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MACROECONOMIC COORDINATION AND COMMERCIAL

INTEGRATION IN MERCOSUR

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ABSTRACT

Commercial integration in the Mercosur area has increased substantially in the last few years and it is expected to continue to grow rapidly in the near future. However, given the historical record of policy management in the region, especially in Brazil and Argentina, the main partners of this integration initiative, it is not clear whether macroeconomic policies will provide the required conditions of sustainability for such a rapid trade expansion. This paper discusses the relationship between macroeconomic coordination and commercial integration in the context of Mercosur. After examining the impact of policy instability on trade flows within the region in recent years, it evaluates the prospects for closer coordination of macroeconomic policies in the future.

JEL Classification Numbers:

F15, F36, F42

1. INTRODUCTION

Commercial integration in the Mercosur area has increased substantially in recent years. While extra-Mercosur exports grew by an annual average rate of about 6 percent from 1990 to 1996, intra-Mercosur exports went up by some 26 percent a year in the same period. Such a remarkable trade expansion took place during a time of marked differences in the implementation of macroeconomic policies in Argentina and Brazil, by far the largest economies in the region.

With a deepening of the integration process expected to take place in the near future, as Mercosur consolidates its move towards a true common market, questions arise on whether macroeconomic policies in member countries will provide the required stability for a further expansion in regional trade flows.

Excessive price and exchange rate fluctuations, which arise in response to uncoordinated macroeconomic policies, impact international trade through at least two major channels. In addition to stimulate lobbying for protection in import competing sectors, price and exchange rate variability induce domestic producers to refrain from exporting, allocating resources differently than what would be suggested by comparative advantage.

This paper discusses the relationship between macroeconomic coordination and commercial integration in the context of Mercosur. After examining the impact of policy instability on trade flows within the region in recent years, it evaluates the prospects for closer coordination of macroeconomic policies in the future.

The next section discusses the link between macroeconomic policies, real exchange rate movements and international trade. Section 3 examines how differences in the implementation of macroeconomic policies have caused strains within Mercosur in recent years, leading to successful lobbying behavior by import competing sectors. In Section 4, the relationship between real exchange rate variability and export flows in Mercosur is examined empirically. Section 5 concludes with an assessment of the prospects for macroeconomic coordination within the region.

2. MACROECONOMIC COORDINATION AND INTERNATIONAL TRADE

In recent years, considerable progress has been achieved in integration initiatives in different regions of the world. The available evidence reveals that successful initiatives have taken place both in regions with relative macroeconomic stability among countries, and in regions where countries have marked differences in their macroeconomic stands. Thus, while commodity and factor market integration has advanced in the European Union in the context of explicit convergence indicators for macroeconomic policies, within Mercosur, for example, commercial integration has proceeded amid periods of pronounced macroeconomic instability in some of its member countries.[1]

A fundamental link between macroeconomic coordination and trade integration takes place via the exchange rate. Differences in the implementation of monetary and fiscal policies across countries may cause excessive variability in real exchange rates [2], impacting international trade through at least two major channels. In addition to stimulate lobbying for protection in import competing sectors, price and exchange rate variability induce domestic producers to allocate resources differently than what would be suggested by comparative advantage. In both cases, what results is a level of international trade - and economic welfare - lower than what would prevail under coordinated macroeconomic policies.

If there is a high degree of interdependence among countries, the effects of real exchange rate variability can be of a significant order of magnitude. Integration, therefore, imposes the need for more coordinated macroeconomic policies. This section examines the empirical evidence on the link between macroeconomic coordination and international trade. It starts by briefly reviewing the relationship between macroeconomic related instability and real exchange rate movements, and then concentrates on the impact of real exchange rate fluctuations on international trade.

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1 For a review of experiences of macroeconomic coordination in different integration contexts, see Abreu and Bevilaqua (1995).

2.1 <u>Policy Instability and Real Exchange Rates</u>

The link between instability generated by uncoordinated macroeconomic policies and real exchange rate variability has been examined in a series of empirical studies. De Grauwe and Rosiers (1987), for example, look at a sample of developed and developing countries and find that monetary instability is a major factor determining the variability of real exchange rates.

In an early analysis using a sample formed only by developing countries, Edwards (1987) finds that both nominal and real disturbances are important determinants of the variability in real exchange rates. Edwards' results have been extended in a recent update of his study. Using data for 30 developing countries during the 1979-1993 period, Eichengreen (1997) presents evidence consistent with the view that economic structure and policy are important determinants of real exchange rate volatility.

In addition to looking at the impact of policy variability on exchange rates, Eichengreen makes an effort to evaluate how economic integration alters the nature of this link. His results provide some evidence that both the variability of domestic credit growth and the volatility of real GDP growth have a stronger impact on the variability of the real exchange rate in more open economies.

2.2 <u>Real Exchange Rate Fluctuations and International Trade</u>

Two effects of real exchange rate fluctuations on international trade have been examined in the literature. The first effect refers to the indirect, but significant, impact of exchange rate movements on trade volumes. For a given level of protection, prolonged real exchange movements induced by different macroeconomic policy stances usually increase import penetration. A variety of models of political economy of trade policy predict that, in response to increased import competition, domestic producers intensify protectionist pressures and normally

2 In pegged exchange rate regimes this will be the major concern. With floating exchange rates, variability on nominal exchange rates will also be an issue.

succeed in causing trade volumes to decrease.[3] Because of the well known contrasts between the lobbying power of producers and consumers, once protection is increased, it is not easy to reduce it, even if the misalignment in the real exchange rate between trade partners is reverted. Given this asymmetry, the impact of misalignment on trade is likely to be reinforced. Each round of a misalignment cycle between trade partners may result in increased protection and, therefore, reduced trade levels.

