

Is currency
devaluation
necessary to improve
the trade balance?



In theory, when a country's currency depreciates, foreigners find that its exports are cheaper and domestic residents find that imports are more expensive. (p470, Feenstra and Taylor 2008) i. e.: stronger (appreciation) Euro implies European can buy foreign goods more cheaply and foreigners find European goods more expensive and demand falls. When Euro depreciates (weaker), the opposite scenario occurs. Thus, an exports dependant country needs a weaker currency, because if it's too high, it will lose its competition. E. g.: Japan, a highly exports dependant country and its currency (Yen) has been increasing in value since 2007. They wanted to decrease Yen to keep its competition: by issuing more Yen (sell Yen to international market) to increase supply, so domestic price decrease and thus increase competition. Conversely, high imports countries should keep their currency strong.

The relation between currency devaluation and trade balance is a controversial topic in economics and variety opinions have arisen in the literature research. A definite answer is difficult itself and inevitably bias, unless supported by strong evidences and good explanations. The attention of this paper is to offer a broader view of the topic without going into complexity and mathematical details, and it will focus on the analysis presented above as the core-view towards the topic.

Section I describes the theoretical issues in explaining the effects of devaluation on trade balance. Section II describes some competing views of literature studies on devaluation and trade balance, and section III summarizes the results and draws some conclusions.

Theoretical Review

I. I Expenditure Switching

The assumption summarized in introduction is supported by the relevant literature that attempt to explain the relation between exchange rates and trade balance (TB). Theory such as expenditure switching (also called the absorption analysis) is in favor of devaluation help to improve trade balance: ' by switch expenditure from foreign to domestic goods, raise total production and decrease absorption relative to total production, so improving the trade balance' (Vamvoukas 2005). Assuming the prices of goods/services are fixed so that changes in the nominal exchange rate imply corresponding changes in the real exchange rate. In expenditure switching theory real exchange rate is the key, because it is the price of goods/service in a foreign country relative to the price of goods/ service in the home country. For instants, holding price level constant in both home (P) and foreign country (p^*), if home country's exchange rate is ' E' then the real exchange rate ' e' of the home country is $e = EP^*/P$ (p 715 Feenstra and Taylor 2008). For example, suppose good X cost €100 in the home country (Ireland), and the same good cost £90 in the UK, the exchange rate is £0.9852 per pound. Put the information in the equation $e = EP^*/P$, we have $(£90 \times 0.9852) / €100 = 0.88668$. This is the relative price of foreign goods in terms of home goods. It shows that good X is cheaper in the UK than in Ireland, because of the sterling's sharp depreciation (higher real exchange rate).

From home perspective, a rise in the real exchange rate (depreciation)

indicates that foreign goods are become more expensive relative to home
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goods. As the real exchange rate rises, both home and foreign consumers will respond by expenditure switching: home country will imports less as home consumers switch to buying home goods. Thus, in the example above Irish consumer would switch to buy UK goods as UK goods get cheaper relative to Irish goods. This was indeed the case in the period of 2008-2009 where massive cross-border shopping from Ireland to the north due to the sterling depreciation. More recent example of such expenditure switching is the appreciation of Chinese RMB, people live in Shenzhen and other mainland cities are desired to spend in HK as the prices are now lower than previously (hktcd. com)[2].

Above examples demonstrated that there is a strong correlation between real exchange rate and the trade balance (Figure 1), holding home and foreign prices fixed and the trade balance increases as real exchange rate increases: ‘... trade balance of the home country to be an increasing function of the home country’s real exchange rate’ (P715 Feenstra and Taylor 2008). This linearly relationship is illustrated in Figure 1 as the upward sloping line. In summary, currency depreciation (an increase in the real exchange rate) increases trade balance by raising exports and lowering imports: when exchange rate increase from E_0 to E_1 , trade balance also increase from TB_0 to TB_1 .

