Economic shocks are transmitted to other countries through the balance of payments, which affects equilibrium exchange rates. This paper examines the impact of a macroeconomic shock on the exchange rate in Chile.

Abstract

The impact of a macroeconomic shock on the exchange rate in Chile.

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The American Economic Research Conference

Equilibrium Real Exchange Rates in Chile

Capital Flows and Long-Term

Review of Arab Economic, Vol. 12, No. 1 (June 1997)
Introduction

1. Introduction

...
expected real exchange rate: 

\[ \Delta S^gS + (1) \cdot \Delta d^m d^s + \Delta d^m d^s S^m S^s = \Delta d^m d^s S^m S^s \]

Expected real exchange rate is the difference between expected long-term equilibrium real exchange rate and unexpected inflation. The expected real exchange rate is given by the following equation:

\[ (1 - \lambda)^{1 - \lambda} \cdot \frac{\Delta d^m d^s}{\Delta d^m d^s} \cdot \Delta S^m S^s = \Delta d^m d^s S^m S^s \]

The expected real exchange rate is a function of the expected long-term equilibrium real exchange rate and unexpected inflation. The expected real exchange rate is also given by the following equation:

\[ \Delta S^gS + (1) \cdot \Delta d^m d^s + \Delta d^m d^s S^m S^s = \Delta d^m d^s S^m S^s \]

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\[ (1 - \lambda)^{1 - \lambda} \cdot \frac{\Delta d^m d^s}{\Delta d^m d^s} \cdot \Delta S^m S^s = \Delta d^m d^s S^m S^s \]
In addition to the long-run (co-integration) properties of the vector of innovations, the approach also focuses on the short-run dynamics of the system.

The model in equation (1) is a vector of co-integrating relationships that capture the long-run equilibrium relationship between the variables.

The vector $X_t$ is defined as:

$$X_t = (X_{1t}, X_{2t}, \ldots, X_{nt})'$$

where $X_{1t}, X_{2t}, \ldots, X_{nt}$ are the endogenous variables.

The error correction model (ECM) is given by:

$$
\Delta X_t = \beta X_{t-1} + \Gamma X_t + \epsilon_t
$$

where $\beta$ and $\Gamma$ are matrices of coefficients, and $\epsilon_t$ is the error term.

The ECM captures the short-run dynamics and adjusts the system towards the long-run equilibrium.

The long-run relationship is given by the co-integrating vector:

$$
(1 - \beta_1 L)^{-1} \Delta X_t = \epsilon_t
$$

where $\beta_1$ is a diagonal matrix of long-run coefficients and $L$ is the lag operator.

The long-run equilibrium is given by:

$$
E[X_t] = \frac{1}{1 - \beta_1} X_{t-1}
$$

The ECM is used to study the dynamic adjustment process and the speed of convergence to the long-run equilibrium.
The above condition means that OLS estimation of the consumption function

\[ Y = a + bX + \epsilon \]

is unbiased, even if the errors are correlated with lagged values of the independent variables. This is because the OLS estimator is consistent under the assumption that the errors are uncorrelated across observations, and the sample size is large enough.

In short-term dynamic models, this condition is crucial for obtaining unbiased estimates of the parameters of the consumption function.

### Application to the Chinese Case

In the Chinese context, the short-term dynamics of consumption are likely to be influenced by factors such as income growth, interest rates, and inflation expectations. The model can be used to analyze the effects of these factors on consumption behavior.

The Chinese economy has experienced rapid growth in recent decades, which has led to a rapid increase in disposable income. As a result, consumption has been rising at a fast pace. However, the level of consumption is also influenced by factors such as financial policies, fiscal stimulus, and changes in household wealth.

In the short-term, changes in consumption can be attributed to changes in income, prices, and financial policies. For example, an increase in prices may lead to a decrease in consumption as households reduce their spending. Similarly, an increase in income may lead to an increase in consumption, as households can afford to spend more.

In the long-term, consumption is determined by factors such as the level of economic development, income distribution, and the overall level of wealth in the economy. These factors are likely to have a more significant impact on consumption behavior over the long-term.

### Conclusion

The short-term dynamics of consumption are important for policymakers as they can use this information to design appropriate economic policies. The model can be used to analyze the effects of different policies on consumption behavior, and to predict the short-term effects of these policies on the economy.

The long-term dynamics of consumption are also important for policymakers as they can use this information to design sustainable economic policies. The model can be used to analyze the effects of different policies on long-term consumption behavior, and to predict the long-term effects of these policies on the economy.
The results of the estimation of the REE in Table 1 show a positive dependence of the REE in the order of 40% on the GDP and a relatively minor effect on the exchange rate and the consumer price index. The results indicate that the REE has increased by approximately 0.6%, which is consistent with the findings of previous studies. This positive correlation suggests that the REE is a significant indicator of the economic performance of a country.

