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Anti-Lawson's Doctrine: Evidence for the Last Two Decades

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Abstract

In this thesis I shed light on the relationship between current account reversals and currency crises for the last two decades. Besides, I analyze whether currency crises are associated with government and/or private deficit reversals. Using a case-control methodology, and a worldwide country sample, I find that the Lawson's doctrine does not apply for the last two decades: The current account matters as well as the private deficit. In other words, I find that both current account and private deficits reversals occur "in the neighborhood" of currency crises.

Contents

I. Introduction

Various waves of currency crises have propelled economists, and policymakers alike, to reconsider the existing views on the current account and, as a result, to restate or go against the prevailing emphasis. Indeed, different theoretical models and policy implications have emerged after these disrupting episodes.

Right after the World War II, the country's external balance analysis used to be focus on the relationship between relative price changes and trade flows (Meade, 1951; Harberger, 1950; Laursen and Metzler, 1950; Machlup, 1943; Johnson, 1955). The elasticities-balance of trade approach affected policy discussions throughout the world, but specially the developing countries. While some authors argued that devaluations had been successful in improving the trade and current account balance in the developing countries (Cooper, 1971a; Kamin, 1988), some others encourage industrialization through import substitution policies instead of adjusting the country's peg.

However, these views were reconsidered during the second part of the 1970s. The fact that most countries in the world experienced significant changes in the current account, partially driven by oil prices shock, push economists and policymakers to look on the determinants of the current account and its implications. In turn, a renewed emphasis on the intertemporal dimensions of the current account emerged.

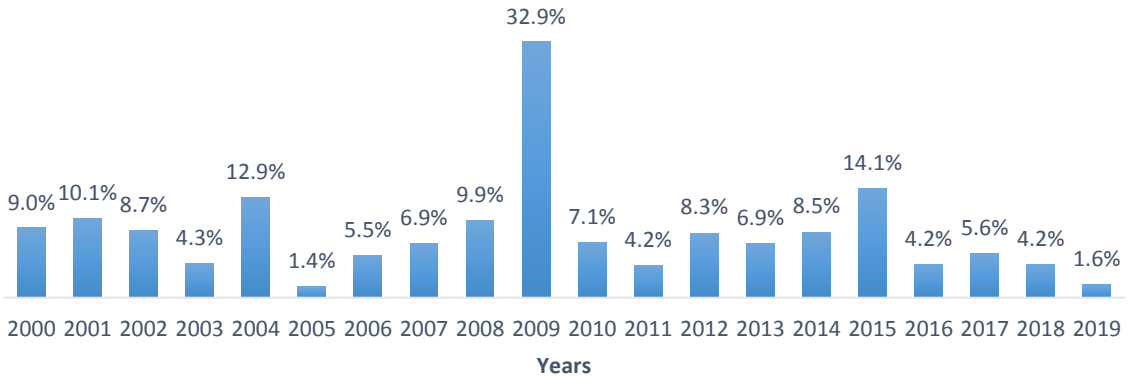
One of the underlying policy interpretations of the intertemporal approach is the so-called Lawson Doctrine. In a speech to the IMF, the former British Chancellor Nigel Lawson argued that current account deficits should not be a public policy concern if they are driven by a private-sector deficit. In other words, to the extent that current account deficits reflect private saving and investment decisions, then there are no reasons for the government to intervene (Blanchard, 2007).

In 2000, Edwards argued that very large current account deficits do not tend to be persistent and some of them end up wih a sharp current account reversal. Mainly, he found out that larger deficits increase the probability of a country experiencing a currency crises although there is not statistical effect on narrowly defined crashes.

In this context, the current account deficit (CAD) relevance as well as the Lawson's doctrine has been revisited in the light of the 80's and 90's waves of currency crises. Interestingly, in the last two decades, countries have not been exempted from those external crises that sweep the international capital markets. In fact, the so-called subprime mortgage crisis suffered by the United States in 2008 could be seen as a worldwide financial turmoil.

As Figure 1 shows, in 2009 the worldwide exposure to current account reversals spike after financial credibility was deteriorated and the fear was propagated.

Figure 1. Current Account Reversals to Total Observations: A 72 Country Sample



Furthermore, when I look into the private and government deficit reversals in the last two decades, it seems that the private sector (Figure 2) has been more exposed to reversals than the government (Figure 3).

