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Is the J-Curve a Reality in Developing Countries?

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Abstract. We examine the relationship between trade balance and net export with both, the official and real effective exchange rates on the J-Curve hypothesis and find evidence to support in favor of the hypothesis, coming from a panel data of 49 developing countries from Africa. Countries can improve their current account balance by depreciating their currency; however the J-curve hypothesis argues that such changes take time to occur, but should use exchange rate policies discreetly, as it belongs to the "beggar thy neighbor" policies. This may be good for home country but is not so good for the foreign country; as a result, such policies may trigger retaliatory policies. Restrictive trade policies are against the present day notion of free-economy and free-trade policy these are very common around the world.
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JEL. F10, F13, F14, F31, F32.

1. Introduction

The J-curve of trade balance associated with the depreciation of the currency of a country (a reduction in the value of one country's currency vis-à-vis a foreign country) is one of the highly debated issue in international trade now-a-days. The basis for J-curve is grounded in the Marshall-Lerner condition which explains why a reduction in value of a nation's currency (depreciation) need not immediately improve its balance of trade. The condition states that, for a currency devaluation to have a positive impact on trade balance, the sum of price elasticity of exports and imports (in absolute value) must be greater than one. This really depends on price elasticity and if this condition is violated, then currency depreciation will not bring forth any improvement in trade balance.

Marshall-Lerner condition can be explained with the positive quantity effect and negative cost effect associated with the depreciation of currency. When depreciation takes place, the host (devaluing) country's currency loses value vis-à-vis a foreign country. As a result, foreign currency becomes pricier and every unit of foreign currency can now buy more units of host country's currency. This drives price of imported goods higher in domestic currency in the host country. On the contrary, price of exported goods declines in foreign currency in foreign market, because the same amount of foreign currency can now buy more host country's currency. When the quantity of imports decline due to the price changes in light of depreciation, then the trade balance will improve. This is '*the positive quantity effect*' of deprecation. On the other hand, price of imported goods will be higher now so costs of imported goods are higher.

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Affirming the state of the J-curve phenomenon; it refers to the short-run deterioration of trade balance followed by a gradual improvement in the balance after a significant depreciation of the currency of a country. Junz and Rhomberg (1975), Magee (1973), Bahmani-Oskooee (1985), and Meade (1988) all conclude that while exchange rates adjust instantaneously, there is a time lag for consumers and producers to adjust to the changes in relative prices.

Researchers have debated the existence of J-curve for long. In the wake of financial and trade liberalization around the globe that has been going on for the last two decades, researchers have argued the existence of such a curve for long. Many also believed that such a relationship did not exist in the real world. They argued that trade balance was affected by many factors and it is based on complicated relationships, rather than that suggested by the J-curve hypothesis. Based on these findings, scholars argued that depreciation was not a viable trade policy option.

In the present paper, we use a model based on Oskooee and Kantipong (2001) and Rose and Yellen (1989) to test the J-curve hypothesis on a set of Sub-Saharan countries by testing/analyzing the relationship between the exchange rate and trade balance (current balance) for 49 countries in the Sub-Saharan Africa for the period 2000 to 2010. In prelude to our study, we do not find evidence in support of J-curve hypothesis, but we find that in the long run the trade balance does not deteriorate in the wake of depreciation of the home country as stipulated by the J-curve hypothesis. Our study is based on a set of panel data and evidence is from 49 countries that are at different levels of development state and we believe our findings will have broad acceptability.

Following the Introduction in Section 1, the paper is organized as follows: Section 2 presents the literature review followed by section 3 which presents the sample and the empirical methodology. Section 4 discusses the empirical findings, while section 5 concludes the paper.

2. Literature Review

Petrovic (2010) study points out that the empirical examination of the Marshall-Lerner Condition has been in in existence for a long time, but the examination of J-curve phenomenon started by Stephen P. Magee in early 1970's. Since then many scholars have examined the relationship, but empirical evidence is divided, therefore more studies are required before the debate can be considered to be over. Ratha (2007) examined the J-curve phenomenon with the help of and Rose and Yellen (1989) model and an Error Correction Model for South Korea and its trading partners for the period 1980 to 2005 (January, 1980 to September, 1997 to cover the pre-Asian crisis period and October, 1997 to November, 2005 the post-Asian crisis period). The author emphasis on the Asian Crisis of 1997 and find that the J-curve phenomenon has become much more apparent in the post Asian crisis period than the pre-crisis period. The authors confirm that there has been a long-run adjustment toward the improvement of Korean trade balance against most trading partners.

