estimating KO, based on our earlier work, theorizes that these outflows are determined by domestic profitability relative to

foreign profitability (Mahmood & Chaudry, 2020). Specifically, if domestic profitability declines relative to foreign profitability, KO is expected to increase. Conversely, if domestic profitability rises relative to foreign profitability, KO is expected to decrease.

Accordingly, the explanation of KO must begin with domestic outflows for foreign investment that are mostly derived from the KA side. In addition, the inclusion of KO from the CA side can strengthen the argument, particularly regarding the repatriation of returns from foreign-held domestic assets (Mahmood & Chaudry, 2020).

Mahmood & Chaudry (2020) identified four key components to calculate total net outflows from Pakistan, which include: direct investment abroad, portfolio investment abroad, net incurrence of assets, and net outflows of primary income from the CA (primary income balance).

Using the Mahmood & Chaudry (2020) methodology, total net outflows for 2022 are equal to USD 8,071 million/PKR 1,651 billion (at the prevalent exchange rate of PKR 204.5/USD) (Appendix 1 and 2).

Revisiting the Saving Equation

Clearly, the neoclassical Equation (4) stands in jeopardy, as the two sides do not equate:

$$I - S \neq CA \tag{4}$$

This method is at risk, and a new conceptual framework is required.

We address this issue by reexamining the definition of saving to further improve it. Now saving must include KO because it is a part of national saving, where income minus consumption (Y - C) is saved in a country, but then crosses borders through various channels.

However, when we re-estimate saving to account for KO, we obtain a better fit.

As saving should comprise all domestic earnings not consumed, KO is saving that crosses borders. Therefore, KO should be a part of Sdom, which is lost.

Our revised equation now changes, after incorporating KO in support of the neoclassical theory, to: (I - S) plus KO is equal to the CA:

$$CA = (I - S) + KO \quad (11)$$

Table 2 estimates this equation.

4.3% = (14.7% - 12.7%) + 2.3%

CA on the left side is 4.3 percent of income. On the right side, (I - S) is 1.96 percent of income, which, when added to KO of 2.3 percent, yields 4.26 percent.

So, the CA of 4.3 percent of income approximates the investment-saving gap plus KO of 4.26 percent.

We have reinstated the neoclassical equation of domestic saving. Consequently, KO will be added to Sdom to support our neoclassical macroeconomic theory.

Table 2: Comparing the gap [CA - (I - S)] with KO for FY 2022 (PKR billion)

I = 10,473	14.7%
S = 9,105	12.74%
I - S	1.9% ≈ 2%
CA = 3,102	4.3%
KO = 1,651.5	2.3%
CA - (I - S) = 1,734	2.4%
(I - S) + KO	4.2%

Source: SBP.

Saving as Estimated by the State Bank of Pakistan

Saving is part of income that is not consumed. It is measured indirectly through national income identities by the Planning Commission, which uses information about investment estimated by the Pakistan Bureau of Statistics and the CA deficit compiled by the SBP.

Currently, the SBP uses the residual of I minus the CA to estimate S:

S = I - CA

This approach bypasses the problem this paper seeks to address. We argue that Sdom consists of both Spub and Spriv, which provides a structurally sound way of estimating S:

Sdom = Spub + Spriv

Spub is observed as the fiscal deficit, and Spriv was previously denoted as (Y - C). We propose that Spriv also includes KO.

Estimating the I Minus S Gap With Capital Outflows for FY 2022–2024

Table 3 estimates our new equation for a small time series of FY 2022–2024. It is used to show that the old neoclassical equation equating CA to (I - S) does not work because of the large difference between them. However, the difference narrows considerably when we add KO to (I - S).

Table 3 shows that the approximation is 0.1 percent of income in 2022. The approximation is wider by 0.6 percent of income in 2023. Finally, in 2024, the approximation narrows to 0.3 percent of income.

So, the proposed definition of Spriv allows us to add KO to bridge the problem, decreasing the difference between CA and (I - S) + KO.

Table 3: Time-series data (FY 2022–2024)

	2022		2023		2024	
Y	71,487.0	100.0%	89,558.0	100.0%	112,453.0	100.0%
I	10,473.0	14.7%	11,850.0	13.2%	13,931.0	12.4%
S	9,105.1	12.7%	13,169.5	14.7%	15,778.1	14.0%
I - S	1,367.9	1.9%	-1,319.5	-1.5%	-1,847.1	-1.6%
CA	3,102.0	4.3%	812.0	0.9%	188.0	0.2%
KO	1,651.5	2.3%	1,616.7	1.8%	2,439.3	2.2%
(I - S) + KO	3,019.4	4.2%	297.2	0.3%	592.2	0.5%

Source: SBP.

Conclusions

This paper follows neoclassical theory in which CA is a reflection of domestic imbalance. This domestic imbalance is the difference between I and S.

When we estimate the equation for FY 2022, we obtain a value of two percent of income for (I - S), whereas CA is four percent of income. Therefore, when equating (I - S) to CA, it stands in jeopardy, which puts the neoclassical theory at risk.