Figure 2. Private Deficit Reversals to Total Observations: A 59 Country Sample

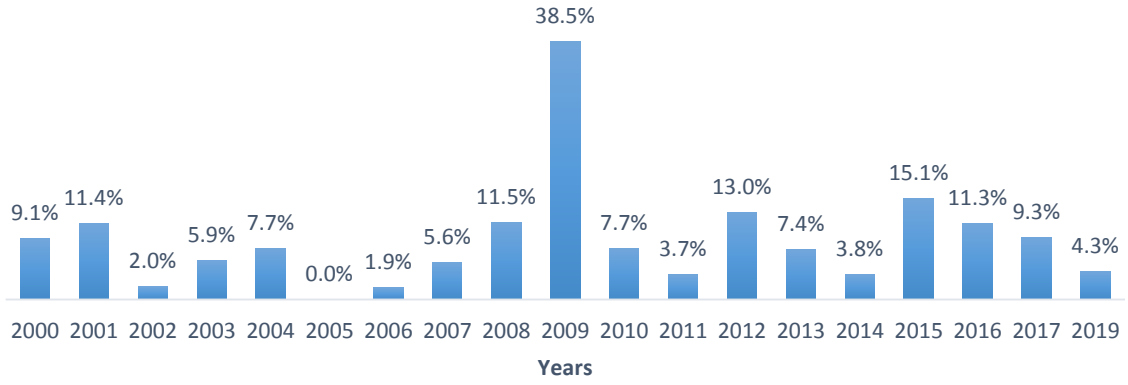
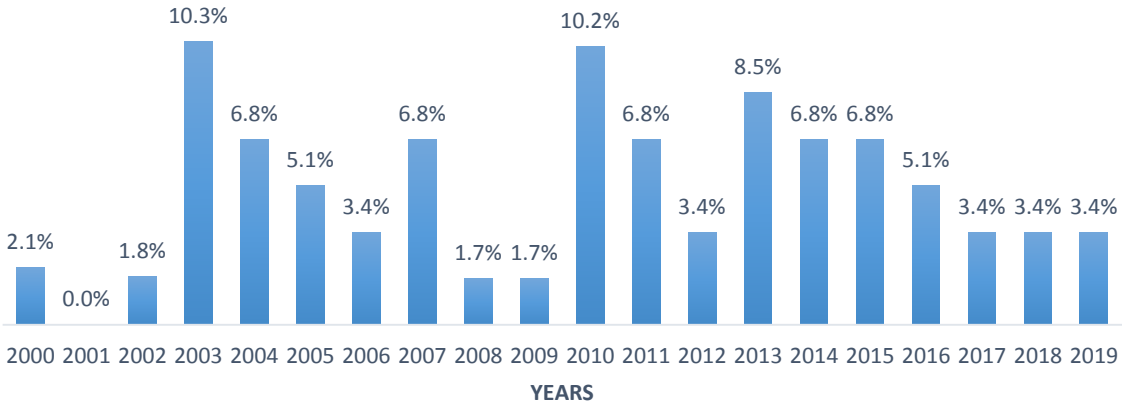


Figure 3. Government Deficit Reversals to Total Observations: A 59 Country Sample



In this regard, it seems relevant to answer some questions: Is the current account still relevant? If so, does the Lawson's doctrine apply for the last two decades? Using data from 1999 to 2019, this thesis addresses these questions by classifying a large country sample into: (1) a case group that includes countries which have experienced at least one currency crisis; and (2) a control group that includes countries which have not experienced any currency crisis at all.

In particular, I study the groups exposure to current account reversals and then determine whether there is statistical evidence to reject the null hypothesis (that is, independence between crises and current account reversals). Not only I apply Edwards' methodology (2000) to the last two decades but also I extend the scope of his analysis by looking into the government deficit and the private deficit.

Put it in another way, I also study the groups (case and control) exposure to government deficit reversals and private deficit reversals. Therefore, I analyze whether there is statistical evidence to reject the null hypothesis (that is, if crises are associated with government deficit reversals and/or private deficit reversals).

Now, the thesis continues as follows: In Section II I make a quick review of the current account as an intertemporal phenomenon. In section III, I explain the data used to estimate the relationship between current account reversals and currency crises as well as the relationship between government deficits reversals, private deficits reversals and currency crises. In section IV, I explain the variables used in the model and how the model works. In section V, I present the estimation's results. Ending with, section VI has some concluding remarks. I also include an appendix which contains some complementary tables.

II. The current account as an intertemporal phenomenon

The current account captures the intertemporal trade of the balance of payments. Particularly, it measures the country's resource exchanges across time. This is one of the fundamentals of an open economy: the chance of borrowing resources from abroad or even lending them abroad (Obstfeld and Rogoff, 1996).

Following Edwards' useful example, the current account can be expressed in a simple and intuitive way. Assuming no borrowing constraints, the current account deficit (CAD) can be written as:

$$CAD_t = (Y_t^* - Y_t) - (I_t^* - I_t) - (G_t^* - G_t) - (r_t^* - r_t)B_t - \varepsilon_t$$

Where current output, consumption, government spending, the world interest rate and the country's Net International Investment Position (NIIP) are denoted by Y_t, I_t, G_t, r_t and B_t respectively. In this line, Y_t*, I_t*, G_t* and B_t* represent "permanent" levels and ε_t is a consumption adjustment factor given that the world discount factor is not equal to the consumers' subjective discount factor. Moving forward to the interpretations, it is easy to see that movements in variables such as output, consumption, goverment spending and the world interest rate affect the current account deficit.