Using 1983 U.S. manufacturing data, Trefler (1993) presents evidence consistent with the view that a rise in import penetration leads to greater protection. Estimating the impact on U.S. imports of the elimination of all nontariff barriers to trade (NTBs) in manufacturing with simultaneous equations for imports and NTBs, he finds that the increase in import penetration has the expected positive sign and is statistically significant.

Rather than taking into consideration the endogenous determination of imports and protection in the econometric specifications, but still exploring the political economy effect of exchange rate variability, other empirical studies have tried to assess directly the link between prolonged real exchange rate movements and the level of trade. In general, the empirical evidence fails to reject the hypothesis that long swings in real exchange rates, or exchange rate misalignments, affects trade adversely.

De Grauwe (1988), for example, uses cross section export equations to assess if real exchange rate variability has a negative effect on the growth rate of trade. The variability of the real exchange rate is less important than reduced output growth or the decreased pace of both integration in the EC and Japanese penetration of industrial markets to explain the fall in trade growth among industrial countries from 1960-1969 to 1973-1984. But it still accounts for no less than 20% of the total effect.

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3 The theory of endogenous protection views the level of protection as determined by the equilibrium between the demand for protection by interest groups and the supply of protection by politicians. See Rodrik (1995) for a review of recent contributions on the political economy of trade policy.

Similarly, Sapir, Sekkat and Weber (1994) find that trade flows between countries in the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS) and non-ERM countries are especially sensitive to exchange rate misalignments. However, they find no significant impact for intra-ERM trade flows. This evidence is interpreted by the authors as strongly supporting the view that the ERM has succeeded in greatly reducing misalignments and has helped European countries to avoid protectionist pressures.

The second effect of real exchange rate fluctuations on international trade examined in the literature refers to the direct impact of real exchange rate induced uncertainty on trade. Assuming risk-averse economic agents, the risk associated with exchange rate volatility will lead agents to relocate to domestic activities and, as a result, will produce lower trade volumes.[4] There have been many studies of the effect of exchange rate volatility both on aggregate and on bilateral trade flows.[5] However, no clear evidence of a significant and systematic effect of exchange rate volatility on trade flows has emerged from this literature.

In a recent study for a sample of ten developing countries, Grobar (1993) explores the link between manufactured exports and real exchange rate uncertainty. Export supply equations are estimated for four Standard International Trade Classification (SITC) categories of manufactures, using pooled data for in the period 1963-1985, with four indices of real exchange rate uncertainty being considered. The results show a significant negative effect of real exchange rate uncertainty for two of the four categories (Chemicals and Machinery), regardless of which uncertainty index is used in the estimation. For the other two categories, the results are not conclusive. In one case (Miscellaneous manufactures) the coefficient on the uncertainty variable is negative in all specifications, but its significance depends on which index is used; in the other (Manufactures), real exchange rate uncertainty does not have a significant effect on exports.

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4 This result depends on a utility function with absolute risk aversion. For more general specifications there could be ambiguity on the effect of risk on trade. See De Grauwe (1988) for a model in which higher exchange rate risk may result in greater export activity.

5 The early literature is surveyed in IMF (1984). Recent studies are reviewed in Sapir, Sekkat and Weber (1994), and Côté (1994).

Eichengreen and Irwin (1993), and Frankel, Stein and Wei (1995), among others, have assessed the impact of exchange rate variability on trade flows using the gravity model of Linneman (1966), which relates bilateral trade flows to national income, population, geographical distance between countries, and contiguity. Frankel, Stein and Wei (1995) examined the impact of both nominal and real exchange rate volatility on bilateral trade flows, using a sample of 63 countries with separate cross-section equations for 1965, 1970, 1975, 1980, 1985, and 1990. The standard gravity model was augmented by dummy variables to capture the effect of trade initiatives and a measure of exchange rate volatility. In general, the results fail to display a systematic effect of volatility on bilateral trade and when the coefficients in the estimated equations have the expected negative impact, their magnitude is small.

Similar evidence is obtained by Abreu and Bevilaqua (1995) using the standard gravity framework in the context of Mercosur. Given the small number of countries in the integration initiative, the standard gravity analysis was framed within a fixed effects model, with data for the period 1958-1994. A dummy variable for the years after 1991, when the Asuncion Treaty was signed, indicates that countries in the region have traded more with one another as a result of Mercosur.[6] When a measure of real exchange rate variability is added to the basic specifications, however, its estimated coefficient has the expected sign but is not significantly different from zero at standard confidence levels.

A potential explanation for the fact that a significant and systematic effect of exchange rate uncertainty on trade flows has not emerged from the literature is that low cost hedging instruments against exchange rate risk became increasingly available in recent years, and their use reduces the impact of volatility on trade flows.[7]

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6 This result is consistent with those obtained by Frankel, Stein and Wei (1995), which indicate that Mercosur trade is far greater than what would be explained by gravity alone. They find a strong intraregional trade bias which increased in recent years: in 1985 trade was twice what would be explained by gravity; in 1990 the ratio had risen to eight.

7 Bini-Smaghi (1991), however, argues that no systematic relationship is found because empirical analyses of the impact of exchange rate variability on trade flows have a series of methodological problems that may lead to imprecise statistical results. Estimating the relationship with intra-EMS trade data for the period 1976-1984 he finds significant evidence of a negative relationship.

3. MACROECONOMIC POLICIES AND TRADE STRAINS IN MERCOSUR [8]

The "Mercado Comun del Sur (MERCOSUR)" was established on March 26, 1991, when the Presidents of Argentina, Brazil, Uruguay and Paraguay signed the Treaty of Asuncion. It was preceded by the Integration, Co-operation and Development Treaty of August 1989 between Argentina and Brazil, which followed the Iguazú Declaration of November 1985.