### Table 1: Estimation Results of the Confirmation Equations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t-Statistic</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>0.60</td>
<td>0.02</td>
<td>30.00</td>
<td>0.000</td>
</tr>
<tr>
<td>Exchange Rate</td>
<td>0.05</td>
<td>0.01</td>
<td>5.00</td>
<td>0.000</td>
</tr>
<tr>
<td>Consumer Price Index</td>
<td>0.02</td>
<td>0.01</td>
<td>2.00</td>
<td>0.050</td>
</tr>
</tbody>
</table>

Source: Revisión del Análisis Económico, Vol. 12, No. 1

1.96-1.9992

In addition to the GDP and the exchange rate, other factors such as the consumer price index and the exchange rate also have a significant impact on the REE. These results highlight the importance of considering a range of economic indicators when evaluating the performance of an economy.
The table below presents the results of the error-correction model (ECM) and the long-term equilibrium real exchange rate (XER) model. The model includes both the short-run and long-run dynamics of the real exchange rate, which is influenced by several factors such as inflation, interest rates, and real GDP growth.

<table>
<thead>
<tr>
<th>Year</th>
<th>Real GDP Growth (%)</th>
<th>Inflation (%)</th>
<th>Interest Rate (%)</th>
<th>Current Account Balance (CAB)</th>
<th>Capital Flows</th>
<th>Long-Term Equilibrium Rate (XER)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>3.5</td>
<td>2.1</td>
<td>4.0</td>
<td>0.5</td>
<td>1.2</td>
<td>1.5</td>
</tr>
<tr>
<td>2001</td>
<td>3.8</td>
<td>2.3</td>
<td>4.2</td>
<td>0.8</td>
<td>1.5</td>
<td>1.8</td>
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<tr>
<td>2002</td>
<td>4.0</td>
<td>2.5</td>
<td>4.5</td>
<td>1.0</td>
<td>1.8</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Notes:
- Real GDP growth is measured in percentage terms.
- Inflation is measured as the annual change in the consumer price index.
- Interest rate refers to the nominal interest rate on short-term government bonds.
- Current account balance is the difference between exports and imports.
- Capital flows include both foreign direct investment and portfolio investment.
- The long-term equilibrium rate is estimated using an error-correction model.
TABLE 3

<table>
<thead>
<tr>
<th>Year</th>
<th>REE Equilibrium</th>
<th>Actual Exchange Rate</th>
<th>Real Exchange Rate</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>1.66</td>
<td>1.69</td>
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<tr>
<td>1961</td>
<td>1.66</td>
<td>1.69</td>
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<tr>
<td>1962</td>
<td>1.66</td>
<td>1.69</td>
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<tr>
<td>1963</td>
<td>1.66</td>
<td>1.69</td>
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<tr>
<td>1964</td>
<td>1.66</td>
<td>1.69</td>
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<tr>
<td>1965</td>
<td>1.66</td>
<td>1.69</td>
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<tr>
<td>1966</td>
<td>1.66</td>
<td>1.69</td>
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</tbody>
</table>

**Revised by EAE, 1966-1969.**

**Note:** The table displays the equilibrium exchange rates and the actual exchange rates for the years 1960 to 1966. The equilibrium rates are calculated based on economic factors and market demands, while the actual rates reflect the supply and demand dynamics of the foreign exchange market.
The concept of "unsustainability of fundamental disequilibrium" and the use of the Real Exchange Rate (REX) as a measure to identify such disequilibria have been discussed in the context of long-term equilibrium and short-term fluctuations. The REX model, when combined with the Long-run Equilibrium Real Exchange Rate (LEREX) and the equilibrium levels, offers a framework for understanding the dynamics of the exchange rate system.

This paper presents a new approach by examining the concept of the REX within the context of long-term equilibrium and short-term fluctuations. The REX model, when combined with the Long-run Equilibrium Real Exchange Rate (LEREX), provides a way to assess disequilibrium and its implications for policymakers.

In Figure 3, we see the relationship between the REX and the equilibrium levels, illustrating how changes in the REX affect the equilibrium Swap Line. The REX model helps in understanding the dynamics of the exchange rate system and provides a tool for policymakers to assess the sustainability of the equilibrium levels.

Figure 4 shows the actual and equilibrium exchange rate dynamics, highlighting the role of the REX model in identifying and addressing disequilibria.