Gupta-Kapoor et al (1999) examined the J-curve for Japan. They used quarterly date for the period 1975 to 1996 for Japan. Using the Johansen methodology, the authors finds the existence of J-curve. The authors reconfirm their findings with the help of an Error Correction Model (ECM) and Impulse Response Functions. Marcus Noland (1989) also examined the J-curve for Japanese economy for the period 1970 to 1985 and findings were similar findings to above stated study. Namely it is shown that estimated long-run price elasticity fulfills the Marshall-Lerner condition hence implying that currency depreciation improves trade balance

in the long run. A J-curve effect is also found indicating that it takes seven quarters from depreciation for the trade balance to start improving, and that it achieves a new equilibrium after 16 quarters.

In case of US, the empirical evidence of J-curve seems to be mixed. Rose and Yellen (1989) was the first study to bring out the shortcomings associated with models using aggregate data and introduced a simple model that employed bilateral trade data between the United States and her six major trading partners. Their empirical results not only did not support the J-Curve pattern, but also failed to support any long run relation between the trade balance and real exchange rate at the bilateral level. Marwan and Klein (1996) also investigated the influence of the real bilateral exchange rate on bilateral trade between U.S. and Canada and five of their trading partners. Using quarterly data for the period 1977 to 1992, they find evidence of J-curve in the wake of a depreciation of US and Canadian dollars. Therefore, after the long-run improvement in trade balance due to a currency depreciation, there is a long-long run effect (trade balance deteriorates again). Shirvani and Wilbratte (1997), Bahmani-Oskooee and Brooks (1999), and Bahmani-Oskooee and Goswami (2003) are other studies who have provided no strong support for the J-Curve phenomenon using bilateral trade data. Mohsen Bahmani-Oskoee and Zohre Ardalani (2006) wanted to examine the J-curve with the different set of instruments. They used the Autoregressive Distributed Lag (ADL) approach to co-integration analysis developed by Pesaran, Shin, and Smith (2001). They estimated the export and import functions of the USA and found that there is a possibility that empirical tests may show wrong result that exchange rate does not have an important impact on trade flow.

Bahmani-Oskooee and Tatchawan Kantipong (2001) examines the J-curve for Thailand and its five major trading partners (UK, US, Japan, Germany and Singapore). Using quarterly data for the period 1973 to 1997 with an ADRL co-integration model, they find that J-curve exist for Thailand, Japan and US only. Ivohasina F. Razafimahefa and Shigeyuki Hamori (2005) examine import and export demand functions for Madagascar and Mauritius. They find the existence of the co- integration between, import, income and exchange rate for both countries and also finds out that the long run income and price elasticity are 0.86 and -0.46 for Madagascar and 0.67 and -0.64 for Mauritius. Therefore, the Marshall Lerner condition only holds for Mauritius. Tihomir Stucka (2003) used quarterly data for Croatia and find evidence of J-curve. Using the ADRL and co-integration approach, and a set of impulse response functions, the authors showed that a one percent depreciation in exchange rate resulted in an improvement of trade balance by 0.9% to 1.3 % within a period of two and half years.

Petrovic and Gligoric (2010) examine the J-curve effect of currency depreciation for Serbia during the 2000s. Serbia has just emerged from isolation after the 1990s. The authors use several advanced econometric methods including: Johansen's Cointegration tests, Autoregressive Distributed Lag (ARDL), error correction models, and impulse response functions. They find that in the long run currency depreciation improves trade balance but before that there is a short-run depreciation (a five month period).

Hsing (2008) have shown that the J-curve effect exist in Latin American Countries (Chili, Ecuador, Uruguay) but there is lack of support for J-curve in Argentina, Brazil, Colombia, and Peru. The author utilizes the error correction models and impulse response functions to conduct the test on a model with data for yearly 2000s. The author creates a model of trade balance as the dependent variable and the real effect exchange rate, income of domestic country and income of foreign country as three independent variables. The author pointed out that the

conventional wisdom to pursue real depreciation to improve the trade balance may not always bring positive result. It should be used wisely.