A common market among the four countries came into force on January 1, 1995, with a Common External Tariff (CET) ranging from zero to 20 percent. The CET applies to about 85 percent of total trade and a list of temporary exemptions affects 300 items in each country (399 for Paraguay). Tariffs will converge to a common Mercosur level by 2001. Capital goods and computer industry goods are exempted from the CET but tariffs will converge by 2006. Trade within Mercosur is free of tariffs but there is a small list of exemptions which is scheduled to be phased out until the year 2000.

Commercial integration in the Mercosur area has increased substantially in the last few years. Total Mercosur exports grew from US$46 billions in 1990 to US$75 billions in 1996, with the share of intra-Mercosur exports increasing from 9 percent to 22 percent. An even more impressive change occurred in the region's total imports, which increased from US$29 billions in 1990 to US$89 billions in 1996, with the share of intra-Mercosur imports growing from 14 percent to 21 percent (Table 3.1).

The increase in the relative importance of regional trade has been different for the four countries. In 1990 about 15 percent of Argentina's exports went to Mercosur countries, yet this share went up to 33 percent in 1996. For Brazil, although the 1990 level was lower (about 4 percent), the Mercosur share of its exports increased by almost four times (to 15 percent in 1996). For Paraguay and Uruguay, the increases in the Mercosur share in total trade were less dramatic, but in both cases the level of total exports to Mercosur countries almost doubled between 1990 and 1996 (Tables 3.2 to 3.5).

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8 Portions of this section draw on Abreu and Bevilaqua (1995).

Table 3.1
Mercosur: External Trade, 1990-1996

	1990	1991	1992	1993	1994	1995	1996*	Average Growth Rate 1990-1996
Exports								
Total (US$ Millions)	46456	45920	51557	54304	62885	68509	75030	**8%**
Intra-Mercosur	9%	11%	14%	19%	19%	18%	22%	26%
Extra-Mercosur	91%	89%	86%	81%	81%	82%	78%	6%
Imports								
Total (US$ Millions)	29295	34341	38663	48763	60873	75873	89213.8	**20%**
Intra-Mercosur	14%	15%	19%	19%	20%	17%	21%	28%
Extra-Mercosur	86%	85%	81%	81%	80%	83%	79%	19%

* Estimated

Source: IMF. Directions of Trade Statistics. Yearbook. 1996

Table 3.2
Mercosur: Bilateral Exports, 1990-1996
(US$ millions)

	1990	1991	1992	1993	1994	1995	1996	Aver. Growth Rate 1990-1996
Argentina	<u>1833</u>	<u>1978</u>	<u>2327</u>	<u>3684</u>	<u>4803</u>	<u>6778</u>	<u>7925</u>	28%
Brazil	1423	1489	1671	2814	3655	5484	6615	29%
Paraguay	147	178	272	358	498	631	584	26%
Uruguay	263	311	384	512	650	663	726	18%
Brazil	<u>1320</u>	<u>2309</u>	<u>4097</u>	<u>5397</u>	<u>5922</u>	<u>6154</u>	<u>7306</u>	33%
Argentina	645	1476	3040	3661	4136	4041	5170	41%
Paraguay	380	496	543	961	1054	1301	1325	23%
Uruguay	295	337	514	775	732	812	811	18%
Paraguay	<u>379</u>	<u>259</u>	<u>246</u>	<u>287</u>	<u>425</u>	<u>509</u>	<u>737</u>	12%
Argentina	55	45	64	65	91	80	141	17%
Brazil	312	203	171	215	324	399	567	10%
Uruguay	12	11	11	7	10	30	29	16%
Uruguay	<u>594</u>	<u>557</u>	<u>544</u>	<u>698</u>	<u>898</u>	<u>995</u>	<u>1153</u>	12%
Argentina	82	163	250	316	382	268	272	22%
Brazil	506	384	284	366	492	702	831	9%
Paraguay	6	10	10	16	24	25	50	42%

Source: IMF. Directions of Trade Statistics. Yearbook. 1996

Table 3.3
Mercosur: Share of Intra-Mercosur Exports in Total Exports, 1990-1996
(%)

	1990	1991	1992	1993	1994	1995	1996
Argentina	<u>15%</u>	<u>17%</u>	<u>19%</u>	<u>28%</u>	<u>29%</u>	<u>32%</u>	<u>33%</u>
Brazil	12%	12%	14%	21%	22%	26%	28%
Paraguay	1%	1%	2%	3%	3%	3%	2%
Uruguay	2%	3%	3%	4%	4%	3%	3%
Brazil	<u>4%</u>	<u>7%</u>	<u>11%</u>	<u>14%</u>	<u>14%</u>	<u>13%</u>	<u>15%</u>
Argentina	2%	5%	8%	9%	9%	9%	11%
Paraguay	1%	2%	1%	2%	2%	3%	3%
Uruguay	1%	1%	1%	2%	2%	2%	2%
Paraguay	<u>40%</u>	<u>35%</u>	<u>37%</u>	<u>40%</u>	<u>52%</u>	<u>43%</u>	<u>57%</u>
Argentina	6%	6%	10%	9%	11%	7%	11%
Brazil	33%	28%	26%	30%	40%	34%	44%
Uruguay	1%	1%	2%	1%	1%	3%	2%
Uruguay	<u>34%</u>	<u>35%</u>	<u>34%</u>	<u>42%</u>	<u>47%</u>	<u>47%</u>	<u>48%</u>
Argentina	5%	10%	15%	19%	20%	13%	11%
Brazil	29%	24%	18%	22%	26%	33%	35%
Paraguay	0%	1%	1%	1%	1%	1%	2%

