Domestic institutions and exchange rate politics in the open economy

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Abstract: La tesis fue defendida en la Universidad de Harvard y dirigida por Jeffry Frieden. Estudia la relación entre el grado de apertura comercial y regímenes de tipos de cambio fijos o flotantes. La pregunta es por qué no existe una relación estrecha entre apertura comercial y tipos de cambio fijos, sino por el contrario fuertes divergencias en las políticas cambiarias de los países. Su explicación se basa en un modelo formal sobre preferencias acerca del tipo de cambio; preferencias que dependen del bienestar material de dos grupos económicos: el sector más internacionalizado de la economía y el sector doméstico menos expuesto a la competencia internacional. Un tipo de cambio fijo beneficia al sector más internacionalizado al estabilizar el tipo de cambio nominal. Pero ese mismo tipo de cambio fijo también puede beneficiar al sector doméstico, puesto que incentiva incrementos salariales. Los dos efectos son contradictorios y prevalecerá uno u otro según que existan dos condiciones institucionales que estudia Fernández-Albertos. Por un lado, una negociación colectiva coordinada; por otro lado, bancos centrales independientes adversos a la inflación. La conclusión es que si estas dos condiciones se dan, se producirá moderación salarial y el sector internacionalizado será más favorable a un tipo de régimen de cambios fijos. Si esas condiciones no se dan, ese sector internacionalizado preferirá un tipo de cambio flotante. La tesis muestra hasta qué punto las hipótesis se cumplen analizando los países de la Unión Europea, México y dos bases de datos (una para todos los países del mundo, otra para países de la OCDE).

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DOMESTIC INSTITUTIONS AND EXCHANGE RATE POLITICS IN THE OPEN ECONOMY

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Esta obra se presentó como tesis doctoral en el Departamento de Gobierno de la Universidad de Harvard el día 5 de Febrero de 2007. El tribunal estuvo compuesto por los profesores doctores Jeffry A. Frieden (presidente), Jorge I. Domínguez, Michael J. Hiscox, y Torben Iversen.

José Fernández Albertos (Madrid, 1975) es licenciado en Ciencia Política y de la Administración por la Universidad Complutense y doctor en Ciencia Política por la Universidad de Harvard. Formó parte de la duodécima promoción de estudiantes del Centro de Estudios Avanzados en Ciencias Sociales del Instituto Juan March de Estudios e Investigaciones, donde obtuvo el título de *Máster* en 2001. Realizó y defendió la tesis doctoral en el Departmento de Gobierno de la Universidad de Harvard, bajo la dirección del profesor Jeffry A. Frieden. En el Centro contó con la supervisión del profesor Carles Boix. Desde Enero de 2007 es profesor de Ciencia Política en el Institut Barcelona d'Estudis Internacionals (IBEI).

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'Years of torment end in bliss.' That was the Boston Globe headline on October 28th, 2004, the day after the Red Sox won their first World Series since 1918. I once thought that was a pretty good description of the process of completing a Ph.D. In hindsight, however, for all the efforts, uncertainties, and sacrifices associated with such a long time project, I have come to realize that the writing of a dissertation is, on the contrary, an extraordinary and fascinating journey. You get to learn about things you didn't know they even existed. You end up exploring undiscover territories, facing both intellectual and personal challenges. And you do all these things surrounded by people that will remain with you, in one way or another, for the rest of your life. It is only fair to thank those who have made that journey possible.

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"Cecily, you will read your Political Economy in my absence. The chapter on the Fall of the Rupee you may omit. It is somewhat too sensational. Even these metallic problems have their melodramatic side." (Oscar Wilde, *The Importance of Being Earnest*, 1895)

"Commerce, the exchange of commodities, ... currency, the rise and fall of prices, the rates of profits, are all subject to laws as universal and unerring as those which Newton deduces in the *Principia.* ... As they are manifested by more complicated phenomena, man may not know them as accurately as he knows the laws of astronomy and mechanics; but he can no more doubt the existence of the former than he can the existence of the latter." (Parke Godwin, The Financial Flurry. *The Atlantic Monthly*, 1857)

Chapter 1

Introduction

"By virtue of the new situation of external competition, a closer link between the tariff level and the exchange rate was established... It was believed that any loss in tariff protection should be accompanied by a compensatory rise is the real exchange rate." *Sergio de Castro, Chile's Minister for the Economy (1975) and Finance (1976-82).*

"Economic and monetary union will make possible to realize an area within which goods and services, people and capital will circulate freely and without competitive distortions... A monetary union implies the total and irreversible convertibility of currencies, the elimination of margins of fluctuation in exchange rates, the irrevocable fixing of parity rates and the complete liberation of movements of capital." *Report to the Council and the Commission on the realization by stages of Economic and Monetary Union in the European Community, the "Werner Report."*

1.1 A Tale of Two Continents

Paraphrasing Benjamin Cohen,[1] economic openness obviously matters for exchange rate choices, but we still don't know how. A general outlook of the recent evolution of currency regimes poses an intriguing puzzle for the exchange rate literature. With the collapse of the Bretton-Woods monetary world order in the early 70s, however, most Latin American countries began to abandon the protectionist commercial policies associated with the Import-Substitution Industrialization (ISI) strategy they had actively pursued since the Great Depression, and dramatically liberalized their trade policies. As trade barriers were dramatically dismantled in the late 70s and the 80s, governments begun to face mounting political pressures from the most internationally-exposed sectors of the economy to adopt new monetary regimes that would allow them to compete more successfully in global markets. The nearly universal government response in these contexts was to abandon the fixed exchange rate regimes that characterized the ISI period (fixed exchange rate regimes were used to keep the exchange rate overvalued in order to cheapen the foreign inputs necessary to build up a domestic industry), and adopt flexible regimes that would allow for nominal devaluations of the national currency (de Gregorio, 2001; Jaramillo et al, 2001). These devaluations, by significantly improving the international competitive stance of national firms, made trade liberalization more politically palatable. In fact, it can be shown that in the post-Bretton Woods era, Latin American countries that opted for floating exchange rate regimes tended not only to have live under more liberal trade regimes, but also to speed up the process of economic liberalization.

In sharp contrast, and almost simultaneously, a similar process

[1] His original quotation is also appropriate here: "Domestic politics obviously matters [for exchange-rate regimes], but it is difficult to say how" (quoted in Hellerberg 2003).

of economic integration in Europe led, quite paradoxically, to the opposite result: as European economies grew more and more integrated with one another –a process largely driven by the creation and expansion of the European Economic Community–, so did the demands for the stabilization of their exchange rates. The process of monetary integration, formally initiated with the creation of the European Monetary System (EMS) in 1979, eventually concluded with the adoption, by eleven European countries,[2] of the euro as their common currency in 1999. In the European context, exchange rates were perceived as the last standing barrier to the functioning of a truly integrated market in the continent, and the adoption on a common currency was seen as the obvious way to overcome that obstacle. It is all the most puzzling that it was roughly the same groups (internationally-oriented producers) who in Latin America demanded exchange rate flexibility, who were in Europe lobbying for the complete opposite exchange rate policy: stabilization and even monetary unification (Frieden 2002). Why did internationalized sectors asked for opposite exchange rate strategies in these different contexts? Why, as economies become more internationalized, the increasing political leverage of the same economic groups seems to translate into different monetary regimes across countries? These are the main questions that this dissertation addresses.

The importance of these issues cannot be underestimated. Exchange rate regime choices have been associated with different rates of inflation, growth, volatility, or the probability of experiencing crises, among many other important economic phenomena.[3] Economists thus need no further persuasion to find it relevant the study of the political and economic determinants of exchange rate regime preferences and choices. But the reasons for studying the *politics*

[2] At the time of the writing, the euro is the official currency in 13 EU-member states, while 7 more countries participate in the Exchange Rate Mechanism-2, which means that they have their currency pegged to the euro.

[3] See Ghosh *et al.* 2002 for a comprehensive analysis of the relative performance of exchange rate regimes.

of exchange rate regime choice go beyond the aggregate economic consequences that the different regimes may or may not have. Exchange rate regimes have important political consequences, both at the domestic –as I shall discuss at length, they typically produce winners and losers, and critically condition the government's control over key economic policies– and at the international level –affecting the prospects for monetary and economic cooperation across countries.[4] An investigation of the political and economic underpinnings of exchange rate regime preferences is thus vital to understand the evolution of the trade-integrated political economies.

1.2 The Argument

The argument can be summarized as follows. It departs from a rather incontrovertible assumption: the internationalization of the economy alters the distribution of power, strengthening the internationally exposed sectors of the economy. There are several channels by which this change in the 'correlation of forces' may obtain. Firstly, the more integrated the economy is, the larger the size of the international sector vis-a-vis the rest of the economy. Secondly, the international sector might not even need to grow in numbers: a greater dependence of the whole economy on the performance of the exposed sector will similarly led to greater political leverage of this sector. Internationalization, in short, increases the weight of the international sector's preferences on economic policies in general, and currency policy in particular.

[4] A clear example of this is provided by the evolution of Mercosur, the South American regional free trade agreement, in the 1990s. The devaluations of the Brazilian real automatically damaged the competitivenness stance of Argentinean producers (who were constrained by the peg of the peso to the dollar). Argentineans responded by erecting tariffs to Brazilian products, effectively ending the free-market rules of Mercosur. See Eichengreen and Taylor 2004, Fernandez-Arias *et al* 2002).

Exchange rate policy mediates the domestic effects of trade integration. It does so in two fundamental ways: on the one hand, whether the domestic currency is allowed to float or not affects the predictability of the monetary value of cross-border exchanges. In principle, this benefits particularly those groups of society involved in international trade. I shall call this the 'nominal stabilization' effect. But the domestic effects of exchange rate policy do not end there. Since fixing the nominal exchange rate indirectly affects the monetary policy rule, which in turn affects asymmetrically wage developments in the different sectors of the economy, potentially harming internationally exposed-sectors of the economy. I call this the 'wage determination effect'. This dissertation is by no means the first study that recognizes these two distributional effects of monetary integration on the domestic economy, but it is the first one developing a unified theoretical framework in which the two effects can be jointly analyzed.

Given the contradictory effects that fixing the exchange rate has on exporters's wellbeing, the sector's regime preferences will be in principle indeterminate. However, as the formal model I develop in chapter 3 shows, certain institutional characteristics of the domestic political economy –namely, the level of coordination of wage bargaining across the economy, and the anti-inflationary preferences of the central bank– affect the relative magnitude of each effect. More precisely, the 'nominal stabilization effect' will prevail when the institutional framework fosters wage moderation in the nontradables sector, which will occur when wage coordination is coordinated and/or the central bank is highly anti-inflationary. Under these circumstances, the international sector will tilt towards fixed exchange rate regimes. If these two institutions are absent instead, the 'wage determination effect' is expected to dominate, and the international sector will prefer more flexible currency arrangements accordingly.

This argument can explain not only why exchange rate politics

looks different across countries (i.e. why the same economic group supports opposite currency policies in different contexts), but also why economic internationalization tends to be associated with different government's exchange rate regime choices. As the international sector becomes more important, governments are more likely to acquiesce with their exchange rate demands: but since these demands depend on the institutional context, the exchange rate policy response to economic integration will vary by country: internationalization will go hand in hand with a greater propensity to adopt fixed exchange rate regimes in countries endowed with institutions promoting wage restraint, but with floating regimes otherwise. The fact that the relationship between economic integration and exchange rate regime choices is institutionally mediated helps explain the strikingly contradictory findings of the previous literature, which tended to find a positive relation between these two variables in some contexts or samples, but negative in others.

1.3 Research Strategy: One Question and Two Dependent Variables

To test the empirical validity of this theory, I analyze two different empirical implications of it. First, since the theory accounts for variation in exchange rate regime *preferences*, the first series of tests consists of analyses of observed individual attitudes toward currency policies in different institutional contexts. The purpose of these tests is to see whether the variation in these attitudes across contexts correlate with the changes in the institutional characteristics of the political economy in the direction expected by the model. If those individuals whose preferences more closely resemble those of the international sector are more likely to support peg regimes when the institutional framework is 'right' (that is, when it provides incentives for wage restraint and therefore minimizes the 'wage determination effect') but less likely to do so in the absence

of those institutions, then the main prediction of the theory would be validated.

It is difficult to find good indicators of exchange rate preferences that are comparable across institutional contexts. To overcome this problem, I focus on two instances in which, in spite of observing significant institutional variation, the degree of comparability of the exchange rate preferences indicators across contexts is reasonable. First I analyze the case of Mexico, a country that experienced important institutional transformations during the 1990s, that according to the theory, should have led to changes in exchange rate regime preferences. A series of public opinion surveys conducted during that period allows us to see whether the variables capturing the intensity of the international sector's preferences were indeed associated with different attitudes towards the exchange rate regime as the institutional features of the Mexican political economy evolved.

The European process of monetary unification offers another interesting opportunity to see to what extent domestic institutions could be associated with different exchange rate politics. The signing of the Maastricht Treaty by all European Union member states in 1991 set in motion the process of monetary unification in the continent –an extreme case of 'fixing' the national exchange rates of all the participating countries. One of the two relevant institutional dimensions –the degree of conservatism of the monetary authorities– can be safely assumed to be fixed for all countries, given the homogenization of anti-inflationary rules imposed by the very process of monetary integration. This allows us to focus in the effect of the other institutional dimension, for which there was substantial heterogeneity across countries: the level of coordination of wage bargaining. According to the theory, we should expect individuals in export-dependent economies to exhibit higher levels of support for the common currency the more coordinated wage bargaining is, because that minimizes the wage determina-

tion effect. To measure exchange rate preferences in this context, I take advantage of the existence of a long series of *Euro-barometers* –surveys conducted simultaneously in all EU member states– in which respondents are asked about their attitudes toward the establishment of a common currency in the EU.