Oskooee and Ratha (2007) examine the J-curve effect of currency depreciation between Sweden and her 17 trading partners and investigate the short-run and the long-run effects of real depreciation of Swedish krona on her bilateral trade balances. The authors utilize the two models from Bahmani-Oskooee and Brooks (1999) and Pesaran, Shin and Smith (2001) and reveal that depreciation of krona has short-run effects on the trade balance in 14 out of 17 cases. However, the J-curve effect is present only in five cases (Sweden and Austria, Denmark, Italy, Netherlands, and the U.K.). In majority of the cases, the short-run effects do not last into the long run.

Baek, Won, and Kranti (2002) examine the dynamic effects of changes in exchange rates on bilateral trade of agricultural products between the United States and its 15 major trading partners. The authors examine if there is a J-curve effect with the help of an autoregressive distributed lag (ARDL) approach to co-integration is applied to quarterly time-series data from 1989 and 2007. The authors present evidence that the exchange rate plays a crucial role in determining the short- and long-run behavior of U.S. agricultural trade. However, the authors find little evidence of the J-curve phenomenon for U.S. agricultural products with the United States' major trading partners.

Mohsen and Want (2007) investigated whether appreciation of the dollar or depreciation of yuan has played any significant role in the trade between the United States and China. The authors utilize disaggregate data at the industry level (88 industries) as well as co-integration and error-correction modeling techniques to show that the real yuan-dollar rate is a significant factor in many industries' trade. Further examination reveals that real appreciation of the dollar against the yuan decreases U.S. export earnings only in 18 industries, but increases her import payments (out payments) in 40 industries, leading to deterioration in the trade balance between the United States and China in the long run.

Soofi (2009) examined China's exchange rate policy and the financial and capital control reform of recent years. In recent years, China has adopted to reduce capital account control and make her exchange rate regime more flexible. The author used the final demand elasticity of exports and found that the Chinese expansionary fiscal stimuli has strong effects in inducing additional exports for the United States and other Chinese trading partners.

3. Methodology and Sample

In this section we attempt to derive a trade balance model by relying upon a standard two-country model of trade as in Oskooee and Kantipong (2001) and Rose and Yellen (1989). The models we use in the article are based on the models of these authors. In this study, we use data from the World Development Index (WDI) online source. We include all 49 countries of the Sub-Saharan Africa over the period 2000 to 2010. A list of the countries and variables are presented in the appendix at the end of the paper.

We use several versions of the panel data methodology to study the relationship between trade relationship and changes in the exchange rate. The first model is fixed effect models with time specific dummy variables. We gradually use lags of one year, two year, three year, and four years after in the regression to see if the trade balance responds to changes in the exchange rate even with a time lag. If the J-curve theory is correct, then we should see the trade balance improve in the wake of a deflation but then it is supposed to deteriorate. Trade deficit should increase when the economy fully adjusts in the long –run. Empirical evidence of J-curve in

case of the developing world is limited and in the current study we aim to find evidence for or against this hypothesis for a large panel of countries from the Sub-Saharan Africa.

In the second step of our analysis, we run both the fixed and random effect models. Here we use the absolute value of the log of net exports as the dependent variables and. Each of these models also includes four lags of the official exchange rate to check what happens within for years after the change in exchange rate.

In the third step of our analysis, we use the System Dynamic Panel Data Estimation (the Arellano-Bond Model) to check the relationship between trade balance/net export and exchange rate in dynamic settings. Here we use to alternate specification of the models: Trade Balance Current in LCU and Net Export alternately as dependent variables.

4. Empirical Findings

Table 1A, provides the list of the 49 Sub-Sharan counties under the study, while Table 1B, shows the data of 49 Sub-Saharan countries, which makes this a unique data set. We present the summary statistics of the data including the mean and standard deviations.

