

The Effect of Exchange Rate Movement on Trade Balance in Ethiopia

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Introduction

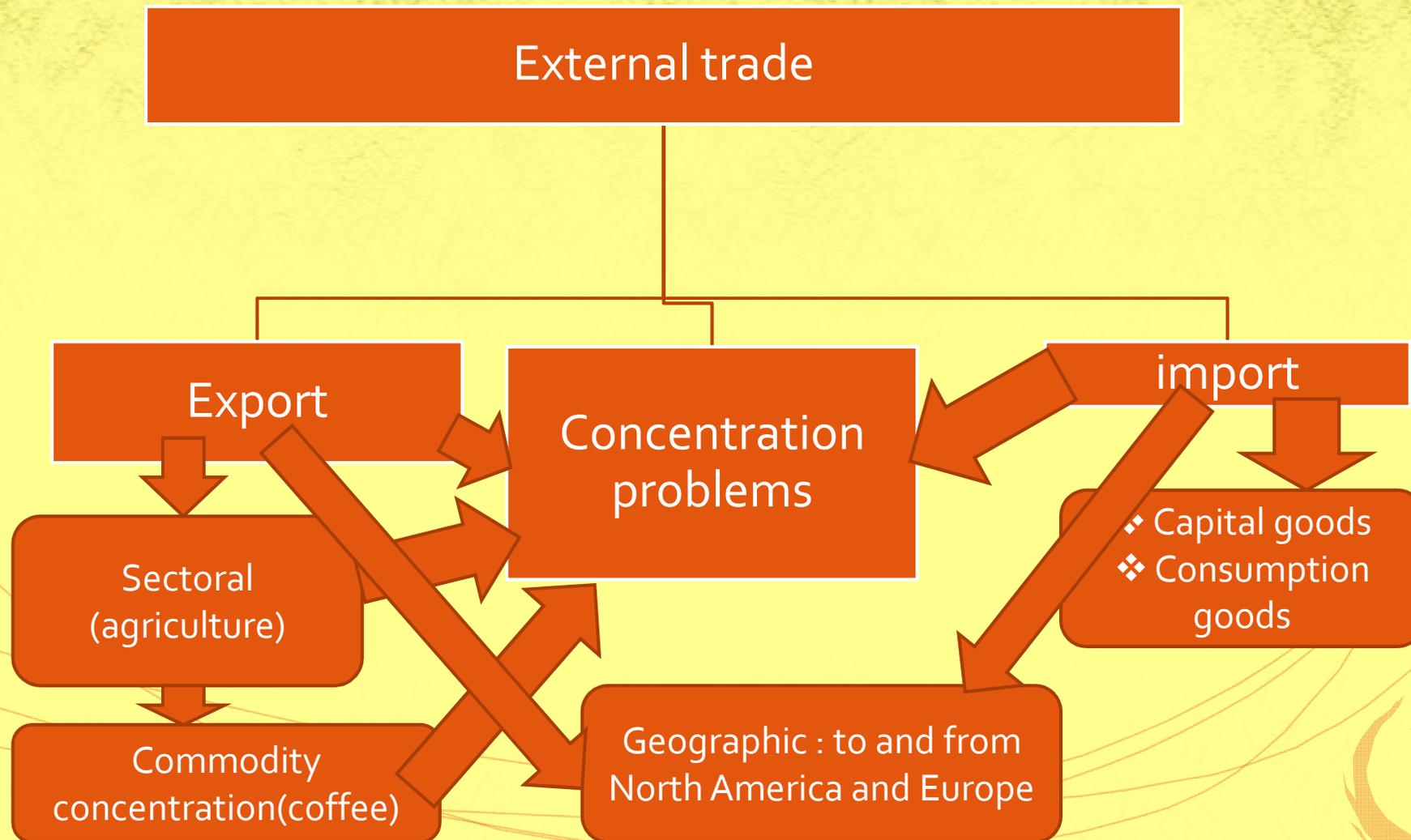
- ❖ The effectiveness of exchange rate depreciation in improving the trade balance has long been an issue of considerable interest to economists and policy makers. Especially, since the break down of the Bretton Woods Accord in 1973, and the advent of floating exchange rates, there has been renewed interest on the effect of devaluation on the trade balance of both developed and developing countries.

Objective setting

- ✓ To briefly look at exchange rate regimes and developments in Ethiopia.
- ✓ Briefly investigate the structures and trends of import and export situation in Ethiopia.
- ✓ To empirically investigate the short run and long run impact of change in exchange rate on Ethiopian trade balance.
- ✓ To make conclusions , policy implications and recommendations.