I also test a second empirical implication of the theory. If the exposed sector become more politically pivotal as the domestic economy becomes more internationalized, we should expect government's exchange rate regime choices to be more informed by this sector's preferences as trade integration increases. Since the theory predicts that these preferences differ according to the institutional characteristics of the political economy, we should also expect that the relationship between trade integration the propensity of governments to *adopt* fixed exchange rate regimes should be institutionally-mediated: positive when wage bargaining is coordinated and/or the central bank is anti-inflationary, negative when they are not.

1.4 Plan of the Dissertation

The dissertation is divided into two blocs. The theoretical contribution of the dissertation is condensed in the first part (chapters 2 and 3). Chapter 2 reviews the theoretical and empirical literature on the relationship between economic openness and the choice of exchange rate regimes, with the aim of contextualizing the fundamental puzzle the dissertation tries to solve: that in spite of the powerful theoretical reasons to believe that economic integration and the choice of exchange rate regimes should be related, the available empirical evidence is unable to provide a clear answer on the form of such relationship. Chapter 3 develops formally the core theoretical argument of the dissertation, showing how domestic institutions mediate the effects that exchange rate regimes have on the international sector's wellbeing. Based on the formal model,

the chapter also derives testable implications about exchange rate preferences and exchange rate choices.

The second bloc of the dissertation (chapters 4, 5, and 6) subjects to empirical scrutiny the validity of the theory developed in chapter 3. Chapter 4 studies the evolution of preferences toward exchange rate policies in Mexico in the 90s, a period of important structural changes in the two main institutional features of the economy that should matter for exchange rate politics: the coordination of wage bargaining, and the anti-inflationary stance of the central bank. It analyzes a series of public opinion surveys conducted during the 90s, to see whether longitudinal variation in the sectoral conflict over the currency regime match the institutional changes the Mexican political economy was undergoing at the time. Chapter 5 conducts a similar exercise for the case of monetary unification in Europe. Using a series of Euro-barometer surveys, the chapter examines whether differences in the degree of international exposure and the macroeconomic institutional framework in European economies can explain the varying levels of support for the common currency across Europeans, in line with the theory's prediction. The last section of the chapter examines whether the transformations of the industrial relations model that took place in many countries as they were preparing to join the European and Monetary Union (EMU) could be understood in the theory's terms, and suggests that EMU membership did prompt institutional change in countries without institutions for wage restraint and large international sectors.

Finally, chapter 6 looks at the governments' exchange rate choices since the collapse of the Bretton-Woods system. Using a variety of samples, datasets, and estimation techniques, I test whether the relationship between trade integration and the adoption of fixed or floating exchange rate regimes is mediated by the presence of institutions that coordinate wage bargaining and make the monetary authorities more anti-inflationary, as the second em-

pirical implication of the theory expects. Both in the developed and the developing world, and in general regardless of the indicator for the institutional variables and the exchange rate regime used, the evidence strongly supports this fundamental contention: when the formation of wages is constrained by these institutions, greater levels of trade integration are significantly associated with exchange rate pegs; but the relationship reverses when these institutions are absent.

The final chapter summarizes the main conclusions of the dissertation, discusses some theoretical implications and suggests avenues for further research.

Chapter 2

Trade and Exchange Rate Regime Choice: Extant Accounts

2.1 Introduction

Does trade integration lead to monetary integration? As we will see momentarily, the relationship between trade integration and monetary choices has been widely studied, both theoretically and empirically. Yet barely any robust conclusion regarding this relationship comes out from this literature. One the one hand, being the exchange rate regime an obvious policy mediating the impact of international trade in the domestic economy, there are powerful theoretical reasons to expect a clear connection between openness and currency regime choices. On the other hand, the empirical evidence on that relationship, as we will see, is extremely weak, if not outright inconsistent: paradoxically, depending on the study (and above all, the sample used), there seems to be a positive relationship between openness and fixing the exchange rate sometimes, but with floating in others.

In this review of the literature, I discuss the different mechanisms used to link trade openness with exchange rate arrangements. As I shall try to demonstrate, although each of the theoretical perspectives grasps a fundamental dimension of exchange rate regime choice, they fail to fact that *all exchange rate arrangements invariably imply both a certain level and a certain variability of the domestic currency.* And as long as the existing approaches More worrisome, our results might be contaminated by omitted variable bias.

I proceed as follows. First, I recollect the main arguments in the economic and political-economy literature used to explain exchange rate arrangements, and examine what role trade integration plays in each of these theories. I highlight the fact that although all these theories grasp an important dimension of monetary choices, they fail to account for the fact that the adoption of an exchange rate regime have multiple (and sometimes) contradictory distributive effects domestically. The second part of the chapter reviews a series of representative empirical studies on the determinants of exchange rate regime choices to see how the theoretical accounts discussed before explain actual choices, emphasizing the contradictory nature of many of these findings. A final section summarizing the main lessons from the literature review concludes.

2.2 Extant Theories of Exchange Rate Regime Choices

2.2.1 The Optimum Currency Area (OCA) Approach

The vast economic literature on the choice of the exchange-rate regime has been largely dominated by the optimum currency area (OCA) theory. Most of it has its origin in Mundell's (1961) sem-

inal work on monetary integration[1]. The original OCA literature did not explicitly attempt to show why countries opted for different regimes, but to provide orientations as to when two countries should form a common currency area, sharing a common monetary policy, or not. The focus of this literature –which informs most of the current debate on the desirability of monetary unification—is on the relative gains that currency stability will generate for natural trade partners versus the risks that the loss of monetary policy adjustment creates in case of asymmetric economic shocks, that is, those affecting only one partner of the union.

As a currency union implies the abolition of independent monetary policy for each of the participating members, so currency unions will become more desirable when there is no need for autonomous monetary policies. This will happen either when the demand for autonomous adjustment is low –typically, highly integrated economies are generally perceived to be less likely to experience asymmetric shocks which means that monetary autonomy is less needed in those contexts– or when alternative adjustment policies exist –wage flexibility, labor mobility and the availability of fiscal transfers within the potential currency union are the usual adjustment mechanisms that are seen as potential substitutes for an independent monetary policy.

In principle, OCA theory expects trade integration to lead to a higher probability of adopting currency unions (or fixed exchange rate regimes more generally, since the rationale applies fully to all kinds of currency pegs), for two reasons. First and foremost, the benefits associated with nominal stability are obviously increasing in the magnitude of the trade links. But additionally, trade integration not only makes a currency union more beneficial for the potential members, it may also reduce the costs of losing monetary autonomy: the greater the intensity of the trade links between two

[1]The other classic references are McKinnon (1963) and Kenen (1969). For a review of OCA theory, see Tavlas (1993).

countries, the more alike will the two countries' economies become and the more synchronized will their respective business cycles to be. These effects will in turn reduce the probability of each member to suffer an asymmetric shocks.[2] In sum, both because the gains of fixing are maximized and the costs of it are minimized, OCA theory predicts trade integration to go hand in hand with monetary unification.

OCA theory predicts thus cross-country variation in exchange rate choices: open countries should be those more willing to adopt exchange rate pegs, and the international sector (the great beneficiary of fixing) should be always in favor of currency unification. In other words, OCA predicts that the *politics* of exchange rate regime choice (that is, the sectoral conflict surrounding these choices) should look similar across contexts: the international sector should invariably lobby for fixing. However, as we will see, this is largely at odds with the anecdotal evidence presented in the introductory chapter, and with the detailed analyses of the Mexican and European cases studied in chapters 4 and 5.

2.2.2 The Mundell-Fleming's Impossibility Trilemma and Its Consequences for Exchange Rate Regime Choices

Analysts of the choice of exchange rate regimes have also looked at the implications of the well-known Mundell-Fleming's impossibility *trilemma*. This *trilemma* states that a country can only enjoy two of three (in principle desirable) macroeconomic policy goals: international capital mobility, independent monetary policy, and a fixed exchange rate. Once capital is allowed to move freely across borders, the adoption of a peg automatically conditions the conduct

[2] On the other hand, it could be argued that trade integration, by making each country to specialize in its specific relatv advantage makes members of the potential currency union more, no less, likely to experience asymmetric shocks.

of monetary policy, now dictated by the obligation to maintain exchange rate stability.[3] Any attempt to implement an autonomous monetary policy will jeopardize the currency regime by triggering capital flows in or out of the country. If in recent times financial globalization has made capital controls either unfeasible or unbearably costly,[4] then countries are faced with a starker trade-off between exchange rate stability and independent monetary policy than in the past . For some, the implication of this is a higher political cost of fixing, so increased capital mobility should be associated with adoption of more flexible regimes (Levy-Yeyati et al. 2003). For others, the implication is slightly different: the "hollowing-out of the middle" hypothesis, that is, the movement towards a bipolar world in terms of exchange rate regimes (Eichengreen 1994, Fischer 2001) in which governments, forced to choose either monetary policy flexibility or exchange rate stability, have had to reject intermediate currency arrangements.

The most important implication of the trilemma for our purposes is that recent trend towards greater levels of capital mobility implies a steeper trade-off between monetary policy autonomy and nominal currency stability. As it has been noted, this is associated with the renaissance of monetary politics at the domestic level (Frieden 1996): While the availability of capital controls allow governments to hide this distributional conflict over monetary policy, their removal as a feasible policy tool force government to confront more directly the struggle between those who prefer exchange rate stability and those who favor monetary autonomy.

[3] In the next chapter I discuss at length what this constraint actually implies. As I shall show, in a *partly* open economy (that is, one composed of tradables and nontradables) the degree to which monetary policy is constrained by the need to keep the nominal exchange rate stable is a function of the size of the exposed (tradable) sector of the economy.

[4] Goodman and Pauly (1993), Cohen (1996).

2.2.3 Exchange Rate Regimes as a Way to Borrow Credibility

A different rationale used for the adoption of fixed exchange rate regimes has been the need of a credible anchor for monetary policy in countries suffering persistent high inflation. This is what Corden (2002) calls the 'nominal anchor approach.'[5] By fixing the exchange rate to the currency of a low-inflation country, the possibility that the national authorities will use monetary policy opportunistically automatically disappears. This logic has been extensively used in some regions to justify the adoption of fixed exchange rate regimes to fight inflation. As Fraga (2004) notes, every single episode of hyperinflation in the recent Latin American history has been followed by some sort of stabilization program that used the exchange rate as a monetary anchor.

The clear prediction that emerges from this approach is that countries with high inflation (and/or with string anti-inflationary preferences) will be more likely to adopt pegs. Note however that there are alternative ways to solve inflationary problems, so maybe the relationship between aversion to inflation and exchange rate pegs is conditional on the availability of other (less-constraining) institutions for monetary credibility (see Broz 2003). At any rate, if exchange rate pegs are used to impose discipline on monetary policy, this strategy should be all the more effective in highly open economies. The reason is that the constrained that the peg imposes on the conduct of domestic monetary policy is an increasing function of the weight of tradables in the economy.[6] Since the effectiveness of this 'anti-inflationary technology' is zero in a closed economy, under this approach trade integration should lead, if any-

[5] The literature on the use of foreign currency anchors to control inflation is large. See for instance Corden (2002, chapter 3), Westbrook and Willett (1999). For the European case, see Giavazzi and Pagano (1988). For a critical assessment with reference to the East Asian crisis, see Tavlas (2000).

[6] In chapter 3 I discuss this point in greater detail.

thing, to a greater use of pegs.

2.2.4 Attracting Capital: The 'Original Sin' Argument

A recent strand of literature, very much developed after the recent experience of some developing countries, have pointed out to an additional incentive governments may have to peg their currency. Proponents of the 'original sin' argument (Eichengreen and Hausmann 1999, 2003; Calvo 2001; Calvo and Reinhart 2002) contend that it is the inability to issue debt in domestic currency what lies behind the preference for pegs of some countries. These authors note that economies with underdeveloped financial sectors are unable to borrow in terms of their own currency and are thus forced to finance using foreign-denominated currency, usually the US dollar. Countries with a large dollar-denominated economy will be hardly hit by nominal devaluations of the domestic currency, which would automatically produce undesirable balance sheet effects, with potentially disastrous consequences for the financial sector and the whole economy. Because of this 'fear of floating', governments experiencing structural problems to attract capital in local currency may have an extra-incentive to fix the exchange rate.

As in the nominal anchor approach, the 'original sin' argument also predicts a greater propensity to adopt (or maintain) pegs as trade integration increases, because the balance sheet effect of devaluations cost will be greater under high levels of economic internationalization.

2.2.5 Political-Economy Approaches: Institutions

All the literature on exchange rate regime choices reviewed so far uses efficiency considerations to explain monetary choices of governments. The more recent political-economy literature recognizes that the distributional nature of these choices, and tries to explain

the different likelihood of these choices emerging based on supply and demand-side considerations.

On the 'supply' side, there is a variety of institutional arguments linking the existence of particular distributions of power in the domestic political system to the availability and credibility of particular monetary arrangements. Some argue that, because pegs require the concomitant adoption of politically costly policies (such as fiscal discipline), they can only be implemented in political environments perceived as 'credible.' Political instability, for instance, is thought to be associated with a lower propensity to adopt (and especially maintain) exchange rate pegs because governments under those circumstances tend to have difficulties to implementing the politically unattractive policies that these exchange rate regimes require (Edwards 1996a). Others have looked at the distribution of political power at the domestic level to explain the different incentives of political actors to manipulate monetary policy (Hellerberg 2003), to examine the institutional incentives for politicians to 'freeze' the exchange rate issue (Bernhard and Leblang 2003), or to analyze to what extent the transparency of the political system is associated with the availability of alternative ways of making credible commitments in monetary policy through politically independent central banks (Keefer and Stasavage 2003; Broz, 2003).

Finally, other authors have looked at electoral considerations, suggesting that because people are somewhat amnesic, and devaluations (particularly in fixed exchange rate regimes) can be interpreted as a signal of lack of credibility of the government, they are often postponed until a new election has taken place (Bonomo and Terra 2005). Schamis and Way (2003) go one step further and argue that, as long as exchange rate-based stabilizations have economic booming effects in the short run, they are particularly attractive to governments facing electoral contests.