However, when we reconsider S by re-estimating it to account for KO, we obtain a better fit. S should comprise all domestic earnings that are not consumed, while KO consists of income earned domestically that is not consumed and crosses borders. Therefore, KO is part of national saving, which is lost to Sdom and I. Ergo, KO should be added to Sdom.

We estimated outflows for FY 2022 at 2.3 percent of income using the Mahmood & Chaudry (2020) equation. Therefore, our equation now changes to (I - S) + KO = CA after incorporating KO to support the theory.

Estimating the equation gives us 1.9 percent + 2.3 percent, which is approximately equal to 4 percent. This equals the CA of four percent. Therefore, we have reinstated the neoclassical equation of Sdom.

Financial liberalization and interest rate fluctuations have allowed saving to move across borders in pursuit of higher returns (Artis & Bayoumi, 1990; Mahmood & Chaudry, 2020).

We have reinstated the neoclassical equation by adding KO to the existing definition of S.

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Appendix 1

The table below estimates net outflows for FY 1990–2024 using the equation specified by Mahmood & Chaudry (2020).

Total net outflows (USD million) (FY 1990–2024)

Year	Direct investment abroad (A)	Portfolio investment abroad (B)	Net acquisition of financial assets (C)	Net outflows from financial account (D) = A + B + C	Net outflows from CA (primary income) (E)	Total net outflows (D + E)
1990	12	0	-272	-260	878	618
1991	7	0	-448	-441	941	500
1992	8	0	-291	-283	1,123	840
1993	-4	0	-702	-706	1,389	683
1994	-6	0	-181	-187	1,447	1,260
1995	3	0	-140	-137	1,359	1,222
1996	-4	0	140	136	1,804	1,940
1997	-18	0	64	46	2,203	2,249
1998	29	0	-367	-338	2,188	1,850
1999	44	0	-34	10	1,803	1,813
2000	-1	549	-449	99	1,972	2,071
2001	37	140	-291	-114	2,203	2,089
2002	2	491	236	729	2,207	2,936
2003	27	0	434	461	2,211	2,672
2004	45	-3	-546	-504	2,207	1,703
2005	66	-11	-1,235	-1,180	2,386	1,206
2006	71	-22	-209	-160	2,667	2,507

Year	Direct investment abroad (A)	Portfolio investment abroad (B)	Net acquisition of financial assets (C)	Net outflows from financial account (D) = A + B + C	Net outflows from CA (primary income) (E)	Total net outflows (D + E)
2007	114	5	-758	-639	3,582	2,943
2008	75	5	32	112	3,923	4,035
2009	25	1,073	560	1,658	4,407	6,065
2010	76	65	-11	130	3,282	3,412
2011	44	7	-920	-869	3,017	2,148
2012	77	32	-9	100	3,245	3,345
2013	198	99	314	611	3,669	4,280
2014	128	-23	-211	-106	3,955	3,849
2015	73	-41	-71	-39	4,599	4,560
2016	19	100	96	215	5,347	5,562
2017	86	-1	1,180	1,265	5,048	6,313
2018	10	-48	210	172	5,282	5,454
2019	-74	-144	-67	-285	5,610	5,325
2020	-54	-115	-127	-296	5,459	5,163
2021	171	-12	1,345	1,504	4,400	5,904
2022	234	-24	2,613	2,823	5,248	8,071
2023	957	-14	-1,029	-86	5,671	5,585
2024	267	-6	-120	141	8,623	8,764

Source: Data from the State Bank of Pakistan. https://www.sbp.org.pk/ecodata/Balancepayment_BPM6-Arch.xls.

Appendix 2

The table below converts the total net outflows from USD (million) to total net outflows in PKR (million).

Total net outflows (USD million) to total net outflows (PKR million) (FY 2005–2024)

Year	Total net outflows (USD million)	Exchange rate (USD/PKR)	Total net outflows (PKR million)	Total net outflows (PKR billion)
2005	1,206	59.67	71,966.60	71.97
2006	2,507	59.67	149,602.22	149.60
2007	2,943	60.44	177,869.33	177.87
2008	4,035	68.17	275,059.49	275.06
2009	6,065	81.26	492,812.18	492.81
2010	3,412	81.26	277,242.40	277.24
2011	2,148	85.94	184,601.48	184.60
2012	3,345	94.42	315,836.24	315.84
2013	4,280	98.91	423,331.80	423.33
2014	3,849	98.65	379,713.09	379.71
2015	4,560	101.73	463,870.10	463.87
2016	5,562	104.65	582,057.74	582.06
2017	6,313	104.79	661,543.69	661.54
2018	5,454	121.29	661,506.39	661.51
2019	5,325	162.01	862,712.30	862.71
2020	5,163	167.83	866,487.19	866.49
2021	5,904	157.32	928,813.15	928.81
2022	8,071	204.62	1,651,526.76	1,651.53
2023	5,585	286.14	1,598,080.17	1,598.08
2024	8,764	278.33	2,439,308.66	2,439.31

Source: Data from the State Bank of Pakistan.
https://www.sbp.org.pk/ecodata/Balancepayment_BPM6-Arch.xls.