TABLE 1A. *Countries in the study*

Angola	Djibouti	Malawi	Somalia
Benin	Equatorial Guinea	Mali	South Africa
Botswana	Eritrea	Mauritania	Sudan
Burkina Faso	Ethiopia	Mauritius	Swaziland
Burundi	Gabon	Mozambique	Tanzania
Cameroon	The Gambia	Namibia	Togo
Cape Verde	Ghana	Niger	Uganda
Central African Republic	Guinea	Nigeria	Western Sahara
Chad	Guinea-Bissau	Rwanda	Zambia
Comoros	Kenya	Sao Tome and Principe	Zimbabwe
Congo (Brazzaville)	Lesotho	Senegal	
Congo (Democratic Rep.)	Liberia	Seychelles	
Côte d'Ivoire	Madagascar	Sierra Leone	

TABLE 1B. *Summary Table*

Variable	Obs	Mean	Std.	Min	Max
Panel A: Summary Statistics					
Official exchange rate	816	8239738	2.35E+08	0.00275	6.72E+09
Real effective exchange rate index	303	100.4905	33.16738	10.12593	269.9922
GDP (constant 2005 US$)	823	1.41E+10	3.90E+10	1.03E+08	3.13E+11
Net_Export	785	-0.134677	0.286663	-3.44751	0.528362
Trade Balance Constant LCU	613	0.786691	0.367964	0.08516	2.11581
Trade Balance Current LCU	785	0.767097	0.396773	0.095349	2.722851
Panel B: Variable Descriptions					
Official exchange rate	LCU per US $ (period average)				
Real effective exchange rate index	Base Year is 2005				
GDP (constant 2005 US$)	Constant 2005 US $				
Net_Export	Difference Between Export and Import in Current US $				
Trade Balance in Constant Currency	In LCU				
Trade Balance in Current Currency	In LCU				

Table 2, presents the correlation matrix and we find that the correlation coefficient between the Official Exchange Rate and Net Export is -0.0076. This is an indication that across-the-board when exchange rate increases, trade balance deteriorates and goes against the J-curve. However, we cannot deliberate as in this case since correlation does not show causation.

TABLE 2. *Correlation Coefficient*

	Trade Balance Constant	Trade Balance Current	Official Exchange Rate	Real Effective Exchange Rate	GDP Constant 2005
Trade Balance Constant	1				
Trade Balance Current	0.7691	1			
Official Exchange Rate	-0.1639	-0.2313	1		
Real Effective Exchange Rate	-0.274	-0.1307	0.0876	1	
GDP Constant 2005	0.1422	0.1616	-0.2214	-0.0672	1
Net_Export	0.4379	0.6019	0.016	0.0327	0.1314

In Table 3, we present the fixed effect panel data models for the log of net exports as dependent variable and official exchange rate, lag of GDP at 2005 prices, and four lags of the official exchange rate. This shed light on what happens to the relationship between net export variable and official exchange rate up to five years after a change in official exchange rate takes place. We present models to complete in each column of Table 3, as we move from left to right. We did not include any lag of the official exchange rate variable in the first column, so that this model shows the impact of this variable on the log of net export in the same period without accounting for any lag. However, when we expand the analysis and start to include one more lag of the official exchange rate in every new column (to the right) and we keep all the variables of the previous model (to the left). We find that the official exchange rate has a negative impact on the log of net exports, which support the result we got earlier in the correlation in Table 2. Here we can say that there is statistically significant evidence against the J-curve. Any increase in official exchange rate of a country, brings forth deterioration of net export. This is further strengthened by the fact that the pattern continues even after five year, which is shown by the statistically significant lags for year 1 to year 4 (5 years after the change). There is a lasting impact on these items.

TABLE 3. *The Simple Model with Log of Net Exports as the Dependent Variable*

Log of Net Exports Dependent Variable	**Coefficients (t-statistics)**	**Coefficients (t-statistics)**	**Coefficients (t-statistics)**	**Coefficients (t-statistics)**
	(1)	(2)	(3)	(4)
Intercept	-8.229656 (0.063)	0.2199335 (0.975)	1.230882 (7.98518)	-2.160983 (0.76)
Official Exchange Rate (OER)	-0.0001649 (0.789)	-0.0003409 (0.694)	-0.0003777 (0.0009495)	-0.0001975 (0.837)
Log of GDP at 2005 Prices	0.2223223 (0.242)	-0.1356925 (0.635)	-0.1791714 (0.3306931)	-0.0389439 (0.893)
Lag_1_of Official Exchange Rate (OER)		-0.0077635 (0.01)	-0.0074454 (0.0034978)	-0.0071622 (0.054)
Lag_2_of Official Exchange Rate (OER)		0.0078729 (0.005)	0.0080003 (0.0035616)	0.0079781 (0.034)
Lag_3_of Official Exchange Rate(OER)			-0.0002091 (0.0030022)	0.000423 (0.91)
Lag_4_of Official Exchange Rate(OER)				-0.0002046 (0.948)

Note: We use different Lags of the Lag of Official Exchange Rate (OER) Variables as independent variable. Each of the cells shows the value of the relevant coefficient on top and the p_value of in bottom.