First and foremost, if there is a temporary output shortfall given that the economy suffered a negative exogenous shock, that is $(Y_t^* - Y_t) > 0$, the current account deficit would be higher. Instead of reducing consumption and investment abruptly, the country has the chance to smooth the impact by borrowing from the rest of the world. Moreover, if the government expenditure exceeds its permanent level, that is $(G_t^* - G_t) > 0$, the current account deficit would be higher as well.

Secondly, if it is expected a future increase in the productivity of capital then it is probably that savings would fall and investment would soar, that is $(I_t^* - I_t) > 0$. Consequently, as foreigners would be financing new investment projects, the current would be deteriorated.

Thirdly, the impact of changes in the world interest rate would depend on the country's NIIP. If the country is a world creditor, that is $B_t > 0$, a fall in the world interest rate would imply a current account deterioration given that the world is paying less for foreign assets. On the contrary, if the country is a world debtor, a fall in the world interest rate would imply an improvement in the current account because the country would be financing itself at lower rates.

In principle, if the no borrowing constraint assumption is lifted up and the country has already piled up a great amount of debt and has a sustain current account deficit, it would be vulnerable to currency crises. A sudden stop could lead to a sharp current account reversal. Therefore, it is quite relevant to analyze not only current account reversals but also two of its main drivers: the public sector ($(G_t^* - G_t) > 0$) and private sector ($(I_t^* - I_t) > 0$).

III. Data

All the data I use in this thesis was downloaded from the IMF web. More specifically, it was downloaded from the International Financial Statistics (IFS) and the Fiscal Monitor (FM) which are one of the Fund's principal statistical datasets. They have available data from countries all around the globe with a great variety of indicators and various data frequency options (annually, quarterly, monthly or even daily data).

The data downloaded to build the databases can be divided in two groups. The first one is the data needed to construct the Financial Pressure Indicator (FPI) that captures when there is a significant loss in reserves and/or a large depreciation. Consequently, monthly reserves and real exchange rate were downloaded. Once filtered by countries that have both reserves and real exchange rate data, I computed the monthly rate of change for each variable. Moving forward, in order for the index to have the same sample volatility, I multiplied the monthly rate of change of the reserves by the standard deviation of real exchange rate and standard deviation of reserves ratio. Therefore:

$$\boldsymbol{FPI_t = \frac{\Delta e}{e} - \frac{\sigma_e}{\sigma_R}\frac{\Delta R}{R}}$$

The second group consists of the data needed to construct the current account, government, and private deficits' databases. On the one hand, downloading data from the IFS, the current account to GDP ratio was constructed by dividing the current account in domestic currency (annually) by the Gross Domestic Product (GDP) in domestic currency (annually).

On the other hand, I downloaded the overall net lending and borrowing balance (as % of GDP) from the Fiscal Monitor databases and used it as the general government deficit. With this indicator, I obtained the private deficit by doing the current account (as % of GDP) minus the general government deficit (which is also as % of GDP). In other words, I splitted the current account into private deficit and government deficit.

Once filtered the countries that did not have data for all of the indicators mentioned above, I obtained a sample of 78 countries to estimate the current account reversals and 59 to estimate the government deficit and the private deficit (see Appendix).

IV. Methodology

Following Edwards (2000) path, I used a case-control methodology to address the main questions of this thesis. Basically, this approach consists of formally testing whether there is a significant relationship between a particular outcome (the case) and another variable to which both, case and control variables, have been "exposed" (Edwards, 2000).

The first step is to separate observations into a "case group" and a "control group". Countries that for a given year experienced a "crisis" are considered to be a "case". Non crisis observations are considered "control group". The second step is to calculate how many observations have been exposed to a current account reversal and how many have not.

I carry out the estimation by using an X^2 test. This is a non parametric test that measures the discrepancy of observed and expected frequency distributions. In this respect, the null hypothesis (H_0) is that the two variables (in this case, crises and reversals) are independent. Therefore, the test statistic consist of:

$$X^2 = \sum_{i=1}^{k} \frac{(Observed_i - Expected_i)^2}{Expected_i}$$

This test follows an X^2 distribution with (rows-1) (columns-1) degrees of freedom and α level of significance. The null hypothesis (H_0) is rejected if:

$$X^2 > X^2_{(1-\alpha),(r-1)(c-1)}$$

Contingency tables are built to conduct the X^2 test. These are frequency tables of two variables presented simultaneously by allocating one variable as rows and the other variable as columns. After that, the sum of each rows and the sum of each columns are computed and cell frequencies are added.

In this context, the idea of the thesis is to analyze whether there is a significant relationship between crises and reversals. For this purpose, I create a variable called acrisis following Edwards (2000) criteria:

(1) I created a Financial Pressure Indicator by capturing currency depreciations and losses in reserves. In order for the index to have the same sample volatility, I multiplied the monthly rate of change of the reserves by the standard deviation of real exchange rate and standard deviation of reserves ratio:

$$\mathbf{FPI_t = \Delta e/e - (\sigma_e/\sigma_R)^* (\Delta R/R)}$$

(2) I defined a crisis (C_t) to have taken place when the FPI surpassed the mean of the index plus 3 standard deviations:

$$C_t = \begin{cases} 1 & if\ FPI_t >= mean(FPI_t) + 3\sigma_{FPI} \\ 0 & otherwise \end{cases}$$

(3) I annualized the FPI by considering each year as january-january period. More specifically, a country experienced a crisis (=1) if any month between juanuary in period "t" and january in period "t+1" is a crisis.

