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The J-Curve: a literature review

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Abstract

Due to lag structure, currency devaluation is said to worsen the trade balance first and improve it later resulting in a pattern that resemble the letter J, hence the J-Curve

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Notes

According to the absorption approach, devaluation, through its impact on the terms of trade and domestic production, leads to a switch in spending from foreign to domestic goods, and hence, an improvement in the trade balance. Monetarists, in contrast, argue that devaluation reduces the real value of cash balances and/or changes the relative price of traded and non-traded goods, and thus improves the trade balance as well as the balance of payments.

For recent estimate of the ML condition see Rose ([1990](#)) and Bahmani-Oskooee and Niroomand ([1998](#)).

Intertemporal models imply that there are asymmetries between the current account effects of temporary changes in export and import prices. For example, Chen and Devereux ([1994](#)) show that for temporary import price changes, income and substitution effects work in opposite directions while for temporary export price changes, they reinforce. However, many authors often ignore these asymmetries and interpret devaluation as a simple deterioration in a country's terms of trade.

Froot and Klemperer ([1989](#)) investigate the pass-through from exchange rates to import prices when firms' future demands depend on current market shares. They stress that the return a foreign firm expects to earn on its current investment in market share is sensitive to the expected future exchange rate, and therefore, determines the aggressiveness of its pricing.

Gerlach and Weber (1993) show that a country's price flexibility matters. He makes a distinction between inter-temporal and intra-temporal changes in the prices of tradables and non-tradables. Intra-temporal changes in domestic prices of tradables tend to worsen the terms of trade.

Bacchetta and Veronese (2004) show that if domestic prices are sticky, consumers anticipate future import prices to rise after a devaluation and



therefore reallocate their purchases over time. Thus, J-curves can also arise if imported goods are durable and import prices adjust slowly to exchange rate changes and quantities are adjusting freely.

Indeed, using quarterly data from 1973–1985, Bahmani-Oskooee ([1989b](#)) finds evidence of a W-Curve for the US current account. Subsequent to depreciation of the dollar, the current account deteriorates for two quarters and then starts improving for five quarters, again deteriorates, and finally improves.

For the price-elasticity of market shares, proportionate changes in market shares are related to proportionate changes in relative export prices; for the price-elasticity of exports, proportionate deviations of exports from a standard set by previously attained market shares are related to proportionate changes in export prices (for a given size of export markets).

Calculations made in volume terms generally confirm those in value terms: Almost 50% of the full effect appears to be realized within the first three years, and about 90% during the first five years.

For theoretical papers see Levin ([1983](#)), Gerlach ([1989](#)), Kapur ([1989](#)) and Krugman ([1989](#)).

Sundararajan and Bhole ([1988](#)) reinforce Miles' finding that devaluation improves the balance of payments of India. Their sample covers the period 1960–1961 to 1984–1985.

If the French trade balance improves and the UK trade balance deteriorates by the same amount, the world trade balance should be unchanged. Devaluation

His sample covers the Philippines, Spain, Sweden, and the US.

Karadaghi (1989) finds that devaluation improves the current account of Turkey. His sample covers the period 1960–1961 to 1984–1985.

Their sample covers the period 1960–1961 to 1984–1985. Their study is non-petroleum. The sample is of money (real balance).



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The sample consists Austria (1964Q1–1990Q1), Canada (1955Q1–1990Q1), Finland (1975Q1–1990Q1), France (1970Q1–1990Q1), Germany (1968Q1–1990Q1), Italy (1970Q1–1990Q1), Japan (1955Q1–1990Q1), Switzerland (1970Q1–1990Q1), United Kingdom (1955Q1–1990Q1) and the United States (1950Q1–1990Q1).

Named after three authors (Harberger, Laursen and Metzler) who derived this negative correlation in a Keynesian framework.

He includes Brazil, Central African Rep., Chile, Cote d' Ivoire, Cameroon, Congo, Costa Rica, Ecuador, Gabon, Ghana, Greece, Guatemala, Guyana, Hong Kong, Indonesia, Israel, Kenya, Korea, Sri Lanka, Morocco, Mauritius, Malaysia, Nigeria, Peru, Philippines, Papua New Guinea, Portugal, Senegal, Singapore, Somalia, Thailand, Trinidad and Tobago, Tunisia, South Africa and Zambia.

See also Bahmani-Oskooee and Brooks (1999).

Note that it is only a partial equilibrium analysis. In a full general equilibrium model, the variables REX, Y, and Y^* are all endogenous.

The current and four lags of both foreign and domestic income are included in all the regressions. Four alternatives are considered for the real exchange rate: including only the current rate, the current and four lags of the rate, current plus eight lags, and current plus 12 lags. The error term is modelled as both white noise and a MA(4) process.

Applying OLS estimation yields some evidence of long exchange rate lags in the German Y , and insignificant Y^* when Y is used, the choice of Y and Y^* makes the choice of Y and Y^* provide a better fit than the bilateral trade share. The first difference of Y is found in the OLS regression is inappropriate. Rosenwe Y and Y^* , and advocates Y and Y^* . Except for Italy, all the G-7 countries are included.

They construct instruments for current GNP and unlagged export price; the lag structure is chosen according to both Akaike and Schwartz Information Criteria.

The average adjustment period

The S-Curve describes the lead and lag correlation between terms of trade and net exports.

As a robustness check, they also add domestic and foreign money supplies to the right hand side and find no qualitative change in the end results.

Italy is an exception in that the impact of devaluation on the trade balance is significant over the 24 month period but not in the long run (longer than 24 months). Devaluation of the lira may cause domestic prices to rise, and thereby, reverse the long favourable impact of devaluation on the trade balance.

Normally, imports increase as a country's income rises. However, if this rise in income is due to increased production of import-substitutes, then the country would import less, and experience an improvement in the trade balance.

They study US bilateral trade with Canada, France, Germany, Italy, Japan and the UK.

Carter and Pick ([1989](#)) and Doroodian and Chulho ([1989](#)) are a couple of other studies that have looked at exchange rate sensitivity of the US agriculture trade.

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