Figure. 1. the Trade Balance and the Real Exchange Rate[3]

Trade Balance

Appreciation

$f\ddot{Y}$

Depreciation

 f

Real exchange rate (e)

E0

E1

TB0

TB1

 \hat{a}^*

I. II. Brief review of the Marshall-Lerner theory and the J-curve

Another important theory in consistent of the expenditure theory that explains the relation between exchange rates and TB is the Marshall-Lerner (ML) elasticity's approach (an extension view of the expenditure switch theory), this theory also suggests that the TB will improve provided that the demand elasticity of imports (PED-imports) and exports (PED-exports) are high enough, in specific, to be greater than one. (p760 Feenstra and Taylor).

$$\text{PED (exports) + PED (imports) > 1}$$

Essentially, the greater the volume effects, the greater will be the improvement of the trade balance. '.... the responsiveness of trade volumes to real exchange rate is sufficiently elastic to ensure that the volume effects exceed the price effects' (p760 Feenstra and Taylor). It has to be greater

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than one because of the following (example adapting the theory): suppose home country is Ireland, set PED (imports) = 1, then 1% Euro devaluation means 1% increase in price of imports and this resulting 1% reduction in quantity demanded in the domestic country(Ireland). The overall effects cancel out and the value of imports stay unchanged. Furthermore, any increase in export demand following 1% decrease in \$ price of Irish goods will move the current account towards balance, i. e. must have PED (exports) > 0 (recall that price is fixed). Similarly, if PED (imports) = 0, import values rise by 1% due to the price effect and export revenues must rise by more than 1% to improve current account, i. e. require PED(exports) > 1.

(Christopher, 2007)

Empirical evidence claim that the ML condition might not hold in the short run because, in the short run exports and imports tend to be less fluctuated in its volume '...demand is more inelastic in the short run, thus the elasticity's approach represents a long-run relationship only' (Ryan, 1993). This implies that the price effect exceeds volume effect, depreciation will in fact, worsening the TB rather than improving it. As Christopher (2007) quoted that supply is inelastic especially in the short-run (Figure 2) and it is in the short-run that demand curves are most inelastic e. g. due to sluggish adjustment linked to consumer switching costs, consumption habits and the like.

Figure. 2. Export adjustment with supply constraints

Price of Irish goods in US\$

1% price reduction from Euro devaluation.

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When holders of import licenses require increases in prices before increasing supply, the market clears through P and Q adjustment- so the Euro value of export revenues increases $< 1\%$ even when export demand is elastic.

Supply (pre-devaluation)

Supply (post-devaluation)

D

P0

P1

Q0

\hat{a}^*

Q1

Quantity of Irish exports to the US

Source: Christopher. 2007

Lecture: Open Economy Macroeconomics, the Balance of Payments.

This leads us to the J-curve analysis where it tends to explain the short run effects better. The essential idea is that devaluation is expected to worsen the TB in the short term. This process also reflects the shortcomings of ML where demand and supply of goods/services are inelastic in the short run and firms may not be able to immediately increase supply following a

change in exchange rates, thus, allow the TB to worsen before improving. Same concept applies in the J-curve argument.

Recall the assumption in expenditure switching earlier that real depreciation improves a country's TB by increasing exports and reducing imports. ML theory also shows the same results, and with the present of ML shortcomings we know that in reality, firms do not react to the change of exchange rate immediately because orders for imports /exports are placed in advance and payment occurs later period. This lag indicates that after depreciation exports will remain the same for a period of time (quantity and price), the only change is the price paid for domestic imports. Goods in domestic country will now cost more compare to pre-depreciation, but with the same quantity. When imports price become more expensive with a fixed earnings for exports. The TB will therefore to fall (initially) rather than rise as shown in Figure 3. This lag may take some time to adjust, until an imports and exports price reflects the currency depreciation. TB is expected to improve when this new price level is reached (p 721 Feenstra and Taylor, 2008).