To analyze the result from another point of view, we change the dependent variable and use absolute value of log of net exports as dependent variable. Both the fixed and random effect models are run and results are presented in Table 4. This time we find that the coefficients of the official exchange rate are positive, but lags of this variable do not have significant coefficients.

TABLE 4. *Extended Models with Absolute Value of Log of Net Exports as the*
Dependent Variable in Columns (1) shows fixed effect and (2) shows random effect

Absolute Value of Log of Net Exports Dependent Variable	Coefficients (t-statistics)	Coefficients (t-statistics)
	(1)	(2)
Intercept	1.661954 (0.404)	3.058352 (0.013)
Official Exchange Rate (OER)	0.106207 (0.000)	0.0821842 (0.000)
Log of GDP at 2005 Prices	-0.1958659 (0.029)	-0.2540309 (0.000)
Lag_1_of Official Exchange Rate (OER)	0.0000395 (0.390)	0.0000451 (0.303)
Lag_2_of Official Exchange Rate (OER)	0.00000208 (0.969)	-0.00000815 (0.879)
Lag_3_of Official Exchange Rate(OER)	0.00000104 (0.985)	0.00000111 (0.984)
Lag_4_of Official Exchange Rate(OER)	-0.000042 (0.298)	-0.0000413 (0.305)

Note: We use different Lags of the Lag of Official Exchange Rate (OER) Variables as independent variable. Each of the cells shows the value of the relevant coefficient on top and the p_value of in bottom

Table 5, presents the model (extended) for trade balance current local currency units (LCU) as the dependent variable. We run both the fixed and random effect models, and find statistically significant coefficient for the official exchange rate in the random effect model. This is negative relationship. Again we find results that support the earlier findings against the J-curve (like evidence of Table 2 and 3). The lag variables in the random effect model do not have significant coefficients.

TABLE 5. *Extended Models with Trade_Balance_Current_LCU as the Dependent*
Variable in Columns (1) shows fixed effect and (2) shows random effect

Absolute Value of Log of Net Exports Dependent Variable	Coefficients (t-statistics)	Coefficients (t-statistics)
	(1)	(2)
Intercept	-2.555276 (0.000)	-2.765481 (0)
Official Exchange Rate (OER)	-0.0090767 (0.162)	-0.0128415 (0.064)
Log of GDP at 2005 Prices	0.151643 (0.000)	0.1617324 (0)
Lag_1_of Official Exchange Rate (OER)	-0.0000138 (0.242)	-0.0000126 (0.299)
Lag_2_of Official Exchange Rate (OER)	0.00000184 (0.896)	-0.0000000498 (0.997)
Lag_3_of Official Exchange Rate(OER)	-0.000000359 (0.98)	-0.000000352 (0.981)
Lag_4_of Official Exchange Rate(OER)	0.00000801 (0.45)	0.00000828 (0.436)

Note: We use different Lags of the Lag of Official Exchange Rate (OER) Variables as independent variable. Each of the cells shows the value of the relevant coefficient on top and the p_value of in bottom.

Table 6, we present the estimation result of the System Dynamic Panel Data Estimation (the Arellano-Bond Model). We use the trade balance in local currency units (LCU) and net exports alternately in the model. We use 3 lags of the dependent variables. We find only statistically significant result for the model with next export. The relationship is positive. This is evidence in support of the J-curve. When the real effective exchange rate increases (local currency appreciates), we observe a deterioration of net export, though the lag of the real effective exchange rate is not significant.