Source: IMF. Directions of Trade Statistics. Yearbook. 1996

Table 3.4
Mercosur: Bilateral Imports, 1990-1996
(US$ millions)

	1990	1991	1992	1993	1994	1995	1996	Aver. Growth Rate 1990-1996
Argentina	876	1738	3755	4212	5147	4603	5809	37%
Brazil	718	1532	3339	3568	4286	4176	5327	40%
Paraguay	42	40	65	73	72	140	182	28%
Uruguay	116	166	351	571	789	287	300	17%
Brazil	2443	2416	2249	3524	4583	6821	9083	24%
Argentina	1514	1747	1721	2809	3662	5570	7452	30%
Paraguay	335	223	187	275	352	514	606	10%
Uruguay	594	446	341	440	569	737	1025	10%
Paraguay	367	396	475	570	892	1170	1582	28%
Argentina	151	152	201	211	308	491	485	21%
Brazil	207	234	263	340	555	645	1045	31%
Uruguay	9	10	11	19	29	34	52	34%
Uruguay	540	656	832	1127	1371	1322	1462	18%
Argentina	222	272	346	479	653	609	691	21%
Brazil	303	373	475	641	709	699	746	16%
Paraguay	15	11	11	7	9	14	25	9%

Source: IMF. Directions of Trade Statistics. Yearbook. 1996

Table 3.5
Mercosur: Share of Intra-Mercosur Imports in Total Exports, 1990-1996
(%)

	1990	1991	1992	1993	1994	1995	1996
Argentina	21%	21%	25%	25%	23%	23%	24%
Brazil	18%	18%	22%	21%	19%	21%	22%
Paraguay	1%	0%	0%	0%	0%	1%	1%
Uruguay	3%	2%	2%	3%	3%	1%	1%
Brazil	11%	10%	11%	13%	14%	14%	15%
Argentina	7%	8%	8%	10%	11%	11%	13%
Paraguay	1%	1%	1%	1%	1%	1%	1%
Uruguay	3%	2%	2%	2%	2%	1%	2%
Paraguay	31%	31%	38%	39%	42%	42%	49%
Argentina	13%	12%	16%	14%	14%	18%	15%
Brazil	17%	18%	21%	23%	26%	23%	32%
Uruguay	1%	1%	1%	1%	1%	1%	2%
Uruguay	41%	42%	41%	48%	49%	46%	44%
Argentina	17%	18%	17%	20%	23%	21%	21%
Brazil	23%	24%	24%	27%	25%	24%	22%
Paraguay	1%	1%	1%	0%	0%	0%	1%

Source: IMF. Directions of Trade Statistics. Yearbook. 1996

Mercosur removed barriers that had long restrained trade among countries in the region. It is, therefore, expected that trade integration will continue to increase in the near future as Mercosur consolidates its move towards a true common market. However, part of the trade expansion that took place in recent years can be attributed to the effects of very different macroeconomic policy stances in Argentina and Brazil, the major partners in the region. And, as discussed in the previous section, rapid import growth in response to misaligned real exchange rates may encourage protectionist pressures and end up leading to reduced trade volumes. This section examines the role of uncoordinated macroeconomic policies in causing trade strains and fueling protectionism within Mercosur in recent years. It starts by briefly examining the recent record of macroeconomic policies in Argentina and Brazil, and then discusses trade strains in response to increased import penetration.

3.1 Recent Macroeconomic Developments in Argentina and Brazil

Mercosur's better than expected performance in the first half of the 1990s owns a lot to economic reforms in Argentina and Brazil. Both countries had virtually no economic growth and extremely high inflation rates back in 1990. During that year, real GDP increased by only 0.1 percent in Argentina and shrank by 4.6 percent in Brazil. As for the inflation rate, it reached in 1990 about 1,344 percent in Argentina and 1,658 percent in Brazil (see Table 3.6 for macroeconomic data on Mercosur countries). During the transition period to the launching of Mercosur, both countries liberalized their external sector and undertook significant efforts to reach macroeconomic stability. In the two cases, the reduction in tariffs was an important tool to achieve price stability, by exposing local producers to the competition of less expensive imports.

Since the introduction of the Convertibility Plan, by Domingo Cavallo in 1991, Argentina's peso is fixed by law at par with the US dollar. From the standpoint of stabilization and economic growth, the plan has been an outstanding success. The inflation rate went down to less than 1 percent a year in 1996. Real GDP grew at annual average rates of over 7 percent between 1991 and 1994. In 1995 Argentina was hit hard by the by the effects of the December 1994 Mexican crisis. Under Argentina's commitment to a fixed parity, the money supply is tightly linked to the level of foreign exchange

TABLE 3.6
Mercosur: Macroeconomic Data, 1990 - 1996
(In percent)

	1990	1991	1992	1993	1994	1995	1996
Real GDP Growth Rate							
Argentina	0.1	10.5	10.3	6.3	8.5	-4.6	4.3
Brazil	-4.6	0.3	-0.8	4.2	5.8	5.4	2.9
Paraguay	3.1	2.5	1.8	4.1	3.1	4.7	1.3
Uruguay	0.9	3.2	7.9	3.0	6.3	-2.0	4.9
Inflation Rate (CPI)							
Argentina	1343.9	84.0	17.6	7.3	3.9	1.7	0.1
Brazil	1657.7	493.8	1156.4	2828.7	1258.6	25.3	11.3
Paraguay	44.1	11.8	17.8	20.4	18.3	10.6	8.2
Uruguay	129.0	81.5	58.9	52.9	44.1	36.8	24.3

reserves. So, when reserves shrank in 1995 in response to the Mexican crisis, money supply contracted too and real GDP went down by 4.6 percent. With improved international conditions in 1996, economic growth reached 4.3 percent. For 1997, real GDP is expected to increase at rates comparable with the record rates of 1991-1994.