To be sure, any political account of the choice over exchange rate arrangements has to consider the institutional environment

in which policy-makers operate. However, it remains unclear how these institutional constraints and opportunities would affect the relationship between trade integration and preferences and choices over exchange rate regimes.

2.2.6 Political-Economy Approaches: The Demand Side

'Demand side' approaches, by trying to disentangle the economic basis of the political support for exchange rate regimes, look precisely to these distributional concerns, the ones left usually unexplained by institutional arguments. If the OCA literature evaluates the costs and benefits of exchange-rate stability at the aggregate level, this political economy literature looks at the variation in weights that different social groups attribute to each of these costs and benefits. For instance, a typical argument is that internationally-oriented sectors will prefer pegs because that will help stabilize and expand trade (Frieden 2002, Hefeker 1995a, 1997). In contrast, sheltered groups that have little to gain from currency stability will favor floating exchange rates instead because that will not sacrifice monetary independence.[7] Although grounded on group preferences rather than on government's overall maximization objectives, this argument leads to empirical implications that are indistinguishable from OCA approaches: the more politically powerful the tradable sector and the lower the probability of occurrence of asymmetric shocks, the higher the probability of pegging (Hefeker 1997, chapter 4).

However, other political economy arguments suggest another relationship between trade and currency policies. Since currency manipulation might be used to provide competitive exchange rates for local producers, these might prefer flexible regimes that allow for devaluations, particularly when they are exposed to interna-

[7] For a review, see Broz and Frieden (2001)

tional competition (Frieden *et al.* 2001, Brock Blomberg *et al.* 2005). This apparent contradiction in the political demands of the internationally-oriented producers (they want nominal stability on the one hand, but capacity to devalue the currency on the other) is in fact the driving puzzle of the dissertation: which of these two demands will dominate? If the former, greater political leverage of the exposed sector should lead to stronger preferences for exchange rate ; if the latter, the association should reverse: internationalization should lead to greater demands for flexible (floating) regimes. The current literature provides reasons as to why the political demand for exchange rate pegs could both increase and decrease with internationalization, but it gives no answer as to which effect will prevail, when, and why. This is precisely the purpose of the political economy model of preferences I present in the following chapter.

To sum up, under the existing theories of exchange rate regime choice, what should we expect the effect of increasing trade integration to be on the adoption of different regimes? Table 2.1 summarizes the predictions derived from the approaches surveyed here.

According to OCA theory, higher levels of economic openness imply that there is more to gain by stabilizing currency fluctuations and less to lose from relinquishing monetary policy, so trade integration should be associated with a greater propensity to fix.

In the light of the Mundell-Fleming's conditions, international capital mobility (probably associated with greater levels of trade integration) implies a higher cost of fixing the exchange-rate in terms of monetary policy autonomy. On which position in this trade-off will governments position themselves is unclear, but the monetary constraint imposed by the adoption of a fixed exchange rate regime increases with openness.

For those who see fixed exchange rate regimes as a commitment technology to fight inflation in countries with low monetary cred-

Table 2.1: Expected effects of trade integration on the probability of adopting a fixed exchange regime

Theory	Effect	
OCA considerations	+	Greater advantages of currency stability, lower probability of asymmetric shocks (economies become more alike)
Mundell-Fleming's trilemma	?	International capital mobility increases the costs of fixing the exchange rate in terms of monetary autonomy
Anti-inflationary commitment	+	More effectiveness of the exchange rate peg as a constraint on monetary policy
Political-economy considerations	+	Greater political demand for currency stability
	-	Greater demand for competitive devaluations

ibility, openness would make exchange rate pegs more attractive. The reason is that the effectiveness of this technology is conditional on the degree of openness of the economy.

Finally, from a political-economy standpoint, greater economic openness implies that the size of the internationally-oriented sector increases – there are now more tradables than before, and arguably become more pivotal politically–. According to some approaches, this should amplify the demands for nominal stabilization, making pegs more politically attractive. But according to others, the increased political leverage of the international sectors should trans-

late into greater demands for currency devaluations, which require a flexible exchange rate regime.

Summarizing, the dominant economic theories of exchange rate regime choice expect a clear and positive relationship between economic internationalization and fixed exchange rate arrangements, while the more recent political-economy approaches indicate that the causality could run both ways, but provide no insights about what would make the sign of this relationship to change. What does the evidence say?

2.3 Empirics: Contradictory Findings or Undertheorized Relationships?

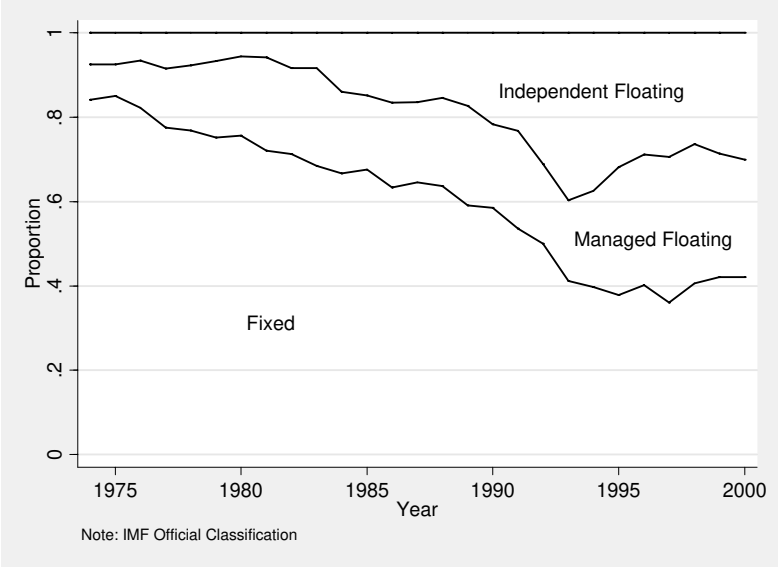
2.3.1 Historical Evidence

Historical analyses of the modes in exchange-rate arrangements (Eichengreen 1996, Obstfeld et al. 2004, Bordo 2003, Bordo and Flandreau 2003, Taylor and Obsfeld 2003) tend to find that the constraints implied by the Mundell and Fleming's impossibility trilemma account for most of the main historical trends. While in the highly globalized period of the gold standard countries had to forfeit monetary autonomy in order to remain 'on gold',[8] the post-World War Two financial architecture imposed strict controls on capital mobility that allow for the coexistence of fixed exchange rates and monetary autonomy. The dismantling of these controls since the collapse of the Bretton Woods economic order has led, under the same logic, to a general movement towards flexible exchange rates, allegedly to preserve monetary independence. Figure

[8] And, as Simmons (1997) shows in her study of the macroeconomic adjustment policies in the interwar years, countries that faced greater domestic pressure for using monetary policy -those in which the labor movement had great organizational and political power- were the fisrt one in pushing for the abandonment of the 'golden straitkacket.'

2.1 captures this general tendency towards more flexible regimes in the last three decades, using the IMF classification.[9]

Figure 2.1: Exchange rate regimes in the world, 1974-2000



[9] This data comes from Ghosh et al (2002). All empirical work on exchange rate regimes has to make two crucial methodological choices: how to characterize the dependent variable (in fact, countries choose not between fix vs. float, but among a plethora of existing exchange-rate regimes not easily suitable of classification along in a continuum ranging from less to more flexibility), and how to measure exchange rate policies (should we look at what governments say their currency regime is, or rather at the way they actually conduct monetary and exchange-rate policy?, and, if the latter, how do we obtain real currency regimes from observed policy actions?). These are highly debated topics in the literature, as these methodological choices typically determine the results. For a full discussion of the these issues and its implications, as well as a justification of the choices made for the purposes of this dissertation, see chapter 6 and its methodological appendix.

While by 1970 virtually all countries adhered to fixed exchange rate regimes, three decades later this type of currency arrangement was preferred by a by a minority of countries from a global standpoint.[10] Eichengreen (1995) looks at a series of trend variables that could explain the changes in preference for different regimes across time, as changes in global political hegemony (the theory of hegemonic stability would predict predominance of pegs only in situations of strong political leadership at the international level, if the stability of exchange rates is a global public good[11]) or the existence of coordination at the international level (in the absence of such *hegemons,* the global stabilizing policies required by fixed exchange rate regimes could only be provided through international cooperation between national governments), the presence of an intellectual consensus about the 'right' exchange rate regime, or secular changes in the behavior of the macroeconomy. However, these accounts clearly fail to explain the remaining within-period variation, particularly prevalent in the recent era.

While characteristics of the international financial structure might help explain broad patterns in the evolution of exchange-rate regimes across time, they cannot account for the remaining cross-country variation in exchange-rate regime choice. What are the country-level variables that the literature has found correlated

[10] Under the Reinhart and Rogoff's (2003) approach, the picture is much more mixed. They claim that many *de iure* pegs during the Bretton-Woods period were in fact *de facto* floats (the official exhange rate was of little use in economies with huge black exchange markets). In recent periods, the opposite phenomenon seems to occur: many countries who wish to sustain stable exchange rate claim to have floating regimes, but their actual monetary policy is almost totally devoted to keep the exchange rate fixed. Argentina today is a good example of this 'fear of floating' phenomenon.

[11] According to this argument, Britain's hegemony in the late 19th century would have helped sustain the gold standard, just as American dominance in the wake of World War Two would have underpin the creation of the Bretton-Woods international economic order. See Cohen (1993). Kindleberger (1973) is the classic reference of the theory of hegemonic stability.

with the type of exchange-rate regime? And what is the effect of trade integration on that choice?

2.3.2 The Effect of Trade Integration on Exchange-Rate Regime Choice

The empirical literature on exchange rate choices is vast. I will limit myself here to survey a handful of representative texts whose findings broadly correspond to the picture that would emerges out of a more detailed analysis of all the literature.

In a recent IMF paper, Juhn and Mauro (2002) survey all the existing studies on the determinants of the exchange-rate regime and analyze existing theories in a new large dataset, only to reach the conclusion that "no robust empirical regularities emerge" and that "very little is known about how countries choose their exchange rate regime". The only variable for which they find somewhat consistent results –although 'not fully robust' across samples and methods- is the size of the economy, a finding already made a decade before by Honkapohja and Pikkarainen (1994): smaller countries have a higher probability to peg their currencies to than larger ones. Although usually interpreted as supporting evidence for the OCA theory, this finding is puzzling itself, because the usual OCA interpretation of this finding is that small economies are traditionally more open and (possibly) have a less diversified export structure . The problem with that interpretation is that studies finding a significant independent effect of size virtually always control for the impact of trade and export diversification in the same regression. Juhn an Mauro's own estimations of the long-run (they only look at time-invariant variables) determinants of exchange rate regime choice show that large economies tend to float, even if they include in their baseline specification trade openness and share of trade with the country's largest commercial partner, with both of these variables exhibiting inconsistent results across samples.

Other studies only reinforce these conclusions (or lack thereof). For instance, Rizzo (1998) finds a strong positive effect of size on the probability of adopting a peg for developing countries, and this effect persist after controlling for trade concentration (correlated negatively with the dependent variable) and economic openness (correlated positively, although the coefficient becomes statistically insignificant in the mid-90s).

Poirson's regressions (2001: 21-22) show that while economic size matters for the choice of the exchange rate regime, neither the geographic concentration of trade nor trade openness –also included in the same estimations- have a significant effect on that choice. Levy-Yeyati *et al.* (2003) also find powerful effects of economic size on the probability of floating (albeit they report a negative coefficient in the poor countries sample), but again, we lack a convincing mechanism for this finding, since the plausible OCA channels (concentration of exports and trade integration) are also included in their regressions. In sum, we lack a theoretically grounded explanation for the only consistent correlate of exchange rate regime.

Being a central variable for most of the existing explanations of exchange rate decisions, many studies have tried to empirically estimate the relationship between trade integration and exchange rate arrangements. Quite surprisingly for these theories, the results are clearly disappointing. In Juhn and Mauro's words (2002: 6), "openness –the most frequent analyzed variable–is found to be significantly associated with floating regimes by three studies, significantly associated with fixed exchange rates by three studies, and not significantly associated with any particular exchange rate regime by another five studies." In their own data analysis, they find openness to be positively associated with fixing in some specifications using the IMF classification, but with floating if *de facto* classifications are used instead.

In another IMF paper, Poirson (2001) finds no statistically sig-

nificant effect of trade openness, and in a recent attempt to explain why countries choose an exchange-rate regime different from what they announce, Alesina and Wagner (2006) report no systematic effect of openness neither on applying a different regime of what the government announces, not on the choice of particular regime in the first place. Rizzo (1998) detects, against the OCA logic, but consistent with studies of liberalization episodes in developing countries (Little *et al.* 1993) a negative effect of trade integration on the propensity to fix. In contrast, Levy-Yeyati et al.'s (2003) conclusions contrast radically both with Rizzo's findings and with Juhn and Mauro's overall skepticism. They test the empirical validity of different approaches jointly, and claim to have found empirical support for "all but the credibility hypothesis," arguing for instance that "fixing is strongly associated with small open economies." However, after a careful look at their results, these conclusions seem largely unwarranted. The positive effect of trade on the probability of fixing is only (barely) statistically significant in their full sample if either the volatility of the terms of trade or the concentration of parties in government are excluded from the specification. More troubling perhaps is that, in their robustness checks, openness turns out to be *negatively* correlated with exchange rate pegs (and significantly so in some specifications) when the sample is restricted to non-industrial or to developed countries.