On the other hand, I created a set of variables to capture current account reversals, government deficit reversals and private deficit reversals called ReversalCA, ReversalGD and ReversalPD respectively. These variables take a value of one when there is a reversal of at least three percent of GDP in one year. Furthermore, I created a broader set of variables called ReversalnCA, ReversalnGD and ReversalnPD in which reversals take a value of one on the year a reversal was detected but also in the previous and next year.

The reason behind this broader set of variables is to study whether crisis take place in the neighborhood of sharp current account reversals. As Edwards remarks in his paper:

> A posible limitation of a simple application of this X^2 test, however, is that from a theoretical point of view the relationship between reversals and crisis implies complex timing and causality issues. In fact, there are reasons to believe that reversals may occur at the same time as a crisis, before a crisis, or even after a "crisis". For instance, the reversal may be so pronounced that the country in question has no alternative but to devalue its currency and/or deplete its international reserves. There is no reason, however, why these phenomena would take place at exactly the same time. Also, the reversal may be the result, rather than the cause, of a devaluation (p.33).

Likewise, Milesi-Ferreti and Razin (1998) also argued that,

> In principle, a reversal in capital flows can cause a currency crisis and force a reduction in current account deficits, because of the drying up of sources of external financing. However, a reversal can also occur in response to a change in macroeconomic policy designed to forestall the possibility of future speculative attacks or capital flow reversals, or as a consequence of a favorable terms-of-trade shock (p.4).

V. Results

The results are striking. Firstly, when I replicate Edwards' current account exercises, the results seem to be similar to those observed during 1975-1997. When doing the X^2 test for *Reversal1CA* although the case group has higher exposure to current account reversals than the control group when facing up currency crises, it is not enough to reject the null hypothesis.

Reversals1CA Tables

Observed values (*Reversal1CA*)		C.A. REVERSALS		TOTAL	Proportion Exposed
		Exposed	Unexposed		
CRISIS	Cases	6	47	53	**0.11**
	Controls	38	482	520	**0.07**
TOTAL		44	529	*573*	
Frequency		**8%**	**92%**	**100%**	

Results (*Reversal1CA*)	If $X^2 > X^2_{(1-\alpha),\,1}$, the null hypothesis is rejected		
Level of significance (α)	10%	5%	1%
Test statistic (X^2)	1.09	1.09	1.09
Critical value	3	4	7
Conclusion	**I cannot reject H_0**		

When doing the X^2 test for *ReversalnCA*, on the contrary, it is possible to reject the null hypothesis with 1% level of significance. In other words, currency crises still occur in the neighborhood of current account reversals as Edwards argued two decades ago.

ReversalnCA Tables

Observed values (*ReversalnCA*)		C.A. REVERSALS		TOTAL	Proportion Exposed
		Exposed	Unexposed		
CRISIS	Cases	18	37	55	**0.33**
	Controls	88	432	520	**0.17**
TOTAL		106	469	*575*	
Frequency		**18%**	**82%**	**100%**	

Results (*ReversalnCA*)	If $X^2 > X^2_{(1-\alpha),\,1}$, the null hypothesis is rejected		
Level of significance (α)	10%	5%	1%
Test statistic (X^2)	8.26	8.26	8.26
Critical value	3	4	7

Conclusion	**I reject H_0 at 1%**

Secondly, when I extend the analysis to the government deficit, the results are somewhat unexpected given Lawson's doctrine of public deficit relevance. Even though case group exposure is higher than the control group, neither with *Reversal1GD* variable nor with *ReversalnGD* I can reject the null hypothesis. Put it in another way, government deficits are not associated with currency crises, in the last twenty years at least.

Reversal1GD Tables

Observed values (*Reversal1GD*)		**GOVERNMENT DEFICIT**		**TOTAL**
		Exposed	Unexposed	
CRISIS	Cases	4	48	52
	Controls	15	339	354
TOTAL		19	387	*406*

Proportion Exposed
0.08
0.04

Frequency	**5%**	**95%**	**100%**

Results (*Reversal1GD*)	If $X^2 > X^2_{(1-\alpha),\,1}$, the null hypothesis is rejected		
Level of significance (α)	10%	5%	1%
Test statistic (X^2)	1.21	1.21	1.21
Critical value	3	4	7

Conclusion	**I cannot reject H_0**

ReversalnGD Tables

Observed values (*ReversalnGD*)		GOVERNMENT DEFICIT		TOTAL
		Exposed	Unexposed	
CRISIS	Cases	7	45	52
	Controls	42	312	354
TOTAL		49	357	*406*

Frequency	**12%**	**88%**	**100%**

Proportion Exposed
0.13
0.12

Results (*ReversalnGD*)	If $X^2 > X^2_{(1-\alpha),\,1}$, the null hypothesis is rejected		
Level of significance (α)	10%	5%	1%
Test statistic (X^2)	0.11	0.11	0.11
Critical value	3	4	7

Conclusion	**I cannot reject H_0**

Lastly, when I use the narrow one year definition of private deficits reversals, that is *Reversal1PD*, it is not possible to reject the null hypothesis.