Brazil's recent history of macroeconomic management has some similarities with Argentina's. The Real Plan preparatory stages were launched in late 1993, but the new currency was introduced only on July 1, 1994. Even if less dramatic than in Argentina, price stability has been spectacular. Monthly inflation rates have been brought down from more than 40 percent to under 1 percent on a sustained basis. In 1997, for the first time in decades, the annual inflation rate is expected to have only a single digit. Economic growth also has been sustained. In 1993, after three years of recession, Brazilian GDP grew by more than 4 percent. The recovery accelerated from mid-1994 with the introduction of the final stage of the stabilization plan. In both 1994 and 1995, economic growth exceeded 5 percent, reaching a peak in the first quarter of 1995 at a growth rate of more than 10 percent over the same quarter a year earlier. That coincided with the outbreak of the Mexican crisis and the government decided to increase interest rates sharply to cool the overheated economy and control the deterioration in the trade balance which, for the first time in years, had become negative in November of 1994. As intended, the activity level reacted to the tightening of monetary policy and the rate of growth of real GDP declined to 2.9 percent in 1996. Current projections put the 1997 economic growth rate at about 3.5 percent.

3.2 Exchange Rate Misalignment and Trade Strains

Bilateral trade developments between Argentina and Brazil during the period 1991-1996 were mostly determined by the marked differences in macroeconomic policies in the two countries. In both cases, policy tools were used primarily for the goal of price stability. Trade integration was not an issue directing macroeconomic implementation.

From 1991 to mid 1994, the peso-real parity was largely favorable to Brazil (see Figure 3.1). Argentina's currency remained pegged to the US dollar, while the Brazilian currency continued to be

adjusted in line with the accelerating inflation rate. Also, the end of hyperinflation in Argentina triggered a strong consumer boom and economic growth was much higher than in Brazil. As a result, between 1991 and 1994 Argentina's imports from Brazil increased at an annual average rate of 56 percent. Meanwhile, Brazil's imports from Argentina grew at about 25 percent a year.

The circumstances changed substantially during 1995-1996 with the nominal appreciation and the consumer boom which followed the introduction of the new currency in Brazil in July 1994, while Argentina was struggling with the effects of the Mexican crisis. Argentina's imports from Brazil went up by only 12 percent a year during these two years. The rate of growth of Brazil's imports from Argentina, in turn, was almost four times higher (46 percent a year). The bilateral trade balance, which had been traditionally unfavorable to Argentina and had further deteriorated with the Convertibility Plan, was reversed in September 1994.

Those marked swings in the pattern of trade between the two countries (see Figure 3.2) naturally generated some serious strains. With the trade balance with Brazil changing from a surplus of US$705 millions in 1990 to a deficit of US$754 millions in 1993, Argentina's government resorted from October 1992 to a series of protectionist measures. The "statistical tax" levied on imports, including those from Mercosur, was increased from 3 to 10 percent and anti-dumping measures and safeguard actions were implemented to protect the domestic industry from import competition. Also, in 1993 Brazil agreed to buy wheat and petroleum from Argentina in order to help alleviate the bilateral trade deficit and relieve internal criticisms to the integration process in Argentina.

Similarly, in response to a deterioration on its trade balance, the Brazilian government decided in early 1995 to introduce tariff increases, import quotas and restrictions on import credit affecting selected products, especially consumer durables, in a partial reversal of the monotonic trade liberalization policy which had been maintained since 1990. Tariffs on vehicle imports were raised from 20 to 32 percent in February 1995 and to 70 percent two months later.[9] Soon after, quotas were introduced to help reduce vehicle imports by 50 percent in the second half of the year.

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9 Tariffs were reduced to 63 percent in 1997 and is due to be reduced to 49 percent in 1998, 35 percent in 1999, and to be brought under the CET falling to 20 percent in the year 2000