It is particularly intriguing that studies focused on specific regions tend to find strong associations between trade exposure and the probability of adopting fixed exchange rate regimes –but with opposite signs! For instance, studies using data from Europe (see for instance Frieden 2002) tend to find that the demand for nominal stability was higher in the most economically integrated countries. Analyses of the Latin American experience, however, tyically arrive at the complete opposite result: countries with large and politically powerful international sectors were significantly associated with a greater propensity to adopt more flexible exchange rate regimes

(Klein and Marion 1997, Brock Blomberg et al 2005).[12]

Why are the results for trade integration so unstable, given that this variable is central in all the dominant theoretical approaches to exchange rate choice? Is it because the degree of economic openness is outright irrelevant for the decision to peg or not the national currency to a foreign anchor? Is it because 'openness' is capturing too many things simultaneously and the different dimensions of it are related in opposite ways to the decision over the exchange rate regime? In the next chapter I argue that the relationship between trade openness and exchange rate regime has been undertheorized, and that the anomalies highlighted by the empirical literature can be best understood in the light of a new political-economy model of monetary regime choice. In this model that I propose, trade integration is indeed closely connected with the varying levels of political demand for exchange rate regimes, but the shape of these demands vary by the domestic institutional environment.

2.4 Conclusions

Although the theoretical literature on exchange rate choice offers several potential links between economic integration and the propensity to adopt different monetary regimes, the empirical evidence does not provide strong support for them. The main hypotheses of these approaches, that trade openness should go hand in hand with the propensity to adopt fixed exchange rate regimes, is, at best, not robust. The more recent political-economy contributions emphasize the distributional nature of exchange rate politics, and show that internationalization can lead to rising demands for opposite exchange rate regimes –the demand for nominal stabilization increases, but so does the political attractiveness of letting the currency devalue to improve competitiveness. As they stand,

[12] In Asia, Wong and Leung (2005) find show analogous results to those reported by Klein and Marion for Latin America.

these contributions are however incomplete, as it is unclear which of the two effects is more likely to prevail, and under what circumstances. A unified approach that incorporates both political dimensions of exchange rate regime choice in a single theoretical framework is thus highly needed. This is exactly the purpose of the next chapter of this dissertation.

Chapter 3

An Institutional Theory of Exchange-Rate Regime Preferences

3.1 Introduction: Why Study Preferences

To explain variation in exchange rate regime choices, the dominant economic literature reviewed in the previous chapter has looked mainly at efficiency considerations. Whether a country adopt a fixed or a floating regimes, according to this type of explanations, is a function of some characteristics of the economy that make one particular currency arrangement more 'appropriate' than the alternatives. For instance, the theory of optimum currency areas hypothesizes that trade integration, by amplifying the benefits that a peg provides, while reducing its costs in terms of monetary autonomy, should be associated with a preference for fixed exchange rate regimes. As the previous chapter has shown, however, these efficiency concerns have largely failed to account for the empirical observation that there is no clear and direct relationship between trade integration and exchange rate regime choice.

To understand the nature of this relationship, this chapter proposes a different approach. It starts by recognizing that the decision to adopt a currency regime is inherently a political one, i.e. one that must adjudicate between conflicting interests in society. The first question we ought to answer is therefore how economic integration affects the distribution of power domestically. Once we know the identity of these political 'winners', we can proceed to analyze in detail what their exchange rate regime preferences are. This analysis of preferences is key because, as the economy opens up, so will the preferences of 'winners' be more likely to be translated into actual policy choices.

The main argument of the dissertation can be summarized as follows. The fundamental effect that economic internationalization has at the domestic level is to empower the exporting sector of the economy, for two reasons: First and foremost, their relative size increases as trade links intensify; second, the whole economic becomes more dependent on this sector's performance. As this group gains political leverage, so will their preferences be more politically influential. With regard to exchange rate policy, the preferences of this group, however, are not unconditional, as most previous political-economy studies have implicitly postulated.

Standard political-economy analysis of exchange rate regime preferences have pointed out that, in principle, exporters should welcome fixed exchange rate regimes because nominal stability facilitates international transactions (Hefeker 1997, Frieden 2002). But as this chapter will try to convey, nominal stability might not be the only consequence that a fixed exchange rate regime has on the exporters' wellbeing. More precisely, a fixed exchange rate regime might, under certain circumstances, unleash undesirable wage developments for the internationally exposed sectors of the economy. Whether these undesirable effects outweigh or not the benefits that nominal stability provides will depend, as we will see, upon certain key institutional characteristics of the economy. Once

the role of the institutional context is taken into consideration, it will become evident why exporters will not always express the same exchange rate preference, and consequently, why the internationalization of the economy and the concomitant greater political leverage of the exposed sectors will prompt *divergent* exchange rate regime *choices* across different institutional scenarios.

Figure 3.1 summarizes schematically the two stages of the explanatory argument. To explain how exchange rate regime choices are affected by the political effects of economic internationalization, we first have to understand how the exchange rate preferences of exporters are formed in the first place. This is the purpose of the model that I present next.

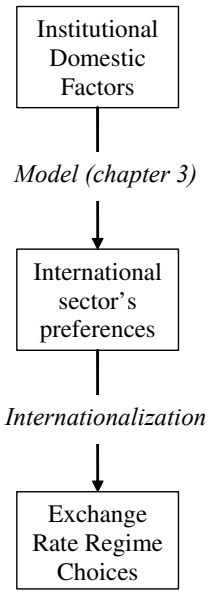
The remaining of the chapter is organized as follows. It starts by presenting the model and deriving its most important predictions, both formally and narratively. Next I address some possible criticisms regarding the assumptions that the model makes, and discuss their potential implications. In the final section, I advance the research strategy that, with the aim of testing the empirical validity of the model's main substantive implications, will be implemented in the remaining chapters of the dissertation.

3.2 The Model

3.2.1 Preliminaries

The model is primarily aimed to show how the economic wellbeing of the internationalized sector of the economy is affected by the exchange rate regime in place, and how some institutional features of the domestic economy mediate these effects. The model considers only two possible ideal-type monetary regimes: a fixed (FIX) and a floating ($FLOAT$) regime. In a floating exchange rate regime, the monetary authority is simply driven by its desired to keep inflation and unemployment down, as in the classic

Figure 3.1: A political-economy explanation of the relationship between trade integration and exchange rate regime choices



Barro and Gordon's (1983) classic formulation. In a fixed exchange rate regime, the monetary authority also minimizes unemployment and inflation as dictated by its utility function, but, additionally, is credibly committed to keep the nominal exchange rate stable against some foreign anchor. This implies, under conditions of full international capital mobility and the need to maintain the external balance, that the domestic price of tradables ought to be in line with the price of international tradables.[1]

[1]Under this analytical distinction, fixed exchange rate regimes cover not only exchange rate pegs, but also more 'hard' currency arrangements such as

There are three economic groups in society: exporters (EX), import-competers (IM), and non-tradables (NT). Labor and capital are sector-specific. Workers are organized into monopoly unions, who, as in standard models of wage setting, are able to push up nominal wages in their firms, but are constrained by the fact that firms will respond to these wage increases by cutting employment.[2] The only difference between workers in tradables (exporters and import-competers) and nontradables resides in that while the latter always have the ability to trade wage increases for jobs, unions in tradables can only do so under a floating exchange rate regime. More precisely, the assumption is that the labor demand curve of firms in the tradable sector becomes completely horizontal under a fixed exchange rate regime. Albeit extremely simplifying, this captures the fundamental difference between the exposed and the sheltered sectors of the economy when confronted with exchange rate regimes: the tradable sector, which, by definition, competes in international markets, is able to push up wages only if the mismatch between domestic and foreign prices is compensated by changes in the nominal exchange rate. Under a flexible exchange rate regime, a currency depreciation[3] restores the inter-

currency boards, monetary unions, or the adoption of a foreign currency (e.g. dollarization).

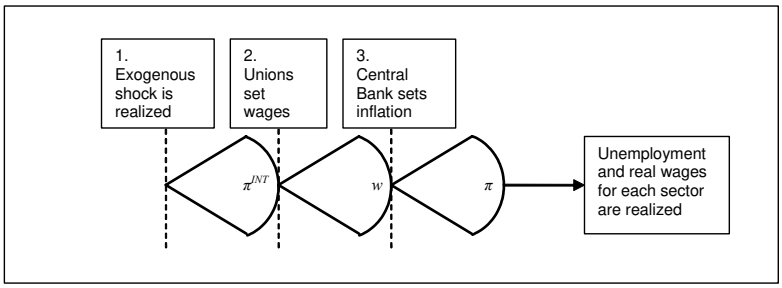
Admittedly, real-world currency arrangements are much more complex than what this simple distinction suggests. Nevertheless, this characterization of exchange rate regimes does capture the most defining feature of monetary regimes: whether domestic monetary policy is aimed at maintaing a given nominal exchange rate, or not. In chapter 6 I discuss in some length how types of real-world exchange rate regimes fit into this dichotomy.

[2]This abstraction is used only to characterize the trade-off between real wages and employment that workers must face when asking for wage increases. Later I discuss the consequences for the model of a system in which workers' representatives are completely powerless with respect to wage-setting.

[3]I will use depreciation and devaluation through the dissertation interchangeably. Both terms refer to a loss of value in terms of another currency. Conventionally, a currency *depreciates* if its value changes as a result of supply and demand conditions in the currency exchange market, and it is *devalued*

national competitiveness of firms in tradables whenever domestic prices and international prices diverge. This allows workers in those firms to ask for nominal wage increases, just as their nontradable counterparts do. Under a fixed exchange rate regime, in contrast, workers in tradables are aware that *any* nominal wage increase beyond international price developments will automatically translate into loss of international competitiveness and, consequently, unemployment.

Figure 3.2: Sequence of the game between wage bargainers and the monetary authority



The sequence of the game between wage-setters and the monetary authority is represented in figure 3.2. First, a shock affecting the relative price of foreign-produced goods is realized. Then, unions in nontradables and tradables simultaneously set their nominal wage increases. In the final step, the monetary authority responds to that nominal wage increase by setting the price level according to its commitments with respect to the exchange rate (if any),

if it is the government who decides to change its relative value. That is why the term 'depreciation' is better suited to refer to a relative loss of value of a currency under a flexible exchange rate regimes, while 'devaluation' refers to the same phenomenon, but when it is the result of a government's decision to 'reallign' the currency under a peg.

unemployment, and inflation.

The game is solved by backwards induction. Therefore, I first obtain the expected responses of the monetary authority to the union's wage demands in the last node of the game (the price level π). Secondly, I obtain the union's utiliy-maximizing wage demands, given the expected reaction of the monetary authority (w^*). The last step is to compare the sectors' expected utilities under different monetary regimes and different values of the exogenous values of the model parameters. To advance the main results of the model, it will be shown that exporters' attitudes towards exchange rate regimes are expected to be mediated by some key characteristics of the political economy. Most importantly, the model shows that higher levels of centralization of wage bargaining, make exporters more favorable of fixed exchange rate regimes. Let us see why.

3.2.2 The Set-up[4]

Let us start by defining the workers' utility function. As indicated, workers are represented by monopoly unions who decide over the nominal wage increase, constrained by the expected reduction in unemployment that the increase will eventually generate. The trade-off between real wages and unemployment is reflected in their utility function: for simplicity, I will assume that workers value equally increases in real wages and reductions in unemployment, so that the utility function of a given union in sector i will be:

$$W_i = (1-\gamma_i)(-\frac{1}{2}U_i + \frac{1}{2}(w_i - \pi)) - \gamma_i(|\Delta e|)) \qquad (3.1)$$

[4]The model is largely inspired by Iversen (1998, 1999), from whom I have borrowed also the nomenclature. With respect to that model, the one presented here introduces a sectoral division between tradables and nontradables, and discusses the implications of the existence of an exchange rate commitment for the monetary authority's behavior, and, indirectly, for wage bargaining.

where U refers to the unemployment level, w to the nominal wage increase, π to the inflation rate, and γ is a parameter measuring the sector's sensibility to nominal fluctuations in the exchange rate e,[5] relative to the unemployment and real wage concerns. Nominal currency fluctuations, as conventional political-economy analyses of exchange rate regime preferences have long emphasized, have obvious distributional consequences,[6] implying that γ should vary across sectors. In line with these arguments, I will assume that nominal stability is *in principle* inconsequential for nontradables ($\gamma_{NT} = 0$), but it is positively valued by exporters ($\gamma_{EX} > 0$), because predictability facilitates international transactions. This goes in line with the received wisdom that exporters should be the 'natural constituency' for pegs, as the traditional OCA literature and its political-economy corollaries contend. (But, as we shall see in a moment, the choice of the exchange rate regime also has consequences for the formation of wages, and these effects might, under certain circumstances, reduce or even offset the benefits that a peg provides to this group). Finally, import-competers' preferences towards exchange rate volatility could go either way. On the one hand, currency volatility benefits them as it gives them a 'home advantage' versus foreign competitors who offer more volatile prices. On the other hand, import-competers might dislike volatility as it forces them to face more unpredictable competitors across time. Given this ambiguity, I will simply assume that $\gamma_{IC} = 0$, the same

[5] As explained below, the volatility of the exchange rate (e) is a function of the absolute difference between the domestic price of tradables (π^T)and the international price shock (π^{INT}).

[6] In the traditional interpretation, the choice of the exchange rate regime involves a trade-off between the benefits of nominal stability that a peg provides, and the costs it imposes in terms of loss of domestic monetary autonomy under conditions of international capital mobility. Different sectors of the economy value different the two extremes of the trade-off: domestic-oriented sectors will tend to prefer not to sacrifice monetary autonomy, while exporters will value more the nominal stability that a peg guarantees. See Broz and Frieden (2001).

as for nontradables.

The monetary authority minimizes inflation and unemployment, according to the standard formulation of the central bank's utility function:

$$W_{CB} = -\iota\pi^2 - (1-\iota)U^2 \tag{3.2}$$

where ι measures the degree of 'conservatism', or relative preference for price stability versus employment.