Figure. 3. The J Curve

Source: Feenstra and Taylor: International Economics, First Edition

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So far, the above analysis has been focused on the theory aspect of the relationship of the real exchange rate and the 'TB'. Feenstra and Taylor (2008) argue that there is evidence in support of those theories, consider

Figure 4. The data shown a consistent result with the theories where US

trade balance is correlated with the US real exchange rate index. They also <https://assignbuster.com/is-currency-devaluation-necessary-to-improve-the-trade-balance/>

added that the imperfect correlation as seen in the 80s and 2000-2006 is due to the fact that the underlying imports and exports orders may react slowly to the changes in real exchange rate and TB as seen in J-curve. There are also other factors may contribute to this different movements, such as tax cuts and expenditures during the war period (p719 Feenstra and Taylor, 2008). However, the overall effect is consistent with the theories described above.

Figure. 4. The Real Exchange Rate and the Trade Balance: United States, 1975-2006

Source: Feenstra and Taylor: International Economics, First Edition.

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In spite the evidence supporting the positive correlation between currency depreciation and the TB, there are still many arguments and controversy whether it plays out in reality. The next section focuses on the analysis of the literature studies where statistical data will be used to test the validity of the theory, and results are surprisingly vary among one and another.

Academic Review

The topic caused much debates resulting various views and each is supported by its own evidence: Empirical evidence date back as far as Silverstein (1937) has been able to show that a consistent result with theories in section I. By use of the factual data(post-devaluation), e. g.: domestic goods (US) price index including the prices of the main goods in the international trade and the overall trend of this index has rose steadily compared with the general wholesale goods prices for which the period <https://assignbuster.com/is-currency-devaluation-necessary-to-improve-the-trade-balance/>

examined. As result he gathered that the currency depreciation effectively helps boost the exports markets.

The first effects of a depreciation of the foreign exchange value of a currency are felt by those goods entering into the export and import trade of a nation. Exports are stimulated because depreciation of the currency makes goods exported by that nation cheaper; imports are discouraged because depreciation makes the imported articles more expensive. Silverstein (1937)

Brown (1942) also supported that depreciation helps to improve TB, particularly in consistent with ML's elasticity analysis. In addition to ML, he emphasized that the equilibrium rate of exchange between two countries is important. The elasticity of supply and along other factors are also important in determine the TB effects after currency depreciation. On the other hand Alexander (1952) questions the methodology used in the standard theories analysis presented in section I, He argues that the ML elasticity analysis failed to capture the exports and imports as a whole:

'...While supply and demand curves are very useful tools for analyzing the factors that determine price and output for a single good, their value is much more questionable when applied to imports and exports as a whole'.

Alexander (1952)

Instead, he used a new 'conventional approach' where total elasticities were considered and not 'partial elasticities' as he believed was the case of ML.

While ML focused on the effect to demand and supply when price changes after depreciations. His analysis takes on broader issues 'other things have changed that are likely to change as a result of the devaluation' Alexander
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(1952). As result, the effects devaluation has on TB is depends on how the economic systems behave, such as unemployment and real income.

Miles (1979) also adapted new ways of testing whether devaluation improves the TB. His analysis is based on the statistical relationship between devaluation and TB rather than theories, which provided stronger evidence in comparison of Alexander's work. He is, in contrast, quite skeptical of the notion that devaluation improves TB. ' If devaluation causes a significant improvement in the trade balance, this improvement should be statistically observable regardless of which theoretical approach is used' Miles (1979).

He also criticized that most papers do not compare the balance account with the pre-devaluation figures to the post-devaluation figures and thus failed to determine the actual effects. In addition, many have ignored the government fiscal policy and only focused on the ' raw account figures' following devaluation is reported. For example in his paper, he argues that cooper's (1971) result is invalid where the impact effect of 15 of 24 devaluations is to improve the TB, there is no evidence show that the improvement is permanent and that the data provided were before devaluation, thus it is impossible to judge whether devaluation improved TB. His paper is different to others that he takes into account all those three factors and to focus on the long term effects rather than the immediate effect of devaluation on TB.