Figure 3.1
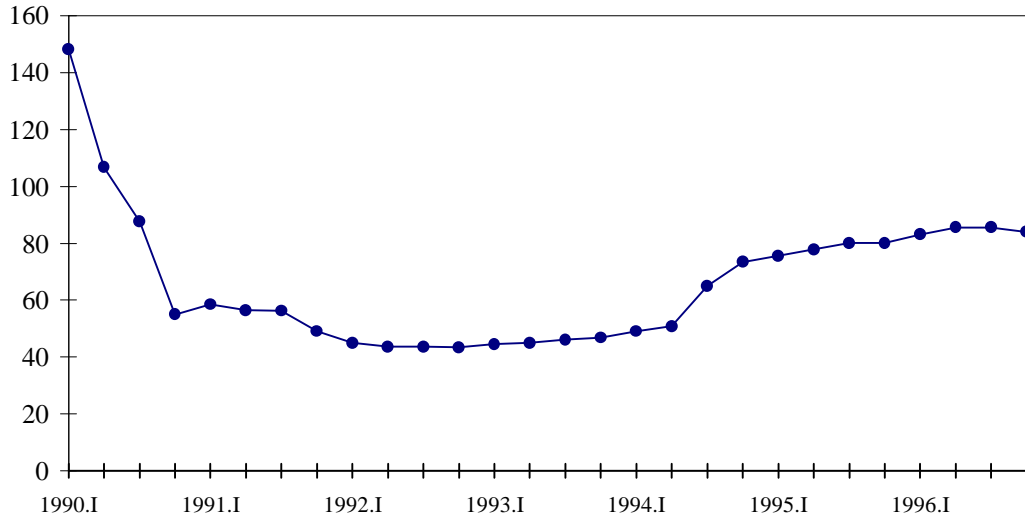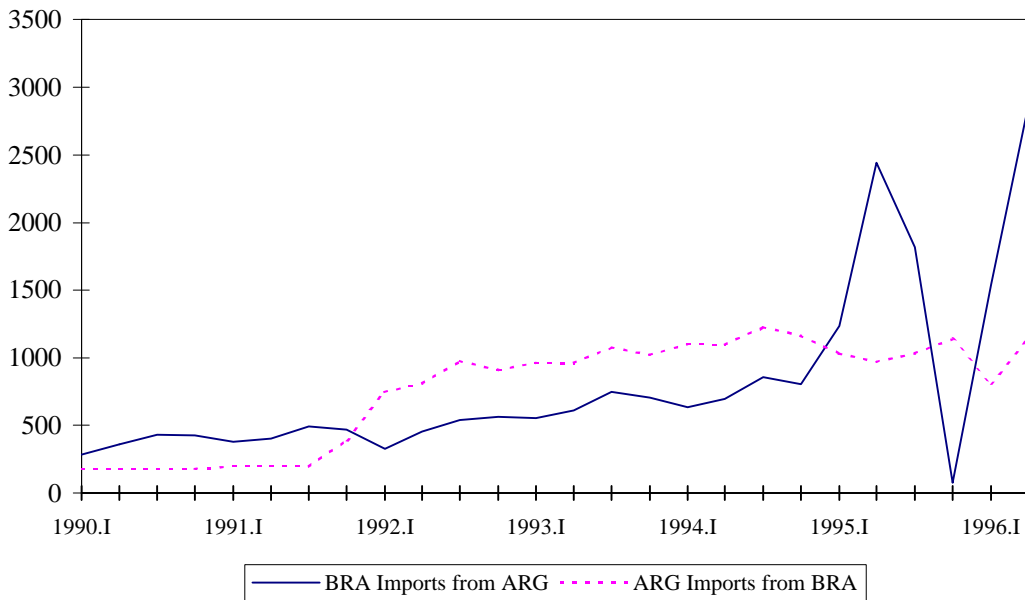**Argentina-Brazil: Bilateral Real Exchange Rate, 1990-1996**

Figure 3.2
Argentina-Brazil: Bilateral Trade, 1990-1996
(US$ millions)

BRA Imports from ARG   ARG Imports from BRA

By then, Brazil had become the biggest market for Argentina's vehicle exports. When the initial statements by the Brazilian authorities underlined that the restrictions would also apply to imports from Mercosur, there was a strong reaction by the Argentinean authorities. After a diplomatic row which lasted several months, in January 1996 the countries reached a bilateral agreement setting a policy for the motor industry. Under the deal, which replaces free trade with a form of managed trade, Brazil exempted Mercosur-made cars (mainly from Argentina) from the tariff increase, but until the year 2000 firms with plants in both countries must have a balanced bilateral trade of cars and components. Firms with plants only in Argentina have a quota for exports to Brazil at half the going tariff. The agreement is intended to run until the year 2000, when free trade is due to prevail within Mercosur.

In early April 1997, the concern with a possible deterioration in the trade balance led the Brazilian authorities to undertake measures that increased anxiety within Mercosur yet one more time. Restrictions to the local financing of imports were introduced and prompted a strong reaction from Argentina's authorities. After a few days of diplomatic squabble, Brazilian authorities decided to exempt imports from Mercosur from the new restrictions for a period of 120 days.[10]

Having recent developments in Mercosur as a background, the analysis in this section indicates that swift increases in import penetration in response to very different macroeconomic policy stances may result in increased protectionism. As there is no indication that protectionist measures taken when currencies were overvalued were reversed when the same currencies became undervalued, Mercosur strains illustrate forcefully the vulnerability of integration initiatives to the political economy effect of real exchange rate variability.

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10 In order to avoid new conflicts, Argentina and Brazil decided to start the activities of the Mercosur's sub-group on Economic Coordination, introduced by the Ouro Preto agreements which created the customs union in 1994, which had been dormant until April 1997. In the future, member governments will exchange information about the economic conditions in their countries and about important decisions to be implemented.

4. EXCHANGE RATE VARIABILITY AND TRADE FLOWS IN MERCOSUR

As discussed before, in addition to its indirect impact through increased protectionism, real exchange rate fluctuations can have a direct impact on international trade. By increasing the risk associated with export activities, real exchange rate variability can cause the volume of international trade to decline. The empirical importance of this effect for intra-Mercosur trade is examined in this section.

Real exchange rate volatility has dropped significantly during the Mercosur period. According to the data presented in Tables 4.1 and 4.2, for most of the bilateral real exchange rates in the region the mean and the standard deviation of volatility have decreased from 1985-1990 to 1991-1996. The timing of the reduction in the volatility of most bilateral rates in the Mercosur period can be associated with the stabilization plans of Argentina and Brazil.

What has been the impact of such exchange rate variability on intra-Mercosur trade? This question is now assessed with the use of standard export supply equations with bilateral trade data for the four countries in the region. In the basic export supply equation, the log of real bilateral export flows is assumed to be a function of the log of the bilateral real exchange rate (RER) and the log of the real gross domestic product in the trade partner (GDP). A fixed effects model is used which allows for different intercepts for the bilateral export flows and accounts for specific effects on export performance, such as trade regime, tax policy and credit policy. Quarterly data was gathered for the period 1985I-1996II, yielding a total of 552 bilateral trade flows. The basic equation is augmented in some specifications by a standard measure of exchange rate volatility: the standard deviation of the first difference of the logarithmic bilateral real exchange rate, with the quarterly standard deviation being taken over the two years preceding the export flows.