Reversal1PD Tables

Observed values (*Reversal1PD*)		PRIVATE DEFICIT		TOTAL
		Exposed	Unexposed	
CRISIS	Cases	5	35	40
	Controls	25	321	346
TOTAL		30	356	*386*

Frequency	**8%**	**92%**	**100%**

Proportion Exposed
0.13
0.07

Results (*Reversal1PD*)	If $X^2 > X^2_{(1-\alpha),\,1}$, the null hypothesis is rejected		
Level of significance (α)	10%	5%	1%
Test statistic (X^2)	1.39	1.39	1.39
Critical value	3	4	7

Conclusion	**I cannot reject H_0**

Nevertheless, and I think that it is the most striking result, when I use the broader three years definition of private deficit reversals, that is *ReversalnPD*, I can reject the null hypothesis with 5% level of significance. Namely, currency crises occur in the neighborhood of private deficit reversals.

ReversalnPD Tables

Observed values (*ReversalnPD*)		**PRIVATE DEFICIT**		**TOTAL**
		Exposed	Unexposed	
CRISIS	Cases	13	27	40
	Controls	63	283	346
TOTAL		76	310	*386*

Proportion Exposed
0.33
0.18

Frequency	**20%**	**80%**	**100%**

Results (*ReversalnPD*)	If $X^2 > X^2_{(1-\alpha),\,1}$, the null hypothesis is rejected		
Level of significance (α)	10%	5%	1%
Test statistic (X^2)	4.6	4.6	4.6
Critical value	3	4	7