Import-Export structure



Export – Import structure

Export

- Coffee
- Hides and skins
- Chat
- Gold

Export

- Live animals
- Oil seeds
- Flower

Import

- Fuel
- Capital goods
- Consumer goods

Import

- Semi-finished goods
- Raw materials
- Others

Methodology cont'd

$$\begin{aligned} \text{+ } \ln(TB) = & \beta_0 + \beta_1 \ln(REERI) + \beta_2 \ln(RGDP) + \\ & \beta_3 \ln(MS) + \beta_4 \ln(TOT) + \beta_5 \ln(RWGDP) + \beta_6 \ln(RGE) + \beta_7 (DDRT) \\ & + \beta_8 (DPC) + U_i \quad \text{.....(ii)} \end{aligned}$$

- ❖ Where Ln is natural logarithm, TB is trade balance in Ethiopia, RGDP is real gross domestic product a proxy for real domestic national income, DDRT is dummy drought or lack of rainfall that takes the value of one for the years of drought zero otherwise, MS is domestic money supply, RWGDP is real world gross domestic product a proxy for real income of Ethiopia's major trading partners, RGE is real government expenditure, TOT is external terms of trade, REERI is real effective exchange rate index, DPC is dummy policy change which takes value zero (0) for the period pre 1992/93 reform and one (1) for the period then after, and U_i is the random error term.

Hypothesis Testing

- The variable of interest in our study is the real effective multilateral exchange rate (REERI) and set the hypothesis to be tested in the following manner.
- $H_0: \beta_1 = 0$ (*real effective exchange rate depreciation policy does not have an impact in improving trade balance in Ethiopia*)
- $H_a : \beta_1 > 0$ (depreciation is expected to improve the trade balance and hence enhances the country's competitiveness.)

Long run Estimation Results using OLS

Variables	Coefficients	Std. Error	t-Statistic	Prob.
Cons.	9.235863	9.267340	0.996603	0.3285
LNTOT	0.382464	0.155087	2.466127	0.0209
LNARGE (un expected sign)	0.302723	0.197170	1.535342	0.1373
LNARGDP	-1.797966	1.109507	-1.620509	0.1177
LNREERI	0.830719	0.403101	2.060822	0.0499
LNMS	-0.167423	0.457369	-0.366057	0.7174
LNWGBP	0.027501	0.441595	0.062277	0.9508
DPC	0.025851	0.328765	0.078632	0.9380
DDRT	-0.001476	0.145815	-0.010123	0.9920
R-squared	0.858646	Mean dependent var		-0.822238
Adjusted R-squared	0.813412	Mean independent var		0.485067
S.E. of regression	0.209529	Schwarz criterion		-0.065987
Sum squared resid	1.097555	Hausman criterion		0.338050
Log likelihood	10.12177	F-statistic		18.98255

The effect of each variables on TB

Statistical significance of the variables

Adj R²: suggests a good fitness of the model

Short run Dynamics con'd

$$TB = 0.16 + (0.80)REERI + (0.41)REERI(-2) + (0.03)REERI(-3) + (0.32)TOT + (-1.22)RGDP +$$

(2.01) (3.44) (2.08) (0.15) (2.64) (-2.08)

$$(-1.55)MS(-1) + (-0.90)ECM(-1)$$

(-2.59) (-4.92)

Where, D refers to first difference.

Diagnostics

R² =0.76 R² adjusted =0.72 F-statistic =11.43 (0.000000) DW=2.17

ARCH=0.272078 [0.606194] AR=1.125631[0.344155] RESET=0.004707 [0.945950]

JB=1.204001[0.547715]



Short run Dynamics con'd

- ❖ The coefficient of the one period lagged value of the error from the co integration regression (error correction mechanism-ECM (-1)) is negative and is less than one in absolute value as it should be.
- ❖ The coefficient is expectedly negative and is around -0.90 suggesting that trade balance disequilibrium adjusts by about 90 percent towards its long run equilibrium in each year.

Conclusion

- ✓ **In the long run** , trade balance is significantly influenced by exchange rate depreciation. An empirical result shows that a **10 %** depreciation in exchange rate would result in **8.3%** improvement in trade balance in Ethiopia. Hence, there is positive relationship between the real exchange rate depreciation and trade balance.
- ✓ **In the short run**, trade balance is explained by REER and lagged other explanatory variables.

Conclusion con'd

- ✚ Generally, the existence of persistent trade balance deficit is fundamentally structural in nature because Ethiopia's imports are essential/necessity in nature that they are price inelastic and therefore cannot simply be discouraged or easily substituted while exports are highly concentrated on agricultural primary commodities that are very sensitive to whether condition and price shocks.



Policy implication

- ❖ The policy implication is that real exchange rate depreciation improves the international competitiveness of Ethiopia thereby reducing its deficit in trade balance and consequently the balance of payment deficit in the long run.



Recommendations

- To make and keep the country competitive, keeping track of international exchange rate and price developments and adjustment of the real exchange rate accordingly is crucial.
- As complimentary policy instrument to real exchange rate depreciation, compatible policies such as tight monetary and fiscal policies should be implemented (maintained if they prevail) timely and sequential to avoid the possible depletion of the competitive advantage obtained by real exchange rate depreciation due to rise in domestic prices. In doing so, coordination of these policies is important for failure to do so will be costly.



Thank you!