Total unemployment is simply modelled as a function of the unaccommodated total wage increase:

$$U = w - \pi \tag{3.3}$$

Wages are decided by monopoly unions covering equally sized portions of the economy. The size of this wage bargaining units is given by the centralization parameter c, which is defined as the inverse of the number of wage bargaining units N, so that c ranges from $\frac{1}{N}$ to 1, where $c = 1$ denotes total wage bargaining centralization.

The external constraint is given by the need to keep the balance of payments in equilibrium. For this to be the case, the domestic price of tradables (π^T) must equal the price of foreign tradable goods (π^{INT}, which is realized at the beginning of the game), adjusted for the nominal exchange rate e:

$$\pi^T = e * \pi^{INT} \tag{3.4}$$

The international price shock (π^{INT}) has zero mean, and its variance is given by the degree of international exposure of the economy:

$$var(\pi^{INT}) = \frac{1}{\phi^2} - 1 \tag{3.5}$$

where ϕ represents the share of the nontradable sector in the economy, so that the volatility of the exchange rate equals zero if no tradable sector exists ($\phi = 1$).

Finally, we define the expected change in the nominal exchange rate ($|\Delta e|$) under a float and under a peg as follows:

$$\begin{aligned} |\Delta e|(FLOAT) &= var(\pi^{INT}) + \tfrac{\pi}{var(\pi^{INT})} \\ |\Delta e|(FIX) &= 0 \end{aligned} \tag{3.6}$$

Under a floating regime, the expected change in the nominal exchange rate is a positive function of the domestic price level and the volatility of the international price shock.[7] Under a fixed exchange rate regime, by definition, the nominal exchange rate does not change.

3.2.3 Wage-Setting Under Different Exchange Rate Regimes

Under a floating exchange rate regime, any difference between the price of tradables at home and abroad (π^T, π^{INT}) will spur a change in e[8] that will keep the external balance constraint (equation 3.4) satisfied. The fact that the nominal exchange rate e always restores the competitiveness of tradables cancels any differences of tradables and nontradables with respect to wage bargaining (exporters, however, are still sensitive to nominal exchange rate volatility). As a result, under a float all sectors will demand the same nominal wage increases, implying that $\pi^T = \pi^{NT} = \pi = e * \pi^{INT}$.[9]

[7] This formulation guarantees that when the domestic price level is zero, the change in the nominal exchange rate is just a direct function of the volatility of the international price shock, and that the positive effect of price levels on volatility is mitigated as international price shocks become more volatile.

[8] As shown in expression 3.6.

[9] In effect, the tradable sector should weight the gain in purchasing power by following the nominal wage increases in the nontradable sector against the cost

We first analyze the last node of the game: the decision of the monetary authority to select a rate of inflation that minimizes unemployment and inflation, taking the wage demand schedule as exogenous. This rate of inflation is obtained by equalizing the derivative of its utility function (equation 3.2) with respect to π to zero, and then solving for π:

$$\frac{\partial}{\partial \pi}(-\iota\pi^2 - (1-\iota)(w-\pi)^2) = 0 \tag{3.7}$$

$$\pi^* = (1-\iota)\, w \tag{3.8}$$

The expression simply shows that the central bank chooses a higher price level when confronted with higher wage demands, and the slope of this reaction function is given by ι, the degree of conservatism of the bank.

Knowing that the central bank will react as indicated in equation 3.8, we can now solve for the optimal nominal wage increase that unions will choose in the previous stage of the game. To do so, we first plug π^* as defined in 3.7 into equation 3.3. With this new expression for unemployment, unions select the utility-maximizing wage increase, bearing in mind that the unemployment effect of their individual wage increase will be weighted by the centralization parameter c.[10] This optimal wage increase is given by the following expression:

---

incurred in terms exchange rate volatility. In theory, when nominal stability is very important for exporters (high λ), they could decide to target the international price shock when deciding over their sectoral wage increases. However, I assume that the effect of the individual wage-bargainer in the tradable sector on the nominal exchange rate e is negligible, so it will never be able to stabilize unilaterally the exchange rate. Later I discuss at length why it is very unlikely that tradables will manage to unilaterally impose a *de facto* peg.

[10] The reason for this is that the effect of wage increases on unemployment (via the central bank's reaction function) is small if the union's wage agreement is circumscribed to a small portion of the economy, but grows as the same wage agreement applies to larger portions of the labor force.

$$w^*(FLOAT) = \frac{1}{2} - \frac{1}{2}c \tag{3.9}$$

The equilibrium price level π^* is obtained by plugging this expression back into 3.8, the central bank reaction function:

$$\pi^*(FLOAT) = (1 - \iota)\,(\frac{1}{2} - \frac{1}{2}c) \tag{3.10}$$

This is the equilibrium price level in a floating regime. By taking the derivative of this expression with respect to c, we can see how the price level changes as a response to variation in the degree of wage bargaining centralization:

$$\frac{\partial \pi^*}{\partial c} = -\frac{1}{2} + \frac{1}{2}\iota \tag{3.11}$$

The negative sign of this expression indicates that *higher levels of centralization reduce the equilibrium price level.* Centralization of wage bargaining, by making unions more aware of the unemployment consequences of their sectoral agreements, induces wage restraint, which guarantees lower prices. This effect is however smaller when the monetary authority is particularly concerned with inflation (high ι). The reason for this result is that, when confronting a non-accommodating central banker who cares little about the employment consequences of low inflation, unions will have an extra incentive to exercise wage restraint, since they will suffer sooner the (undesired) employment consequences of militant wage demands. What this implies is that these two institutional devices (coordination of wage bargaining and non-accommodating central banks) can be understood as substitutes (Iversen 1998, 1999): price stability can be achieved either directly by establishing a credible monetary authority that cares little about the negative consequences of a restrictive monetary policy in terms of unemployment, or indirectly by centralizing wage bargaining.

Let us now examine the same interaction between wage bargainers and monetary authorities under a fixed exchange rate regime.

The immediate consequence of the exchange rate commitment is that it alters the conduct of monetary policy. The central bank, as in the floating case, will minimize unemployment and inflation as dictated by its loss function (3.2). But monetary policy must now also secure a stable exchange rate. By definition, this is only achieved if the domestic price level of tradables (π^T) equals the international price level (π^{INT}) (otherwise, changes in the nominal exchange rate are necessary to restore balance-of-payments equilibrium). Since the international price level is zero on average, the average price level selected for tradables will be, also on average, zero. In other words, the monetary authority becomes completely unaccommodating with respect to exporters' and import-competers' wage demands. Given that the general price level can be decomposed as the weighted sum of inflation in each sector ($\pi = \phi\pi^{NT} + (1-\phi)\pi^T$), where ϕ measures the size of the nontradable sector, inflation under a peg will simply equal the price level of nontradables, weighted by its relative size: $\pi(FIX) = \phi\pi^{NT}$.[11] If the whole economy is composed of nontradables, this reduces to the floating example (central bank's monetary policy is geared completely towards domestic objectives, and the exchange rate is irrelevant because there are no tradable goods). If, in the other extreme, all sectors are tradable, monetary policy is completely constrained by the need to keep the level of prices in line with international ones.

Confronted with a completely non-accommodating monetary authority, wage bargainers in tradables will never demand wage increases beyond the international price level. Note that, in contrast with the situation under a float, the nonacommodating monetary

[11] Note that this implies that, for any positive value of the overall price level, the prices of nontradables will be even higher, $\pi^{NT} = \frac{\pi}{\phi}$, by an amount proportional to the size of the tradable sector $(1-\phi)$.

stance of the central bank does not require coordination between wage bargainers to achieve wage restraint in tradables. The reason is that any individual wage bargainer in this sector that decides to increase wages beyond the international price level will be simply wiped out by foreign competition.

Under a peg regime, therefore, strategic wage bargaining is only *available* to nontradables. This implies that the relationship between unemployment and wage increases in nontradables can now be written as

$$U(FIX) = \phi w^{NT} - \pi \tag{3.12}$$

This yields a new expression for the central bank reaction function:

$$\pi = (1 - \iota)\, \phi w^{NT} \tag{3.13}$$

Given total wage restraint in tradables, the central bank will only respond to nominal wage demands in nontradables, weighted by the relative size of this sector(ϕ).

With this new unemployment expression and the new central bank reaction function, unions' optimal wage increase under a peg is:[12]

$$w^{NT*}(FIX) = \frac{1}{2} - \frac{1}{2}c\phi \tag{3.14}$$

As before, substituting the wage demand in 3.13 for 3.14 yields the equilibrium price level under a peg regime:

$$\pi^*(FIX) = (1 - \iota)\, \phi(\frac{1}{2} - \frac{1}{2}c\phi) \tag{3.15}$$

[12] Unions now select the wage nominal increase that maximize the following expression: $-\frac{1}{2}(\phi cw - (1 - \iota)\, \phi w) + \frac{1}{2}(w - (1 - \iota)\, \phi w)$.

The derivative of this expression with respect to c yields the effect of centralization of wage bargaining on prices under a fixed exchange rate regime:

$$\frac{\partial \pi^*}{\partial c} = -\left(\frac{1}{2} - \frac{1}{2}\iota\right)\phi^2 \tag{3.16}$$

When compared with 3.11, expression 3.16 indicates that the effect of centralization on prices is smaller under a peg than under a float ($0 < \phi < 1$). It also shows that the wage-restraining effect of centralization shrinks as the tradable sector $(1 - \phi)$ expands. For low levels of trade exposure (high ϕ), centralization of wage bargaining reduces the price level in the same degree as under a floating exchange rate regime.[13] But when the size of the tradable sector looms larger, the salutary consequences of centralization of wage bargaining on domestic inflation decrease. As a result, increases in the weight of tradables in the economy means that higher levels of centralization will be required to provide the same degree of wage restraint in the nontradable sector.

3.2.4 Comparison of Regimes

We are finally ready to answer the original question: which regime will the internationally-oriented sector of the economy prefer, and under what circumstances? To do so, we just have to compare the exporters' expected utilities given the equilibrium real wages and unemployment levels under a float and under a peg, and see

[13] It is worth noting that we are only considering the effect of centralization of wage bargaining *among nontradables*. This is so because tradables in a fixed exchange rate regime are assumed to be inherently unable to push up wages, and hence cannot participate as strategic actors in wage-setting. If, as one could argue, higher levels of centralization are also associated also with a higher influence of tradables in wage bargaining across the economy, the main result of the model (i.e. that centralization makes the exporting sector to embrace fixed exchange rates) would be further strengthen. I discuss the consequences that inter-sectoral wage coordination could have in the following section.

how the relative value of these utilities vary as the value of model parameters value change.

When choosing between a fixed and a floating exchange rate regime, exporters face a fundamental trade-off: they must choose between minimizing the relative real wage loss associated with a peg regime or limiting the harm caused by nominal exchange rate volatility. When the real wage concern dominates, a floating exchange rate regime will be more attractive. When nominal stability is more important, a fixed exchange rate regime will be instead the sector's preference. Any variable that aggravates the real wage loss problem will be thus associated with greater preferences for floats.[14] This is the why lower levels of centralization of wage bargaining and central bank conservatism make exporters more fond of flexible exchange rate regimes. As they increase the equilibrium price level (and hence the tradables' real wage loss under a peg), so does the relative costs of a peg. On the other hand, any change that brings about a greater cost of nominal instability, such an increase in the γ parameter, or a greater internationalization of the economy $(1 - \phi)$ will, by amplifying the gains from pegging, make exporters lean towards this type of exchange rate arrangement.

Table 3.1 summarizes the marginal effects of higher values of each of the model parameters on the exporters' exchange rate preferences.

Although formal proofs for the the net results presented in the last column are provided in the Appendix to this chapter, it is nevertheless useful to present the intuitions behind them.

Unsurprisingly, the sensitivity to the nominal exchange rate is associated with a preference for pegs. Greater sensitivity to cur-

[14] Holden's (2005) and Vartianen's (2002) models arrive essentially at the same conclusion: tradables' real wage is negatively affected by a fixed exchange rate regime. However, they do not include in their models the standard benefit that this sector might derive from nominal currency stability.

Table 3.1: *Marginal effects of the model parameters on exporters' preferences towards exchange rate regimes*

x	$\frac{\partial W_{EX}(FLOAT)}{\partial x}$	$\frac{\partial W_{EX}(FIX)}{\partial x}$	Effect on Preferences
γ	$\phi^2\left(\left(\frac{1}{2}-\frac{\iota}{2}\right)c-\left(\frac{1}{2}-\frac{\iota}{2}\right)\right)$ $-\frac{1}{\phi^2}+1$	$\phi(\left(\frac{1}{2}-\frac{\iota}{2}\right)-$ $\left(\frac{1}{2}-\frac{\iota}{2}\right)c\phi)$	Fix
ϕ	$\gamma\frac{2}{\phi^3}+\phi c\,(1-i)-$ $-(1-i)))$	$(2c\phi-1)(1-\gamma)\left(\frac{1}{4}-\frac{\iota}{4}\right)$	Float
ι	$\phi^2\gamma\left(\frac{1}{2}-\frac{\iota}{2}\right)$	$\left(\frac{1}{4}-\frac{1}{4}c\phi\right)(\phi-\phi\gamma)$	Fix
c	$(\frac{1}{2}-\frac{\iota}{2})\phi^2\gamma$	$(\frac{1}{4}-\frac{\iota}{4})\phi^2(1-\gamma)$	Fix

γ: sensitivity to nominal exchange rate
ϕ: size of Nontradables
ι: Central Bank conservatism
c: centralization of Wage Bargaining

rency volatility lowers the utility received under a float[15] because this regime delivers a more volatile exchange rate. Under a peg, however, greater sensitivity to changes in the exchange rate increase the exporters' welfare because the relative weight of the real wage loss is reduced.[16] As a result, as the export sector becomes more concerned with nominal stability, they tend to prefer fixed to

[15] $\frac{\partial W_{EX}(FLOAT)}{\partial \gamma} < 0.$
[16] $\frac{\partial W_{EX}(FIX)}{\partial \gamma} < 0.$

floating exchange rate regimes.