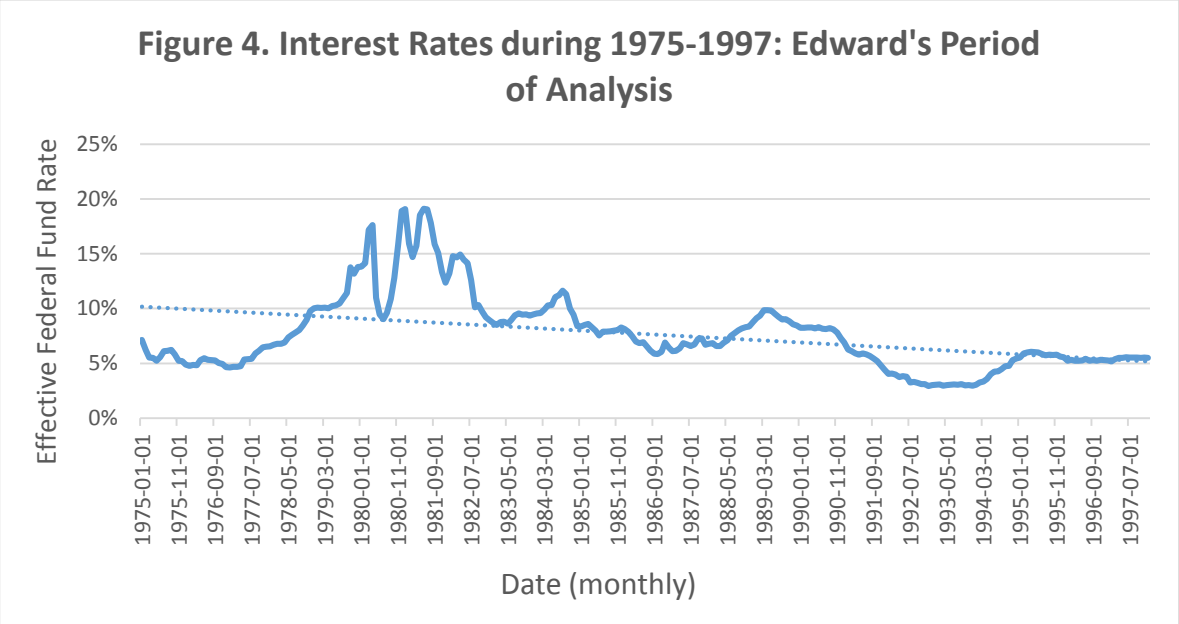
Conclusion	**I reject H_0 at 5%**

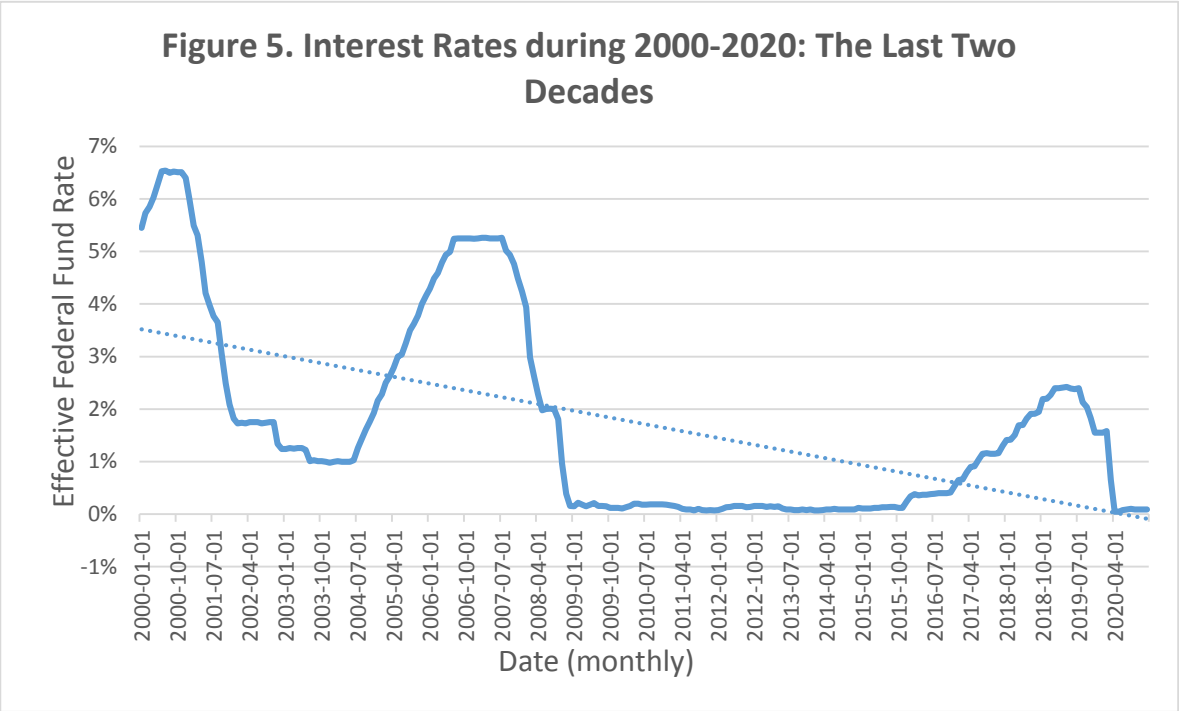
VI. Concluding Remarks

The questions addressed in this thesis deal with the relationship between reversals (current account, government and private deficits) and currency crises. As Edwards argued two decades ago, the current account matters and should be a cause for concern. Even though current account does not predict currency crises on a narrowly defined bandwith, there is statistical evidence to argue that sharp current account reversals occur in the neighborhood of these crises.

On the opposite of Lawson's Doctrine, a large current account deficit should be a cause of concern if the fiscal accounts are balanced. In fact, not only fiscal accounts do not have incidence on currency crises but also large private deficits increase the probability of facing up a currency crisis.

One possible explanation of these results is that governments across the world have been benefited from lower interest rates to smooth negative shocks in comparison to 1975-1997, the Edward's period of analysis.





Comparing Figure 4 and Figure 5, it is clear that interest rates have been lower during the last two decades (see Appendix for a more detailed comparison). This could be explaining why governments across the world could have been smoothing their fiscal adjustment and thus both, avoiding a sharp reversal of the fiscal accounts and currency crises.

In conclusion, the current account deficit as well as the private deficit have been relevance in terms of financial stability. In this way, the Lawson's doctrine does not apply for the last two decades. As a matter of fact, the data shows that the government should intervene in presence of a sustainable private-sector deficit.

VII. Appendixes

Reversal1CA Complementary Tables

Expected values (*Reversal1CA*)		C.A REVERSALS	
		Exposed	Unexposed
CRISIS	Cases	4.1	48.9
	Controls	39.9	480.1

$\frac{(Observed_i - Expected_i)^2}{Expected_i}$	
0.92	0.08
0.09	0.01

ReversalnCA Complementary Tables

Expected values (*ReversalnCA*)		C.A REVERSALS	
		Exposed	Unexposed
CRISIS	Cases	10.1	44.9
	Controls	95.9	424.1

$\frac{(Observed_i - Expected_i)^2}{Expected_i}$	
6.09	1.38
0.64	0.15

Reversal1GD Complementary Tables

Expected values (*Reversal1GD*)		GOVERNMENT DEFICIT	
		Exposed	Unexposed
CRISIS	Cases	2.4	49.6
	Controls	16.6	337.4

$\frac{(Observed_i - Expected_i)^2}{Expected_i}$	
1.01	0.05
0.15	0.01

ReversalnGD Complementary Tables

Expected values (*ReversalnGD*)		GOVERNMENT DEFICIT	
		Exposed	Unexposed
CRISIS	Cases	6.3	45.7
	Controls	42.7	311.3

$\frac{(Observed_i - Expected_i)^2}{Expected_i}$	
0.08	0.01
0.01	0.00

Reversal1PD Complementary Tables

Expected values (*Reversal1PD*)		PRIVATE DEFICIT	
		Exposed	Unexposed
CRISIS	Cases	3.1	36.9
	Controls	26.9	319.1

