Marshall-Lerner Condition

The Marshall-Lerner condition (also called the Marshall-Lerner-Robinson, hereafter, MLR, condition) is at the heart of the elasticities approach to the balance of payments. It is named after the three economists who discovered it independently: Alfred Marshall (1842-1924), Abba Lerner (1903-82) and Joan Robinson (1903-83). The condition seeks to answer the following question: when does a real devaluation (in fixed exchange rates) or a real depreciation (in floating exchange rates) of the currency improve the current-account balance of a country?

For simplicity, assume that trade in services, investment-income flows, and unilateral transfers are equal to zero, so that the trade account is equal to the current account. In its simplest version, the MLR condition states that a real devaluation (or a real depreciation) of the currency will improve the trade balance if the sum of the elasticities (in absolute values) of the demand for imports and exports with respect to the real exchange rate is greater than one, \(\varepsilon + \varepsilon^* > 1\).

[Note: the real exchange rate is the relative price of foreign goods in terms of domestic goods. A real depreciation is equal to a nominal depreciation if the domestic price and the foreign price levels remain unchanged].

To see this, suppose that the trade balance is expressed in units of home currency. At one extreme, if the demand for imports has zero elasticity, then the value of imports in home currency will go up by the full percentage of the real devaluation/depreciation. For the trade balance to improve, the value of exports
in home currency has to go up by more than the full percentage of the real devaluation/depreciation. This is the case when the export elasticity is greater than one.

At the other extreme, suppose the elasticity of demand for exports is zero. Then, following a real devaluation/depreciation, the value of exports in home currency will remain the same. For the trade balance to improve following a real devaluation/depreciation, the value of imports in home currency has to go down. This is the case when the elasticity of demand for imports is greater than one. So what the MLR condition states is that, in the event of a real devaluation, if each elasticity is less than one, but the sum is greater than one, then the increase in imports (measured in home currency) will be more than offset by the increase in exports (also measured in home currency) and the trade balance will improve. The algebraic proof of this can found in any respectable textbook on international economics (e.g. Caves, Frankel and Jones, 2002).

This elementary condition rests on two assumptions. The first assumption is that we start from a situation of balanced trade. The second assumption is that the supply elasticities are infinite. It remains to examine each of these assumptions in turn.

If the initial situation is a trade deficit, then the MLR condition is a necessary, but not sufficient, stability condition (when measured in home currency). Indeed, consider (again) the case where the elasticity of demand for imports is zero. Thus, the value of imports in home currency will go up by the full percentage of the real devaluation/depreciation. But, because of the trade deficit,
the initial value of imports was greater than the value of exports. To improve the trade balance, the required percentage increase in exports has to be larger than the percentage of the real devaluation (in part to compensate for the relative smaller size of exports). It should be noted that when the trade balance is expressed in foreign currency, and if the initial situation is a trade deficit, then the MLR condition is a sufficient, but not necessary, stability condition.

A more complex version of the MLR condition involves supply elasticities that are less than infinite. It can easily be shown that the smaller the sum of the supply elasticities, the more likely it is that the MLR condition will be met (even if $\varepsilon + \varepsilon^* < 1$).

Marshall (1923, p. 354), who was the first to formulate this stability condition, could not imagine that it would not be met. ‘Nothing approaching to this has ever occurred in the real world: it is not inconceivable, but it is absolutely impossible’. He did not, however, supply any proof for his affirmation. Early econometric estimates found trade elasticities to be too low to satisfy the MLR condition (Chang, 1951). This led to the fear of ‘elasticity pessimism’ (Machlup, 1950). After a careful reexamination of the statistical problems involved, these early pessimistic estimates were refuted by Orcutt (1950) and others.

Hooper et al (2000, pp. 8-9) have estimated the short-run and the long-run price elasticities of exports and imports for the Group of Seven (G7) countries:
<table>
<thead>
<tr>
<th>Country</th>
<th>Short-Run Export Price Elasticity</th>
<th>Short-Run Import Price Elasticity</th>
<th>Long-Run Export Price Elasticity</th>
<th>Long-Run Import Price Elasticity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>-.5*</td>
<td>-.1</td>
<td>-.9*</td>
<td>-.9*</td>
</tr>
<tr>
<td>France</td>
<td>-.1</td>
<td>-.1</td>
<td>-.2</td>
<td>-.4*</td>
</tr>
<tr>
<td>Germany</td>
<td>-.1</td>
<td>-.2*</td>
<td>-.3</td>
<td>-.06*</td>
</tr>
<tr>
<td>Italy</td>
<td>-.3*</td>
<td>-.0</td>
<td>-.9*</td>
<td>-.4*</td>
</tr>
<tr>
<td>Japan</td>
<td>-.5*</td>
<td>-.1</td>
<td>-.10*</td>
<td>-.3*</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-.2*</td>
<td>-.0</td>
<td>-.16*</td>
<td>-.6</td>
</tr>
<tr>
<td>United States</td>
<td>-.5*</td>
<td>-.6</td>
<td>-.15*</td>
<td>-.3*</td>
</tr>
</tbody>
</table>

Note: * denotes statistical significance at the 5 per cent level.

The message of this table is that trade elasticities increase over time. Based on the long-run elasticities, the MLR condition is met for nearly all the G7 countries. France and Germany are the exceptions. However, in the short run, the elasticities are very small and do not satisfy the MLR condition. The distinction between short-run and long-run elasticities is crucial and leads to what is known as the J-curve effect. A real devaluation (or depreciation) will worsen the current account balance in the short run, but will improve it in the longer run when the MLR condition is satisfied.

As a theory the MLR condition lacks general equilibrium foundations. In particular, it considers the two markets (for importables and exportables) to be independent of each other. In a budget constraint, not all markets can be independent. So there must be at least one other market not accounted for by
the MLR condition. In addition, from the absorption approach, we know that a
country that has a current account surplus produces more than it spends. The
MLR condition is silent on the mechanism by which this expenditure switching
would operate following a devaluation. Dornbusch (1975) explicitly introduces a
non-traded goods sector and fiscal policy in an attempt to reconcile the MLR
condition with the absorption approach.

Xavier de Vanssay

(see also absorption approach to the balance of payments; elasticities approach
to the balance of payments; expenditure switching policy; fixed exchange rate
system; floating exchange rate system)

Bibliography

Caves, R. E., Frankel, J. A. and Jones, R. W. (2002), World Trade and

Chang, T. C. (1951), Cyclical Movements in the Balance of Payments,
Cambridge: Cambridge University Press.

Dornbusch, R. (1975), ‘Exchange Rates and Fiscal Policy in a Popular Model of