The effect of the size of nontradables on the exchange rate preference of the exporting sector is less obvious. Under a float, a larger size of the nontradable sector is unambiguously associated with a greater utility,[17] as greater exposure to international shocks increases currency volatility. Under a fix, however, the size of nontradables have two counterweighting effects: on the one hand, a smaller size of nontradables fosters wage militancy in that sector, as the central bank responds in a *de facto* more 'accommodating' fashion to wage demands. However, a smaller size of nontradables also implies that the aggregate effect of this new structure of incentives will be smaller too. As a result, the welfare effect of an increase in the size of the nontradable sector in the economy for exporters under a peg is ambiguous. It can be shown, however, than when this effect is positive, it will never make the utility under a peg greater than the utility under a float i.e. an increase in ϕ might lead to change in preference from a peg to a float, but never the other way around.

Anti-inflationary preferences of the central bank are, both under a float and under a peg, associated with welfare gains for the exporting sector ($\frac{\partial W_{EX}(FLOAT)}{\partial \iota} > 0$ and $\frac{\partial W_{EX}(FIX)}{\partial \iota} > 0$), but for different reasons. In a fixed exchange rate regime, a non-acommodating monetary authority reduces wage militancy in nontradables, and hence raises the real wage of tradables. In a floating exchange rate, in contrast, the salutary effect of a conservative central bank derives from the reduction in the exchange rate volatility that the lower price level brings about. However, because this effect is tempered by the degree of exposure to the international economy, it will never be strong enough to spur a change in preferences in favor of a floating exchange rate regime. As a result, higher degrees of monetary conservatism will invariably lead to stronger

[17] $\frac{\partial W_{EX}(FLOAT)}{\partial \phi} > 0$.

preference for pegs in the exporting sector.

Similarly, centralization of wage bargaining improves exporters position under both currency regimes ($\frac{\partial W_{EX}(FLOAT)}{\partial c} > 0$ and $\frac{\partial W_{EX}(FIX)}{\partial c} > 0$). From expressions 3.11 and 3.16, centralization lowers the general price level, which in turn reduces the expected exchange rate volatility under a float, and the real wage loss under a peg. This latter effect dominates: As in the previous case, however, it can be shown that while higher levels of centralization might, under a certain range of model parameters, make exporters change their preference from a float to a peg, the opposite will never occur. The intuition behind that result is straight forward: for the effect on volatility to be greater that the effect on real wage loss, exporters have to be extraordinarily concerned about exchange rate volatility (γ must be very high). But if currency stability is such an important concern for exporters, then a fixed exchange rate regime will be preferable anyway (as the previous result for γ shows). Wage bargaining centralization, therefore, will be associated with stronger preferences for pegs on the exporting sector.

In order to illustrate the impact of these parameters on exporters' exchange rate regime preferences, compare their magnitudes, and analyze how they interact with one another, figures 3.3 through 3.5 plot the preferred regime for exporters under different combinations of a pair of variables, keeping the remaining parameters of the model constant. Table 3.2 describes the parameter values at which the non-represented variables in each graph have been fixed.

Figure 3.3 shows the utility-maximizing exchange rate regime for the exporting sector under different values of centralization of wage bargaining (c) and sensibility to nominal instability (γ). As nominal instability becomes more of a concern for exporters, a fixed exchange rate regime becomes more attractive. But for a given level of exchange rate 'sensitivity', greater centralization of

Table 3.2: Parameter values used for the numerical examples

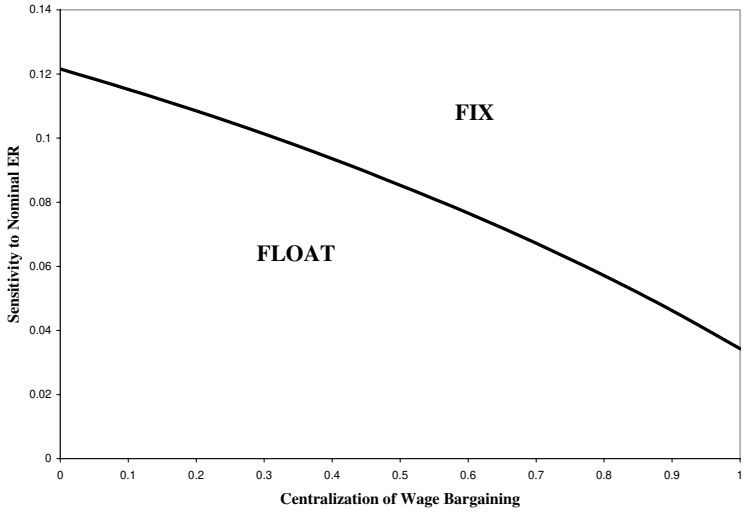
Variable	Value
ϕ	0.8
ι	0.5
γ	0.1

wage bargaining also make exporters more favorable to pegs.

The next graph performs a similar exercise comparing the effects of centralization of wage bargaining (c) and the size of the tradable sector ($1 - \phi$). The figure shows that the exchange rate regime preference of the exporting sector is a function of the size of the tradable sector. As the economy becomes more exposed to the international economy, lower levels of centralization are required to make a fix more desirable than a float. As the OCA theory would predict, high levels of 'exposure' (i.e when nontradables represent a small fraction of the economy), the costs of floating relative to fixing become too prohibitive (for this sector). But the negative slope of the indifference line in figure 3.4 shows that the exact point at which exporters will lean towards a peg is affected by the level at which wages are negotiated. Because centralization fosters wage militancy and thus reduces inflation, the real wage costs associated with a peg are reduced. As a result, for high levels of centralization of wage bargaining, king, for a similar size of the nontradable sector, a fixed exchange rate more preferable as centralization increases.

Finally, figure 3.5 looks at the joint effect of centralization of wage bargaining and the degree of conservatism of the central bank. Again, centralization makes exporters more favorable to pegs, but the degree of aversion to inflation of the central bank is not inconsequential for this choice. Non-accommodating central banks (high ι), by imposing wage discipline on unions in the nontradable sector,

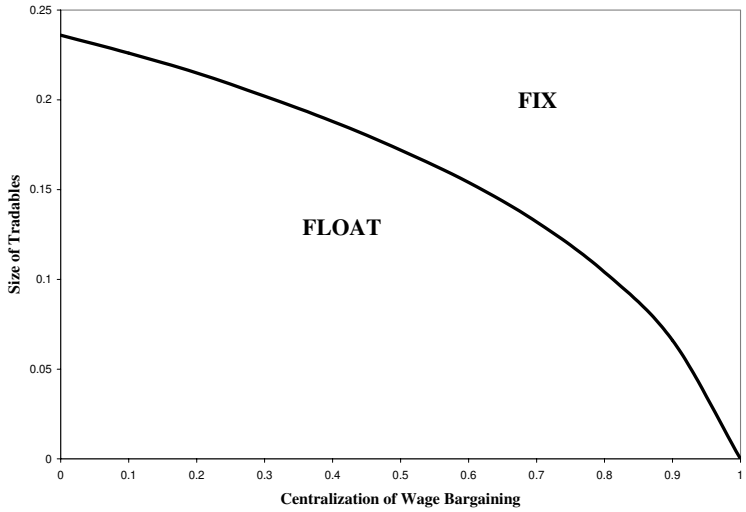
Figure 3.3: Sensitivity to nominal volatility (γ), centralization of wage barganining (c), and exporters' exchange rate regime preference



make a fixed exchange rate regime less costly in terms of relative wages for the exporting sector.[18] The more accommodating the central bank becomes (the more it cares about unemployment relative to prices), the more militant unions in nontradable become, and the more costly will it be a fixed exchange rate regime for exporters. As a result, exporters will only prefer pegs if greater levels of centralization of wage bargaining compensates for the more accommodating nature of the central bank. In other words, as the negative slope of the 'indifference' line illustrates, there are two

[18] This exemplify the fact that higher levels of central bank conservatism and centralization of wage bargaining can be understood as policy substitutes, as previously argued.

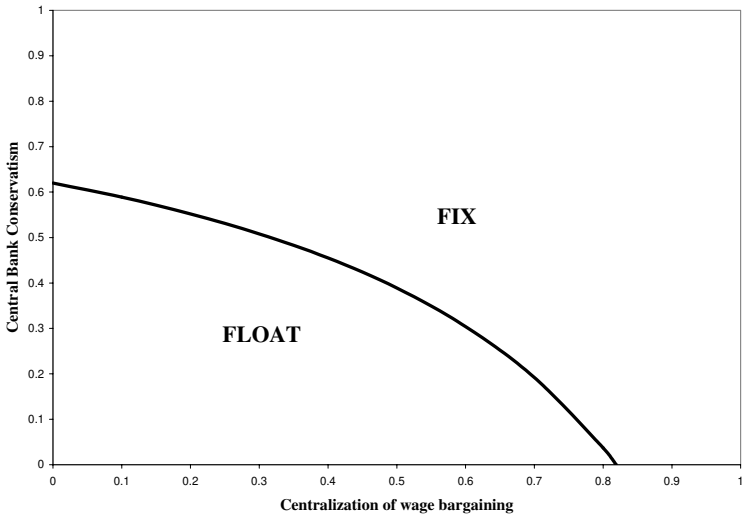
Figure 3.4: Size of the tradable sector $(1-\phi)$, centralization of wage bargaining (c), and exporters' exchange rate regime preference



ways of achieving wage restraint (which is what makes a fixed exchange rate regime attractive for exporters): a nonacommodating monetary authority, and a centralized wage-bargaining system. Under high values of these two parameters, the preference for pegs of the internationalized sector intensifies.

All in all, what all these numerical examples highlight is that higher levels of wage bargaining centralization should be associated with more positive attitudes of the exporting sector towards fixed exchange rate regimes. We have also identified some factors that make floating a relatively more attractive option for this group: a smaller size of the tradable sector, an accommodating central bank which does not punish wage militancy in nontradables, or a lim-

Figure 3.5: Conservatism of the central bank (ι), centralization of wage bargaining (c), and exporters' exchange rate regime preference



ited sensitivity of the sector to nominal changes of the exchange rate. The numerical simulations show, however, that the effect of changes in all these parameters on the exporters' propensity to prefer flexible regimes can be circumvented, or at least mitigated, by centralizing the wage-setting. In other words, centralization of wage bargaining *lowers the conditional requirements* for which a fixed exchange rate regime is preferred by exporters: when wage setting is very centralized, a fixed exchange rate regime might become the exporters' choice even when the sector is not strongly affected by nominal currency fluctuations, the economy is internationally isolated, or the central bank is not particularly anti-inflationary.

3.2.5 Summarizing the Argument

Let us recap by dissecting the logic of the model. To start with, we assumed that, in principle, a fixed regime is preferred by exporters because it eliminates volatility in the exchange rate, which in turn facilitates international transactions, at least with the countries within the same monetary area. But, besides this 'benefit', the model also incorporates a second and less benign consequence that a fixed regime might have on tradables –exporters and import-competers. Under a peg, the obligation to keep tradable prices in line with international ones automatically disciplines wage behavior in this sector. This, in turn, alleviates the anti-inflationary 'burden' on the central bank: since a portion of the economy exercise wage restraint *motu proprio*, the monetary authorities, *to achieve the same degree of price stability,* will behave in a more accommodating way when confronting with wage demands originated on the other sector (nontradables). Aware of this *dovish* stance, wage-setters in nontradables will accordingly exercise less wage restraint than before, because the relationship between their wage demands and unemployment weakens. Finally, the resulting higher nominal wages and prices in the nontradable sector unambiguously harm tradables, since their wages have been *de facto* indexed to international price developments. This mismatch between high nontradable prices and stagnant tradable ones implies a real wage gain for those in the latter sector, and a real wage loss for those in the former. This second distributional consequence of a fixed exchange rate regime –always recognized in the literature on preferences towards exchange rate *levels,*[19] but often neglected in political-economy analyses of exchange rate regime choice– is,

[19] As this literature has emphasized (see Frieden and Broz 2006 for a review) the choice over the *level* of the exchange rate involves a trade-off between competitivenness and purchasing power, in which different groups should be expected to hold conflicting preferences -exporters and import-competers favoring a devalued currency and consumers an overvalued one.

I would argue, key to understand the contingent nature of the internationalized sector's support for fixed exchange rate regimes across political-economy contexts. As the model shows, the magnitude of this second-order distributional effect –and, accordingly, the exporters' reluctance to embrace pegs– depends on some key institutional variables – most notably, the degree of centralization of wage bargaining and the anti-inflationary preferences of the central bank.

To see why these two institutional parameters matter for exchange rate regime choice, one has to understand first what the unions' rationale for wage militancy is. Unions behave militantly (that is, ask for high wages) because while the benefits associated with nominal wage increases are fully internalized by the individual wage-setter, the employment consequences, which are spread across the economy, are not. As the neocorporatist literature of the 80s,[20] and recent studies on the consequences of monetary conservatism have argued,[21] the degree of centralization of wage bargaining and the anti-inflationary stance of the central bank crucially affects the magnitude of this mismatch between particularistic gains and collective losses. When unions are very atomized, their wage agreements would have no discernible effect on the central bank's policies, and thus will be little connected to total employment. When the central bank is accommodating, wage bargainers will felt little constrained by the loss of employ-

[20] The 'encompassing' logic is often associated with Olson's (1971) theory on the provision of public goods. The argument that workers' behavior will be less harmful for the economy only when their representative organizations *encompass* a majority of the labor force lies at the heart of the neocorporatist literature of the 80s (Cameron 1984, Lange and Garrett 1985). According to this literature, the 'politics of concertation' required by the staglflation of the 70s were only feasible in contexts were such corporatist institutions existed, what in turn explains the better macroeconomic performance of corporatist countries.