The estimation results are shown in Table 4.3. All specifications include country-pair specific intercepts and year dummies which are not presented in the table. Equation 1 displays the results for the basic export supply equation. Both the real exchange rate and activity variables are statistically different from zero at very high confidence levels and have their expected signs: a real depreciation or an increase in

Table 4.1
Mercosur: Mean of Bilateral
Real Exchange Rate Volatility, 1985-1996

	Years	
	1985-1990	1991-1996
Argentina - Brasil	0.0529	0.0176
Argentina - Paraguay	0.0722	0.0106
Argentina - Uruguay	0.0528	0.0122
Brasil - Paraguay	0.0443	0.0128
Brasil - Uruguay	0.0187	0.0131
Paraguay - Uruguay	0.0408	0.0072

Note. Volatility is measured by the standard deviation of the monthly difference of the

logarthmic bilateral exchange rate within a year.

Bilateral Real Exchange Rate calculated with Countrie's Consumer Prices.
Source: Authors' calculation with data from IMF, International Financial Statistics

Table 4.2
Mercosur: Standard Deviation of Bilateral
Real Exchange Rate Volatility, 1985-1996

	Years	
	1985-1990	1991-1996
Argentina - Brasil	0.0188	0.0053
Argentina - Paraguay	0.0255	0.0032
Argentina - Uruguay	0.0192	0.0037
Brasil - Paraguay	0.0155	0.0038
Brasil - Uruguay	0.0035	0.0039
Paraguay - Uruguay	0.0162	0.0011

Source and definitions: see Table 4.1

Table 4.3
Mercosur: Determinants of Bilateral Exports, 1985I-1996II
Restricted Model Estimates

	Equation 1	**Equation 2**	**Equation 3**	**Equation 4**
RER	0.42	0.42	0.42	0.42
	(4.57)	(4.57)	(4.57)	(4.57)
GDP	0.55	0.55	0.50	0.50
	(2.99)	(2.99)	(2.72)	(2.72)
MERC	-	1.49	-	1.46
		(11.91)		(11.62)
VOL	-	-	-1.12	-1.12
			(-1.33)	(-1.33)
Adj. R^2	0.93	0.93	0.93	0.93
# of obs.	552	552	552	552
Std. Error	0.44	0.44	0.44	0.44
Log-likelihood	-318.19	-318.19	-317.26	-317.26

t-statistics in parenthesis

Data sources: IMF: International Finantial Statististics CD-ROM 03/97

         IMF: Directions of Trade Statistics

the activity level in the trade partner increase a country's exports. The basic specification is augmented with a dummy variable for Mercosur (MERC) in Equation 2. This variable takes the value of one from 1991 on and its estimated coefficient confirms that trade in the region has increased after the Asunción Treaty was signed. Equations 3 and 4 add the real exchange rate volatility measure (VOL) to the basic specification. The estimated coefficient has the expected sign, but is not significantly different from zero at standard confidence levels.

The four specifications in Table 4.3 constrain the slope coefficients to be the same throughout the entire estimation period. For that reason, the results may not be capturing the contribution of the decreased real exchange rate volatility for the expansion of intra-Mercosur trade after 1991. Table 4.4 presents estimation results obtained with an unrestricted version of the basic export supply. Again, all specifications include country-pair specific intercepts and year dummies (not presented in the table). The first specification shows that when real exchange rate and activity variables are allowed to have different coefficients before and after 1991, both have a stronger and significant impact on trade flows during the more recent period. This result remains the same when a Mercosur dummy is added to the basic specification in the second column of Table 4.4, showing that the 1991-1996 coefficients on the two explanatory variables are not simply picking up other Mercosur related effects. The last two equations in the table add the volatility measure to the unrestricted model specifications. The results show that real exchange rate volatility has had a small but significant negative impact on trade flows during the Mercosur period, with an implied elasticity of -0.06 for the last specification in Table 4.4. For the earlier period, the coefficient on the volatility measure has the expected negative sign, but is not accurately estimated. Likelihood ratio tests reject at standard confidence levels the hypothesis that the coefficients in the two sub-periods are the same.

The results obtained with the standard export supply equations indicate that real exchange rate variability has had a negative impact on intra-Mercosur trade flows in recent years. Therefore, they empirically support the view that a lack of macroeconomic coordination could be an impediment for further commercial integration in the region.

Table 4.4
Mercosur: Determinants of Bilateral Exports, 1985I-1996II
Unrestricted Model Estimates

	Equation 1	Equation 2	Equation 3	Equation 4
RER8590	0.44	0.44	0.44	0.44
	(4.73)	(4.73)	(4.71)	(4.71)
RER9196	0.70	0.70	0.72	0.72
	(3.57)	(3.57)	(3.62)	(3.62)
GDP8590	0.39	0.39	0.36	0.36
	(2.01)	(2.01)	(1.88)	(1.88)
GDP9196	0.55	0.55	0.50	0.50
	(2.68)	(2.68)	(2.37)	(2.37)
MERC	-	-0.49	-	-0.38
		(-0.67)		(-0.52)
VOL8590	-	-	-0.11	-0.11
			(-0.11)	(-0.11)
VOL9196	-	-	-3.30	-3.30
			(-2.13)	(-2.13)
Adj. R^2	0.93	0.93	0.93	0.93
# of obs.	552	552	552	552
Std. error	0.44	0.44	0.44	0.44
Log-likelihood	-314.24	-314.24	-311.85	-311.85

t-statistics in parenthesis
Data sources: see Table 4.3.