The figures provide a comprehensive view of the role of the REX in the context of long-term equilibrium and short-term fluctuations, offering insights into the sustainability of the exchange rate system.
TABLE A.1

<table>
<thead>
<tr>
<th>Year</th>
<th>Selected Macroeconomic Indicators (1960-1992)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GNP (output, real)</td>
</tr>
<tr>
<td>1960</td>
<td>100</td>
</tr>
<tr>
<td>1970</td>
<td>100</td>
</tr>
<tr>
<td>1980</td>
<td>100</td>
</tr>
<tr>
<td>1990</td>
<td>100</td>
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</tbody>
</table>

Notes: GNP = Gross National Product; Trade = Gross Domestic Product; Inflation = Consumer Price Index; Interest Rates = Real Interest Rates; Exchange Rate = Real Exchange Rate; Capital Flows = Long-Term Capital Flows; Equilibrium Real Exchange = Equilibrium Real Exchange Rate.

Source: Various national and international databases.

The table above illustrates the selected macr....
### Table A.4
Correlation Matrix of Capital Flows Components

<table>
<thead>
<tr>
<th></th>
<th>Portfolio Investment (3.1β)</th>
<th>Short-Term Capital Flows (3.1β)</th>
<th>Long-Term Capital Flows (3.1β)</th>
<th>Loans to Trade (3.1β)</th>
<th>Financial Expenditure (3.1β)</th>
<th>Real Exchange Rate (3.1β)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portfolio</td>
<td>0.35</td>
<td>0.60</td>
<td>0.75</td>
<td>0.20</td>
<td>0.25</td>
<td>0.10</td>
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<tr>
<td>Short-Term</td>
<td></td>
<td>0.75</td>
<td>0.20</td>
<td>0.25</td>
<td>0.10</td>
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<tr>
<td>Long-Term</td>
<td></td>
<td></td>
<td>0.20</td>
<td>0.25</td>
<td>0.10</td>
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<tr>
<td>Loans to Trade</td>
<td></td>
<td></td>
<td></td>
<td>0.20</td>
<td>0.25</td>
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<td>Financial</td>
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<td>Real Exchange</td>
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### Table A.3
Cranganor Casualty Tests

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<thead>
<tr>
<th></th>
<th>Level Difference</th>
<th>Level Difference</th>
<th>Trend Difference</th>
<th>Trend Difference</th>
<th>Real Exchange Rate</th>
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</thead>
<tbody>
<tr>
<td>1990-1992</td>
<td>-2.00</td>
<td>-2.00</td>
<td>-2.00</td>
<td>-2.00</td>
<td>-2.00</td>
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### Note:
- *Significant at 10% (**) Significant at 5%
TABLE A6

ESTIMATED ARIMA MODELS FOR FUNDAMENTALS

<table>
<thead>
<tr>
<th></th>
<th>(175)</th>
<th>0.04</th>
<th>0.05</th>
<th>0.10</th>
<th>0.15</th>
<th>0.20</th>
<th>0.25</th>
<th>0.30</th>
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<th>0.40</th>
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<th>0.55</th>
<th>0.60</th>
<th>0.65</th>
<th>0.70</th>
<th>0.75</th>
<th>0.80</th>
<th>0.85</th>
<th>0.90</th>
<th>0.95</th>
<th>1.00</th>
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Note: Although parameter estimates are shown, they were not used in this estimation.

**TABLE A5.1**

CETAL FLOWS AND LONG-TERM EQUILIBRIUM REAL EXCHANGE

1960-1972
CAPITAL FLOWS AND LONG-TERM EQUILIBRIUM REAL EXCHANGE.

12 Non-significant lags and leads were sequentially deleted, but the results are not affected by the ordering of deletion because colinearity among variables is small.
13 A joint Wald test cannot reject the null hypothesis that the sum of both coefficients is zero at 95% confidence.
14 An adjustment parameter of 0.10 implies that a shock dissipates in about 30 years.
15 Adjustment periods were calculated as \((1 + \alpha_i) = (1 + \beta_i)t\), where \(t\) is the number of periods, \(\beta_i\) is the error-correction coefficient and \(\alpha \leq 0.5\) and 0.99.
16 This is because the rational expectations solution for the ERER is not unique. If we assume the unknown ERER function to be given by \(g(t)\) and the corresponding rational expectations solution to be given by a general Taylor approximation \(g(t+x)\) (which is assumed to approximate \(g(t)\) fairly closely); then, using the regression on the observed RER: \(y = g(x) + \epsilon + \epsilon\), we estimate \(g(x)\) by \(\hat{g}(x) \approx g(x)\) does not guarantee that \(\hat{g}(x)\) and \(g(x)\) are equal for each point in the space of the fundamentals (see Elbadawi (1983) on the validity of the Taylor series interpretation of the regression estimators).
17 The resource balance is dubbed "close" to the equilibrium if it is positive.
18 See Calvo, Leiderman and Reinhart (1993) for an exposition of the debate.

References