[21] Iversen (1999), Hall and Franzese (1998).

ment associated with high wage demands. Under both scenarios, individual unions will find in their interest not to exercise wage restraint. Employment concerns will however become more prominent for unions as the same wage agreements cover more sectors of the economy, i.e. as wage bargaining becomes more centralized and/or central bank becomes more non-accommodating. *Ceteris paribus*, we should therefore expect wage moderation to occur at high levels of centralization of wage bargaining and conservatism of the monetary authority.

The fact that wage restraint has different distributional consequences under a peg than under a float is what makes these two institutional features central to understand exchange rate regime preferences. Under a float, low centralization and accommodating central banks are not harmful for tradables because wage militancy *lifts up all boats equally,* i.e no differences in wages between tradables and nontradables develop.

This contrasts with the situation under a peg, where wage militancy can be indeed very harmful for tradables. Centralization and monetary conservatism, by curbing wage militancy, automatically limit the distributional wage effect of fixed exchange rate regimes, making exporters more inclined to such currency arrangements. Under high levels of centralization and non-accommodating central banks, exporters will be able to realize the benefits of a stable nominal exchange rate, without suffering the costs of high nontradable prices.[22]

Two fundamental empirical implications follow from this argument. First, exporters' political support for fixed exchange rate regimes is contingent on the presence of these institutions that guarantee wage restraint across the economy. Secondly, provided

[22] Centralization has the same hollowing effect on import-competers, but as this group does not benefit from currency stability, the model predicts that they will never prefer a fixed exchange rate regime. All can be said is that under high levels of wage bargaining centralization, import-competers *dislike less* a fixed exchange rate regime.

that economic internationalization implies a greater political leverage of the most internationally-oriented sectors of the economy, one should expect a fixed exchange rate regimes to accompany trade integration only in contexts with centralized systems of wage bargaining and non-accommodating central banks. Before moving to the research strategy that I propose to test these two empirical implications, let us first address some potential theoretical criticisms to the general model just described.

3.3 Discussion: Some Theoretical Caveats

3.3.1 International Capital Mobility

In the model, it is the presence of (potential) cross-border capital flows which guarantees that misalignments between the prices of tradables at home and abroad will be translated into changes in the nominal exchange rate, as in the classic Mundell and Fleming formulation. With capital restrictions, for instance, the link between changes in domestic prices and changes in the nominal exchange rate regimes becomes less clear, and so does the trade-off that the exporting sector faces between nominal stability and protection against price rises in nontradables that drives the whole model. Historically, this assumption implies that the model should be expected to work better reality in periods characterized by high levels of international capital mobility capital, such as under the Gold Standard before World War One, or after the collapse of the Bretton-Woods post-war economic order, that spurred a dramatic liberalization of the regulation of international capital flows around the globe (Cohen 1996, Quinn and Inclán 1997).

For research design purposes, the assumption of international capital mobility bears two clear implications: First, when testing the main hypothesis about the effect of wage bargaining institutions on exporters' exchange rate preferences, only contexts

of relatively high levels of international capital mobility should be considered. The two historical stances in which I study these preferences meet satisfactorily this restriction: both Mexico in the 90s (chapter 4) and the European Union after the completion of the single market in the early 1990s (chapter 5) are examples of countries or regional areas where, because of the relatively high degree of openness of the capital account, the assumption of international capital mobility is not a far-fetched one. Second, in the analysis of exchange rate regime choices of governments around the globe (chapter 6), I restrict the econometric analysis to the post-Bretton Woods economic era (1974-present), in which a high degree of international capital mobility has become the norm.[23]

3.3.2 Monothonic and Nonmonothonic Effects of Centralization

Against some of the dominant perspectives on the consequences of corporatist institutions on wage restraint, the model presented here predicts *linear, not curvilinear*, effects of centralization on wage militancy: the more centralized wage bargaining is, the greater the effect of employment concerns on the determination of wages, and accordingly, the less militant will unions behave. In their seminal 1988 article, however, Calmfors and Driflill hypothesize a hump-shaped relationship between the degree of centralization of wage bargaining and wage militancy, with both high and low levels of centralization being able to deliver wage restraint. In their view, centralization has two simultaneous effects: on the one hand, it moderates wage demands –it increases union's awareness of the employment consequences of their sectoral negotiations, but on the other hand, it also fosters militancy –as it flattens out the firm's labor demand curves by reducing competition between

[23] I shall nonetheless control for the effect of different degrees of capital openness in that section of the empirical analysis.

firms.[24] Whereas the former (wage-moderating) effect prevails at high levels of centralization, the latter (wage-expansionary) one dominates at low ones,[25] yielding the well-known hump-shape result.[26]

Of these two effects, the model presented here only incorporates the first one. Wage bargainers do take into account the economy-wide effects of their individual wage agreements. This causes centralization to induce wage restraint (as the negative sign of c in equations 3.16 and 3.11 indicates). However, the model does not account for the effect of centralization through the second channel identified by Calmfors and Drifill –the reduction in inter-firm competition. As a result, in the model, centralization is 'only' benign, in the sense that greater centralization always leads to more wage restraint.

The omission of the second channel greatly simplifies the model, but it is not only because of practical reasons that the model departs from the canonical Calmfors and Drifill's framework. While it is straightforward to assume that the impact of a single wage agreement on the total wage bill will be a function of the portion of workers covered by that agreement (the first channel), for wage bargaining institutions to affect the competitive stance of firms as

[24] The key assumption for this argument to hold is that centralization proceeds by amalgamating workers in firms that are closer substitutes.

[25] When wage negotiations are very atomized, some centralization of wage bargaining will do little to moderate wage demands through the first mechanism (individual wage agreements will still be very small to yield significant effects in the economy as a whole), but will do a lot to limit competition among firms. The opposite occurs at high levels of centralization: By coordinating wage bargaining between even larger and more heterogenous sectors of the economy, competition between firms will be little affected, but the impact of wage agreements economy-wide will be the greatest instead.

[26] The hump-shaped hypothesis is first proposed and discussed in Calmfors and Drifill (1988; see also Calfmors 1993). It also permeates some of the more recent contributions to the literature on the effects of wage-bargining institutions (see Iversen 1998, 1999; Franzese 2001).

assumed by Calmfors and Drifill, additional (and more questionable) assumptions are required. Most notably, centralization must proceed by *linearly* integrating first firms producing close substitutes, and then firms and sectors producing goods and services that are progressively a lower relation of subtitutability at the eyes of consumers. While it might be generally true that the first firms to coordinate wage bargaining among themselves tend to be those in the same sector (and thus producers of close substitutes), it is much less clear why,.as centralization progresses, firms and sectors tend to choose wage bargaining coordination with closer substitutes *in a linear fashion*, letting coordination with producers of further substitutes to the last stages of wage coordination. And without a clear description of how centralization progresses, the hump-shape result cannot emerge.

Nonetheless, the curvilinear hypothesis highlights a crucial point: centralization might temper the wage militancy of unions, but their intrinsic ability to push up wages might be a function of other of factors, too (In the model, this ability is simply assumed away, as it is monopoly unions in each sector who set the wage level). In the Calmfors and Drifill's formulation, the degree of competition between firms, which depends upon how centralized the wage negotiations are, limits the ability of unions to behave 'militantly'. But one can think of other factors that, by preventing workers from demanding (and obtaining) higher wages, produce equally low levels of wage militancy: the political weakness of the union movement, low levels of union density, or precarious legal backing to the wage bargaining capacities of unions. The more helpless workers are with regards to their wage settlements, the less important will centralization be in guaranteeing wage restraint, as wage militancy is off the table under these circumstances. In sum, wage restraint can be therefore achieved either by a institutional setting that gives incentives unions to demand low wages (as shown in the model presented here), or by outright limiting the power of unions

to determine wages in the first place.[27]

To empirically assess the effects of centralization, therefore, one would ideally compare contexts with similar capacity of unions to affect wages. Although, to be sure, measuring this 'capacity' is not easy task, I attempt to control for it, through different ways, in each of the empirical analyses that I present in the next chapters.

3.3.3 Import-competers Behavior, Collective Action Problems and Exporters' Demand for Fixed Exchange Rate Regimes

The model shows how a series of factors, by reducing the costs or enhancing the benefits of one type of exchange rate regime versus the other, makes the exporting sector favorable to a particular currency arrangement. Imagine however the situation of a exporting sector living under a floating regime that, when evaluating the costs and benefits of each regime, finds it in their interest to adopt a peg. According to the logic of the model, it would seem that this group could *de facto* adopt such regime unilaterally: they could simply decide to keep their sectoral wages in line with the international price developments ($\pi^T = \pi^{INT}$, so that e remains stable) and effectively grasp the benefits of a fixed exchange rate regime. If exporters can choose the exchange rate regime they live under, why would they ever develop political preferences toward the adoption of a certain exchange rate commitment? As we will see,

[27] The observed negative correlation between the degree of wage bargaining centralization and wage restraint at low levels of centralization has usually been interpreted as supporting evidence for the Calmfors-Driffill hypothesis. However, a different interpretation could be that low levels of centralization simply proxy for the general capacity of unions to affect wages. Centralization would only have a positive wage-restraining effect when unions are sufficiently powerful to affect wages. At low levels of centralization, however, increasing values of the centralization variable are essentially capturing a increase in the capacity of unions to behave militantly.

however, two reasons prevent this 'unilateral' adoption of a peg from happening.

In the first place, note that the tradable sector is composed not only of exporters. Import-competers, who are equally affected by the loss in relative wages against nontradables when their nominal wage increases follow international prices, do not, in principle, share the gains from exchange rate stability,[28] or at least, they do not benefit from to the extent that exporters do. As a consequence, import-competers will be reluctant to cooperate with exporters in a exchange-rate preserving strategy that involves a potential loss of real wages.[29] And in the absence of a monetary commitment to keep the nominal exchange rate stable, the coalescence of import-competers is necessary to establish a *de facto* peg. Only if they are compensated through other means by exporters, and/or the relative benefits(cost) of fixing(floating) are extraordinarily large, will import-competers participate in the establishment of a fixed exchange-rate regime. Either way, the conditions under which exporters will be able to established unilaterally a peg will be more stringent than those under which they will politically support a formal exchange rate commitment. It is possible now to think of three different scenarios defining the exchange rate *attitudes* of the exporting sector, as represented in figure 3.6.

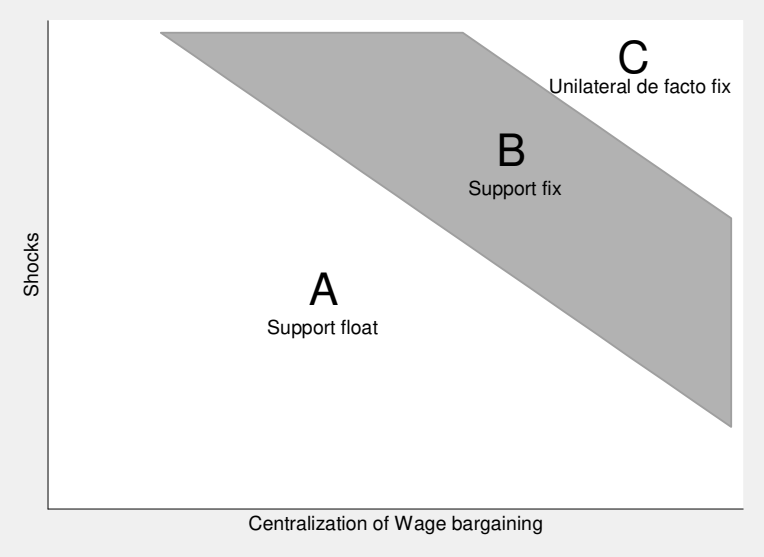
Hypothetically, when the exogenous conditions make a fixed exchange rate regime too costly or unattractive (in the graph, this is represented by low values of wage bargaining centralization and/or variance of shocks,[30] the A-area), exporters will prefer a flexible ex-

[28] As previously discussed, nominal instability could even be desirable for import-competers.

[29] Note that such a strategy would entail a loss of real wage for tradables, the amount of this loss being given by the militancy of unions in the nontradable sector.

[30] The choice of these two variables is only for illustrative purposes. The graph's objective is not to show under which specific values of centralization and shocks will exporters opt for one regime or the other, but to illustrate how

Figure 3.6: Exporters' hypothetized exchange rate regime attitudes



change rate, and should be expected to lobby politically for such regime.[31] If the context changes in the direction of making a peg less costly, after they reach a certain threshold, exporters' exchange rate regime preference will shift and they will lobby for a fixed exchange rate regime instead (the grey-shaded B-area). In this region, exporters perceive that the benefits of a stable nominal exchange rate outweighs its costs, yet they are unable to impose such

changes in variables that affect the relative value of monetary regimes lead to different exchange rate preferences.

[31] Note that exporters cannot unilaterally impose a float: under a credibile exchange rate commitment, any attempt on the part of exporters to keep nominal wage increases in line with wage demands in nontradables will invariably result in a loss of international competitivenness and therefore unemployment.

a regime on their own: for the peg to work, a formal exchange rate commitment to keep import-competers 'under control' is required. Only when the conditions are extraordinarily favorable for a peg (the C-area), will exporters impose unilaterally a *de facto* fixed exchange rate regime. In this region, the gains from fixing for exporters are so large and the costs for import-competers so small that it might become feasible to buy-off the support of the whole tradable sector for this exchange rate strategy. Note however that, even if they secure the support the import-competers, exporters would nevertheless prefer a formal exchange rate commitment, for had the commitment existed, no compensation to import-competers would be necessary. Therefore, even if they could impose it unilaterally, exporters should be expected to always lobby for a fixed exchange rate regime.[32]

There is an additional complication that make it unlikely this 'unilateral' imposition of a peg regime to arise. For this strategy to work, exporters must surmount a collective action problem. This problem arises because, for an individual exporter who sets wages and prices under a floating regime, there is no guarantee that their individual effort to maintain the peg will be corresponded by similar efforts by all the wage-setters in the sector. If other tradables renege from their commitment to keep the nominal exchange rate stable and decide instead to let their nominal wages to mimic wage increases in nontradables to keep the purchasing power of those employed the firm or sector, the whole strategy will be deemed to fail: the price of tradables will increase and the nominal exchange rate will have to change. Exporters who originally set their wages in line with international prices would have get the worse imaginable result: a volatile exchange rate (they are small enough to affect

[32] Obviously, whether they effectively impose the peg or devote its energies to lobby politically for the adoption of monetary commitment will depend of the relative cost of influencing the political 'market' versus that of buying-off the coalescence of import-competers.

the nominal exchange rate) *and* a real wage loss (since all the rest of the economy increases prices). As a result, individual exporters, even if as a group they could benefit by implementing a *de facto* peg as in the C-region of figure 3.6, will be unlikely to carry out the individual decisions necessary to achieve such aggregate result. Therefore, the unilateral imposition of a peg by exporters should seldom emerge –according to the classic Olsonian conditions for the solution of collective action problems, only when the sector is composed of a small number of actors, i.e. when exporters are strongly concentrated.