$\frac{(Observed_i - Expected_i)^2}{Expected_i}$	
1.15	0.10
0.13	0.01

ReversalnPD Complementary Tables

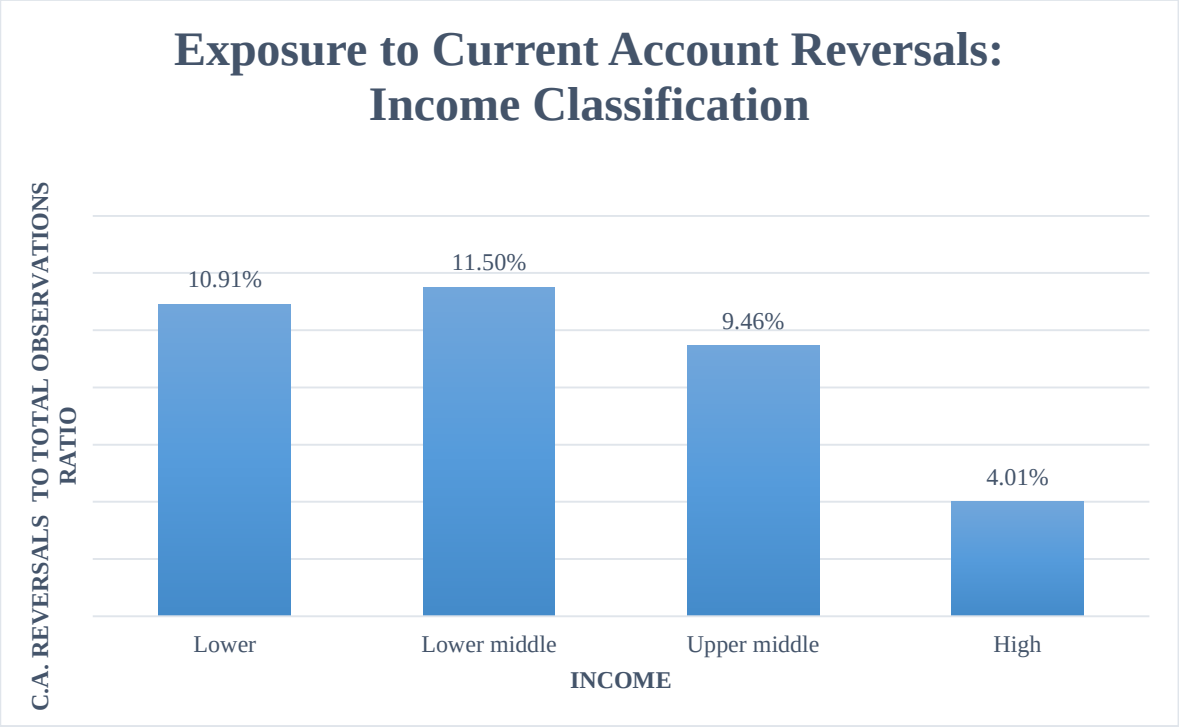
Expected values (*ReversalnPD*)		PRIVATE DEFICIT	
		Exposed	Unexposed
CRISIS	Cases	7.9	32.1
	Controls	68.1	277.9

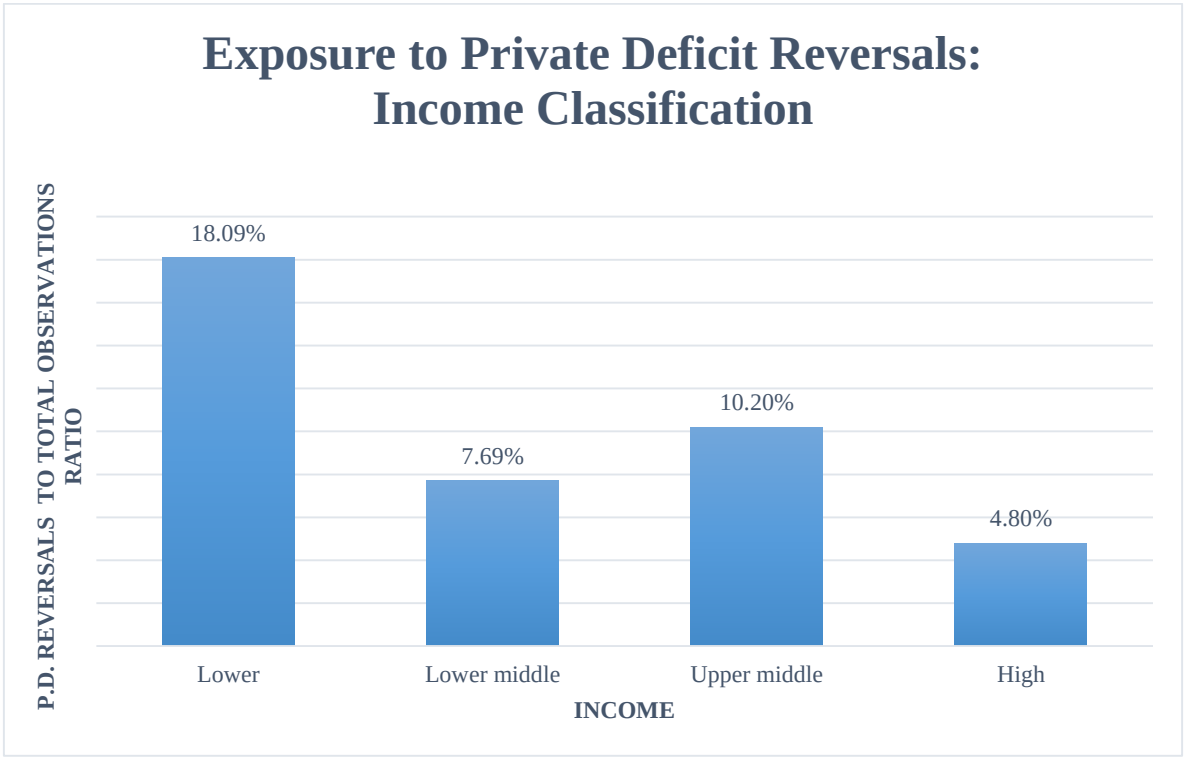
$\frac{(Observed_i - Expected_i)^2}{Expected_i}$	
3.33	0.82
0.39	0.09