5. CONCLUDING REMARKS

Is there a role to be played by macroeconomic coordination in Mercosur? The evidence presented in the paper suggests that uncoordinated macroeconomic policies have been important in putting Mercosur under strain in the recent past. In addition, the empirical analysis of the determinants of intra-Mercosur exports points to the existence of an inverse - albeit small - relationship between real exchange rate variability and trade flows in the region. Given that a lower level of international trade implies a lower degree of economic specialization, reducing the degree of real exchange rate variability through the coordination of macroeconomic policies in the region can be welfare improving.

The experience with the Exchange Rate Mechanism in Europe has shown that stabilizing exchange rates through institutional arrangements is not an easy task. Even when countries are committed to bring together a strong form of macroeconomic coordination such as a monetary union, and set domestic policies according to that goal, international capital markets will periodically test the determination of fixed parities and produce economic crises. In a world of highly integrated capital markets, fixed exchange rates might be just a mirage.[11]

Those difficulties are amplified in the context of Mercosur by the fact that Argentina is irrevocably committed to a fixed parity with the U.S. dollar. In this case, any formal attempt at stabilizing exchange rates within the region will reduce considerably the degrees of freedom for macroeconomic policy implementation in the other countries.[12] The heterogeneity in trade structures and trade geographic distribution increase the likelihood that exogenous shocks will affect Mercosur countries unevenly. In the absence of adjustment mechanisms such as free labor mobility within the region, it is important that exchange rates retain some flexibility.

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11 As put forcefully by Obstfeld and Rogoff (1995).

12 Most of Brazil's trade, for example, is conducted outside Mercosur. Therefore, locking the exchange rate with respect to the U.S. through Argentina may result in important competitiveness shifts with respect to major trade partners such as the European Union.

If institutional arrangements regarding exchange rate movements are unlikely to be successful, what form of macroeconomic coordination could be adopted in the context of Mercosur? The paper presents evidence that real exchange rate volatility declined significantly with the stabilization of the Argentinean and Brazilian economies in the first half of the 1990s. Therefore, the adoption of sustainable fiscal and monetary policies in all Mercosur economies which place a high priority on price stability will be the best form of coordination.[13] However, given the chronic difficulties with federal control of provincial spending in Argentina, and the delays in the approval of constitutional amendments that change the nature of the fiscal regime in Brazil, that may be a hard task.

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13 As suggested by Abreu and Bevilaqua (1995).

REFERENCES

Abreu, Marcelo de Paiva and Afonso S. Bevilaqua (1995). "Macroeconomic Coordination and Economic Integration: Lessons for a Western Hemisphere Free Trade Area", <u>Texto para Discussão</u> No. 340, Departamento de Economia, PUC-Rio, Rio de Janeiro.

Bini-Smaghi, Lorenzo (1991). "Exchange Rate Variability and Trade: Why Is It So Difficult to Find Any Empirical Relationship?", <u>Applied Economics</u> , Vol. 23, No. 5, May, pp. 927-35.

Côté, Agathe (1994). "Exchange Rate Volatility and Trade: A Survey", <u>Working Paper</u> 94-5, International Department, Bank of Canada.

De Grauwe, Paul (1988). "Exchange Rate Variability and the Slowdown in Growth of International Trade", <u>International Monetary Fund Staff Papers</u>, Vol. 35, No. 1, March, pp. 63-84.

De Grauwe, Paul and Marc Rosiers (1987). "Real Exchange Rate Variability and Monetary Disturbances", <u>Welwirtschaftliches-Archiv</u>, Vol. 123, No. 3, pp. 430-48.

Edwards, Sebastian (1987). "Real Exchange Rate Variability: An Empirical Analysis of the Developing Countries Case", <u>International Economic Journal</u>, Vol. 1, No. 1, Spring, pp. 91-106.

Eichengreen, Barry (1997). "Free Trade and Macroeconomic Policy", unpublished manuscript, University of California, Berkeley, May.

Eichengreen, Barry and Douglas A. Irwin (1995). "Currency Blocs and the Reorientation of World Trade in the 1930s", <u>Journal of International Economics</u>, Vol. 38, No. 1-2, pp. 1-24.

Frankel, Jeffrey, Ernesto Stein and Shang-jin Wei (1995). "Trading Blocs and the Americas: The Natural, the Unnatural, and the Super-natural", <u>Journal of Development Economics</u>, Vol. 47, No. 1, pp. 61-95.

Grobar, Lisa M. (1993). "The Effect of Real Exchange Rate Uncertainty on LDC Manufactured Exports", <u>Journal of Development Economics</u>, Vol. 41, No. 2, August, pp. 367-76.

International Monetary Fund (1984). "Exchange Rate Volatility and World Trade. A Study by the Research Department", <u>Occasional Paper</u> No. 38, Washington D.C.

Linneman, H. (1966). <u>An Econometric Study of International Trade Flows</u>, Amsterdam: North-Holland.

Obstfeld, Maurice and Kenneth Rogoff (1995). "The Mirage of Fixed Exchange Rates", <u>Journal of Economic Perspectives</u>, Vol. 9, No. 4, Fall, pp. 73-96.

Rodrik, Dani (1995). "Political Economy of Trade Policy", in Gene Grossman and Kenneth Rogoff (eds.), Handbook of International Economics, Vol. 3, Amsterdam: North-Holland.

Sapir, André, Khalid Sekkat and Axel A. Weber (1994). "The Impact of Exchange Rate Fluctuations on European Union Trade", Discussion Paper Series No. 1041, Centre for Economic Policy Research, London.

Trefler, Daniel (1993). "Trade Liberalization and the Theory of Endogenous Protection: An Econometric Study of U. S. Import Policy", Journal of Political Economy, Vol. 101, No. 1, February, pp. 138-60.