A different result revealed in his paper that devaluation does not improve TB. Rather, it improves the balance of payments. When Monacelli and Perotti (2006) examined this issue from a fiscal policy perspective he also concluded a similar result. By using a technique called Structural Vector Auto Regression methodology[4]to test the effects of government spending on

series of OECD[5] countries including Canada, US, UK and Australia. They find that an increase in government spending tends to lead currency depreciates (except Canada). More importantly, their result presented a stark contrast with the standard Keynesian model assumed in section I: a negative relationship between currency depreciation and TB.

While arguments are widely different from one and another, components and data used were also distinct. Nevertheless, Lane and Milesi-Ferretti (2001) again, argues that in the long run devaluation does not improve TB and there is a negative relationship between TB and the real exchange rate. Their arguments emphasize that the relative price of non-tradable and country size are the key in determining such result. The comparison of home relative price of non-tradable to foreign relative price of Non-tradable indicated a negative correlation relationship between the real exchange rate and TB in the long run. They suggested that there are other factors including 'demography, fiscal positions and relative incomes' are important in determining the long run TB instead, and the real exchange rate is derived by the positive external wealth of a country rather than nominal interest rate as assumed in section I. In contrast, Musila and Newark (2003) strongly supports the standard Keynesian model described in section I. As they have found evidence in Malawi that devaluation helps to improve TB. Depreciation curtails the growth of imports in the long run, which lead to improvement in the trade balance position.

' Our investigation of the correlation between the real exchange rate and the nominal exchange rate for Malawi supports the neo-Keynesian view. A

correlation coefficient of 0.75 was computed, suggesting that the variability
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in the real exchange rate might have been caused in large part by changes in the nominal exchange rate.' Musila and Newark (2003)

In addition, their analysis has included the pre/post devaluation comparison that Miles (1979) criticized earlier. This makes the test itself much more valuable and the results are more persuaded. They also stated that the ML condition does hold in the long run as well as short run, with strong evidence in support such results.

Conclusion

This paper started with theories assumption that devaluation improves trade balance through the effects like: expenditure switching. Also elasticity demand and supply are important, as ML theory concludes currency devaluation helps to improve trade balance as long as the volume effects of demand and supply is greater than one. J-curve theory overcomes the ' lag' problem in the ML theory where it takes into account the slow adjustment process for devaluation to be effectively helped to improve trade balance. Empirical researches that tried to test these theories are arguably strong, as seen in section II that some had rejected such assumption inconsiderably and some strongly in support. Results shown in Silverstein (1937), Brown (1942) and Alexander (1952) supported the Keynesian model assumption. Especially Musila and Newark (2003) strongly support the view that nominal devaluation can be a quite powerful tool in minimizing the imbalances of international trade. In contrast, results were the opposite from Miles (1979), Lane & Milesi-Ferretti (2001), and Monacelli & Perotti (2006), when adapting different approach and time frames to Keynesian model, they get different results and all rejected that currency devaluation helps to improve trade

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balance. It is important to point out that each of these studies had used different data sets or techniques of analysis, while all provided useful insight to the understanding of the real exchange rate and trade balance. The expected results can be therefore, different. As conclusion, the effects on trade balance with currency depreciation can be effective in the short run and different results may occur due to differences in the specification and method identification as seen in section II.

Other factors should be considered such as government policies, which can be used to manipulate balance of trade to the greater benefit of the country. In addition, a country's specific conditions may also contribute to the effect of the trade balance when adapting currency devaluation, for example, Musila and Newark (2003) support devaluation with the evidence from developing county Malawi. While Duncan (2008) also studied a developing country Jamaica, but find that devaluation did not help improve trade balance due to the country's economic problems ' there are some inherent economic problems that will make it difficult for currency devaluation to have a positive impact on the trade performance of such country' Duncan(2008).