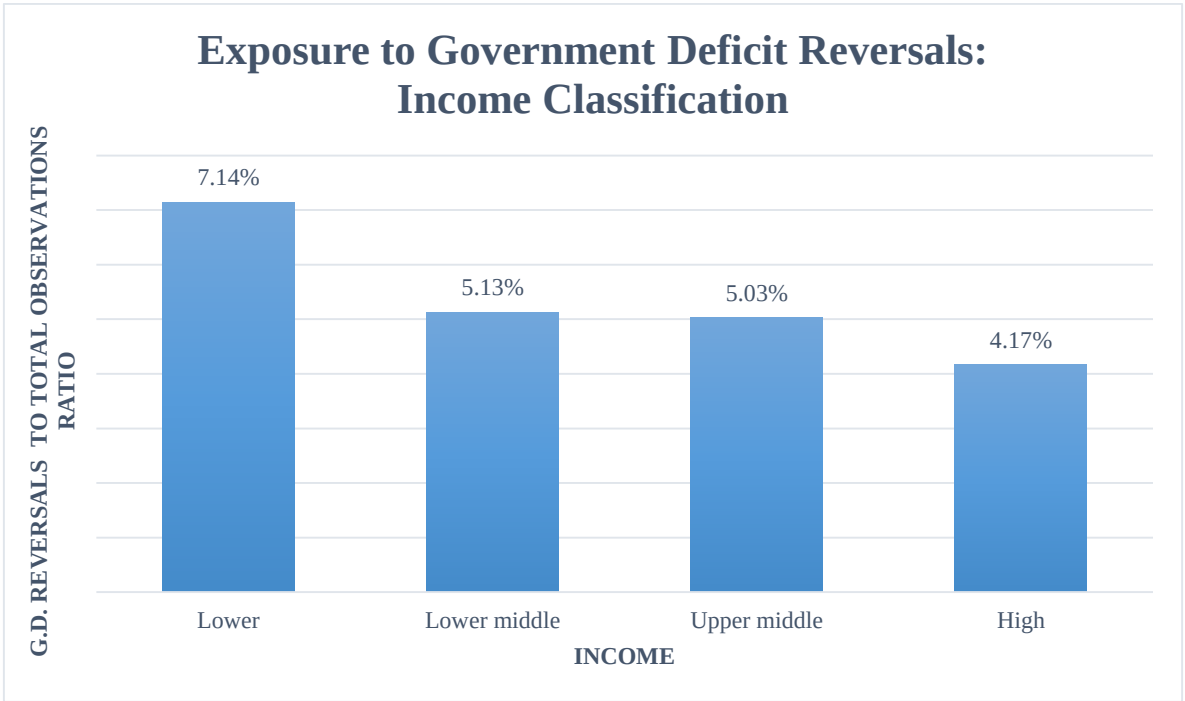
Interest Rates Comparison

Interest Rates: Comparison between 1975-1997 and 2000-2020				
Period	**Average**	**Standard Deviation**	**Min**	**Max**
1975-1997	7.67%	3.4	2.92%	19.10%
2000-2020	1.72%	1.9	0.05%	6.54%

Income Classification Figures




Exposure to Private Deficit Reversals: Income Classification
P.D. REVERSALS TO TOTAL OBSERVATIONS RATIO
18.09%
7.69%
10.20%
4.80%
Lower
Lower middle
Upper middle
High
INCOME


Exposure to Government Deficit Reversals: Income Classification
G.D. REVERSALS TO TOTAL OBSERVATIONS RATIO
7.14%
5.13%
5.03%
4.17%
Lower
Lower middle
Upper middle
High
INCOME

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