TABLE 6. *System dynamic panel-data estimation: The Arellano-Bond Model*
(Based on Official Exchange Rate)

		Coefficients	Standard Error	t-statistics	P-value
(1)	(2)	(3)	(4)	(5)	(6)
Trade Balance Current in LCU is Dependent Variable					
	L1. Of Trade Balance	0.495211	0.053652	9.23	0
	L2. Of Trade Balance	0.065136	0.0615	1.06	0.29
	L3. Of Trade Balance	0.214658	0.067903	3.16	0.002
	Real Effective Exchange Rate	-0.00243	0.000889	-2.73	0.006
	Intercept	0.432166	0.105399	4.1	0

Net Export is Dependent Variable				
L1. Of Net Export	0.148445	0.048663	3.05	0.002
L2. Of Net Export	0.484656	0.029184	16.61	0
L3. Of Net Export	0.121701	0.039635	3.07	0.002
Real Effective Exchange Rate	0.00054	-2.82	0.005	-0.003
Intercept	0.132142	0.054912	2.41	0.016

In Table 7, we present the result with all the variables as in Table 6, except we replace the real effective exchange rate with the official exchange rate. The coefficient of the Trade Balance Current in LCU is significant and negative, which lends support to the findings of Table 5 (in support of J-curve). We find that trade balance deteriorates in the wake of a depreciation of local currency (real terms). The coefficient for the net export is not significant.

TABLE 7. *System dynamic panel-data estimation: The Arellano-Bond Model*
(Based on the Official Exchange Rate)

		Coefficients	Standard Error	t-statistics	P-value
(1)	(2)	(3)	(4)	(5)	(6)
Trade Balance Current in LCU is Dependent Variable					
	L1. Of Trade Balance	0.495211	0.053652	9.23	0
	L2. Of Trade Balance	0.065136	0.0615	1.06	0.29
	L3. Of Trade Balance	0.214658	0.067903	3.16	0.002
	Official Exchange Rate	-0.00243	0.000889	-2.73	0.006
	Intercept	0.432166	0.105399	4.1	0
Net Export is Dependent Variable					
	L1. Of Net Export	0.216109	0.036304	5.95	0
	L2. Of Net Export	0.40595	0.024551	16.54	0
	L3. Of Net Export	0.110439	0.032722	3.38	0.001
	Official Exchange Rate	-1.40E-05	1.08E-05	-1.32	0.185
	Intercept	-0.0185	0.009196	-2.01	0.044

In Table 8, we present results based on Trade Balance in Constant Terms (dependent variable) against the official exchange rate and then the real exchange rate. The models are similar to those we use in Table 6 and 7. We get insignificant coefficients in both cases. But lags of the dependent variables in these dynamic settings reveal some impact on the dependent variables.

TABLE 8. *System dynamic panel-data estimation: The Arellano-Bond Model*
(Based on the Trade Balance in Constant LCU)

		Coefficients	Standard Error	t-statistics	P-value
(1)	(2)	(3)	(4)	(5)	(6)
Trade Balance Constant LCU is Dependent Variable vs. Official Exchange Rate					
	L1. Of Trade Balance	0.382066	0.051799	7.38	0
	L2. Of Trade Balance	0.077395	0.050766	1.52	0.127
	L3. Of Trade Balance	0.094475	0.055123	1.71	0.087
	Official Exchange Rate	-7.20E-05	5.51E-05	-1.31	0.19
	Intercept	0.378177	0.060688	6.23	0
Trade Balance Constant LCU is Dependent Variable vs. Real Effective Exchange Rate					
	L1. Of Net Export	0.297551	0.068201	4.36	0
	L2. Of Net Export	0.142075	0.07667	1.85	0.064
	L3. Of Net Export	0.191558	0.094407	2.03	0.042
	Real Exchange Rate	-0.00181	0.001153	-1.57	0.116
	Intercept	0.459312	0.133883	3.43	0.001

5. Conclusion

We examine the relationship between trade balance and net export with both, the official and real effective exchange rates on the J-Curve hypothesis and find evidence to support in favor of the hypothesis, coming from a panel data of 49

developing countries from Africa. Countries can improve their current account balance by depreciating their currency vis-à-vis foreign currencies, which will boost export of the home country to foreign countries by making the exported items cheaper to foreigners and discourage import by making imported items more expensive in the home country. However, the J-curve hypothesis argues that such changes take time to occur. The exchange rate policies should be discreetly used; it belongs to the "beggar thy neighbor" policies. This may be good for home country but is not so good for the foreign country, which will see their exports decline (they become more expensive in the home country due to its currency depreciation). As a result, such policies may trigger retaliatory policies (counter measure, import tariff, depreciation of the currency of the foreign country etc.). Restrictive trade policies are against the present day notion of free-economy and free-trade policy these are very common around the world.

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