3.3.4 Coordination of Wage Bargaining *Within* and *Across* Sectors

When discussing the coverage of wage bargaining centralization under a fixed exchange rate regime, the model presented here has exclusively referred to the way wage-setting is organized *within the nontradable sector*. If, on the contrary, tradables could participate in coordinated wage bargaining, it is straightforward to see why centralization encourages *further* wage restraint, which, to repeat, makes a fixed exchange rate regime more attractive for tradables. Provided that wage coordination *across sectors* (i.e. between tradables and nontradables) only emerges under high levels of wage bargaining centralization (a rather incontrovertible assumption), centralization could then also be interpreted as a measure of the weight of tradables' concerns in wage demands in nontradables. When wage bargaining is mainly decentralized, tradables have no way to influence wage developments in nontradables. But if the system of wage-setting is centralized enough so that the same wage agreement covers both tradable and nontradable firms and/or industries, then tradables will be able to exert some influence on the wage demands of nontradables.

What will tradables use that influence for? Under a floating exchange rate regime, higher levels of centralization will help trad-

ables solve the collective action problem mentioned in case they would want to impose unilaterally a peg regime (see the previous discussion), but if such imposition is either unfeasible or undesirable, tradables' influence under centralization will do little to alter wage developments in nontradables. As the possibility of changes in the nominal exchange rate protects tradables from the domestic inflation generated by wage increases, tradables and nontradables covered by the same wage agreement will be likely to share the same preferences in favor of nominal wage increases to protect their real wages against price increases in other sectors of the economy.

The situation changes completely under a peg regime. Now, tradables and nontradables covered by the same wage agreement are likely to have conflicting preferences over the content of common wage agreements. Higher nominal wage increases will be preferred by nontradables because such strategy yields higher real wages,[33] but this strategy will be heavily opposed by tradables because of the loss of international competitiveness associated with it. The final wage increase will be obviously a function of the relative bargaining power of tradables and nontradables. Without explicitly modelling the way this negotiation is carried out, it is safe to argue that tradables' participation will limit the final nominal wage increase. In other words, nontradables will always demand higher nominal gains when their wage agreement does not cover tradable sectors than when it does. If the overlap between tradables and nontradables at the bargaining table only occurs at high levels of centralization, then centralization will be associated with *more* wage restraint, which, in turn, makes fixed exchange rate regimes more *palatable* for import-competers, and more *desirable* for

[33] Note that, according to the formal model, the attractiveness of higher nominal wages declines with the level of wage bargining centralization. This implies that coordination *between* tradables and nontradables has a greater effect on wage militancy when coordination *within* nontradables is low. In other words, across- and within-sector wage coordination are substitutes.

exporters.[34]

To summarize, if centralization of wage bargaining not only measures coordination of wage demands *within* the nontradable sector, but also the *participation of tradables in cross-sectoral wage negotiations,* then there is an additional reason to expect a positive association between the degree of centralization of wage bargaining and the preference of tradables for fixed exchange rate regimes. Although it might prove difficult to empirically adjudicate between the validity of each channel,[35] it is pertinent to keep in mind the analytical distinction between the two. Through either channel, centralization makes nontradable wage-setters to reduce wage militancy, but it does so for different reasons. Between-sector coordination reduces wage militancy by forcing nontradable wage-setters to take into account tradables' preferences when deciding over their nominal wage increases. Within-sector coordination, on the other hand, works by weakening the relationship between nominal and real wage increases and strengthening the link between wage demands and unemployment, which makes wage militancy less attractive for unions.

[34] For similar arguments about the varying propensity to exercise wage restraint of tradable and nontardable unions, see Franzese (2002: 223); Garrett and Way (1999).

[35] To empirically disentagle the validity of each channel would require to have cross-country comparable indicators not only of centralization of wage bargaining, but also of the relevance of cross-sectoral (i.e. between tradables and nontradables) negotiations. Although systems of institutionalized influence of the tradable sector in economy-wide wage agreements are quite excepcional, some countries do incorporate in their wage-setting institutions some informal features to guarantee tradables a privileged position in wage bargaining, as the German pattern-bargaining system. In Germany, although most wages are negotiated (formally) at the industry level, the first in reaching a wage agreement, the powerful (and tradable) metal industry, sets *de facto* the wage increase across the economy, since negotiations across the economy tend to follow closely wage developments in the (internationally exposed) metal sector.

3.4 Exchange Rate Preferences, Trade Integration, and Regime Choices: An Empirical Strategy

Two main hypotheses come out of this theoretical exercise. First, the internationally-oriented sector of the economy will be more likely to develop pro-fixed exchange rate regime preferences in contexts with high levels of wage bargaining centralization and more conservative monetary authorities. Second, under the assumption that economic integration politically empowers the most internationalized sectors, the choice of the exchange rate regime will be more dependent on this group's preferences as the economy opens up to international markets. Accordingly, trade integration should be associated with the adoption of fixed exchange rate regimes when wage bargaining is highly centralized and/or the central banks are more non-accommodating, but with the adoptions of more flexible currency arrangements otherwise.

To empirically contrast the validity of these two claims, in the following chapters I present and discuss evidence on exchange rate preferences and regime choices.

First, I analyze the variation in exchange rate preferences of the exporting sector under different institutional contexts. Chapter 4 looks at the political conflict over the exchange rate regime in Mexico in the 1990s. Mexico is a particularly interesting case because, within a relatively short time span, it exhibits significant variation both on the main explanatory institutional variables (the formation of wages and the anti-inflationary authority of the central bank) and the dependent one (the regime preferences of the exporting sector).[36] The longitudinal analysis of the Mexican case has the additional virtue of isolating the analysis from the potential con-

[36] As it will be discussed in the chapter, there is also variation in the actual exchange rate regime choices –Mexico moved from a peg-like system in the early 1990s to a flexible regime from the end of 1994 onwards.

taminating effects that cross-country differences could have when comparing across national contexts. Last but not least, thanks to the high saliency of the currency issue in Mexican politics during the Salinas' and Zedillo's presidencies, a series of public opinion surveys conducted in that period asked specific questions about the exchange-rate preferences of Mexicans. The model would predict that, as the institutional environment for wage-setting changed in Mexico, so would the currency policy preferences of the exporting sector. This is the main conjecture that chapter 4 tests.

Chapter 5 analyzes exchange-rate regime preferences in Europe in the period in which the European Union was engaged in the creation of a monetary union (a extreme case of a common fixed-exchange rate arrangement). Since the very process of integration in the EU effectively homogenized the anti-inflationary preferences of European central banks, the only institutional variation in this case refers to the different degree of coordination of wage bargaining across countries. Using a series of Euro-barometer surveys (comparable surveys conducted simultaneously in all EU-member states), I test whether it is fact the case that the level of internationalization of the economy (which should be associated with the weight of the exporting sector in the nation's exchange rate preferences) is related with the level of support for the monetary union project in the way predicted by the model –i.e. higher levels of integration leading to prefer unification when the degree of centralization of wage bargaining is high.

Whereas chapters 4 and 5 look at exchange rate regime *preferences*, chapter 6 shifts the focus to actual government currency *choices*. Using different datasets on exchange rate regimes and different indicators and proxies for the degree of conservatism of the central bank and the centralization of wage bargaining,[37] it asks

[37] Reliable and comparable data on wage bargaining institutions only exists for advanced industrial countries. To extend the analyses to non-OECD countries, I rely instead on data on actual wage distribution patterns.

Table 3.3: Empirical tests

Hypotheses	Dependent Variable	Data
Centralization of wage bargaining and central bank conservatism mediate the exchange rate regime preferences of the exporting sector	ER Regime Preferences	Chapter 4 (Mexico) Chapter 5 (Europe)
Trade integration leads to fixed exchange rate regimes only under high levels of centralization of wage bargaining and/or central bank conservatism	ER Regime Choices	Chapter 6 (World)

whether the relationship between trade integration and exchange rate regime choice is in fact mediated by these institutions, as the model hypothesizes. Under centralized systems of wage bargaining and anti-inflationary central banks, greater integration is expected to lead to a higher propensity to adopt fixed exchange rate regimes, and the contrary when such institutions do not exist.

Table 3.3 summarizes this research strategy by mapping these hypotheses with the data that will be used to test them.

3.5 Appendix: Proofs of Results Shown in Table 3.1

The purpose of this Appendix is to derive the 'net effects' of each of the model parameters on the exporters' net exchange rate regime

preferences, as presented in column 4 of table 3.1.

Let us start by defining $\frac{\partial PFIX}{\partial x}$ as the effect of the x parameter on the difference between the exporters' utility under a peg and under a float, i.e. $\frac{\partial PFIX}{\partial x} = \frac{\partial(W_{EX}(FIX) - W_{EX}(FL))}{\partial x}$.

The result for γ is straightforward: since $\frac{\partial W_{EX}(FL)}{\partial \gamma} = \phi^2\left(\left(\frac{1}{2} - \frac{\iota}{2}\right)c - \left(\frac{1}{2} - \frac{\iota}{2}\right)\right) - \frac{1}{\phi^2} + 1 \leq 0$ (because ϕ cannot be greater than 1), and $\frac{\partial W_{EX}(FIX)}{\partial \gamma} = \phi(\left(\frac{1}{2} - \frac{\iota}{2}\right) - \left(\frac{1}{2} - \frac{\iota}{2}\right)c\phi) \geq 0$ (because both c and ϕ cannot be negative), then $\frac{\partial PFIX}{\partial \gamma}$, i.e. the difference in value between a fixed exchange rate regime and a floating one is increasing in γ. As a consequence, increases in the sensitivity towards the nominal exchange rate can only lead to an change in preference from a float to a peg.

Let us derive the result for the size of nontradables (ϕ). Knowing that $\frac{\partial W_{EX}(FL)}{\partial \phi} \geq 0$, whenever $\frac{\partial W_{EX}(FIX)}{\partial \phi}$ is not positive (which occurs if $2c\phi \leq 1$), then $\frac{\partial PFIX}{\partial \phi} \leq 0$.(and a the difference in utilities under a fix and a peg would be decreasing in ϕ. But if c and ϕ are high enough, it might be the case that $\frac{\partial W_{EX}(FIX)}{\partial \phi} > \frac{\partial W_{EX}(FIX)}{\partial \phi}$. The sign of $\frac{\partial PFIX}{\partial \phi}$ is thus indeterminate. Upon closer scrutiny, however, we can demonstrate that for the range of values in which $\frac{\partial PFIX}{\partial \phi} < 0$, the exporters will never change their preference from a peg to a float. Assume $\phi = 1$ and $c = 1$. Since $\frac{\partial W_{EX}(FIX)}{\partial \gamma}\frac{\partial \gamma}{\partial \phi} > 0$ while $\frac{\partial W_{EX}(FL)}{\partial \gamma}\frac{\partial \gamma}{\partial \phi} < 0$, and $\frac{\partial W_{EX}(FIX)}{\partial \gamma}\frac{\partial \gamma}{\partial \phi} > \frac{\partial W_{EX}(FL)}{\partial \gamma}\frac{\partial \gamma}{\partial \phi}$,this is the combination of these two parameters at which $\frac{\partial PFIX}{\partial \phi}$ should be greater (a peg

being more preferable than a float). However, it can be shown that for these values of c and ϕ, $W_{EX}(FL) = W_{EX}(FIX)$ (i.e. the utility provided by a peg is not higher than the one provided by a float) which implies than for all remaining combinations of c and ϕ, $W_{EX}(FL) > W_{EX}(FIX)$. In other words, when $\frac{\partial PFIX}{\partial \phi} > 0$, no change in preferences from float to fix can occur. Because increases in ϕ might lead to a change in preferences towards floats (if the conditions for $\frac{\partial PFIX}{\partial \phi} < 0$ hold), but increases in ϕ cannot lead to change towards pegs when $\frac{\partial PFIX}{\partial \phi} > 0$, then we can conclude that as the size of nontradable sector expands, exporters will be more likely to prefer floats to pegs.

A higher degree of conservatism of the central bank (ι) improves exporters' welfare both under a peg ($\frac{\partial W_{EX}(FIX)}{\partial \gamma} \geq 0$) and under a float ($\frac{\partial W_{EX}(FL)}{\partial \gamma} \geq 0$), and, as in the case of ϕ, $\frac{\partial PFIX}{\partial \iota}$ could be either positive or negative. However, it is again possible to rule out one of these two possible preference change that the indeterminacy of the sign of $\frac{\partial PFIX}{\partial \iota}$ seems to imply. Assume $\phi = 1$. Given $\frac{\partial W_{EX}(FIX)}{\partial \iota}$ and $\frac{\partial W_{EX}(FL)}{\partial \iota}$, for $\frac{\partial PFIX}{\partial \iota}$ to be negative (i.e. for a higher level of conservatism be associated with a greater preference for pegs), γ must be greater then $\frac{1}{3}$. It can be shown that, at $\gamma = \frac{1}{3}$, $W_{EX}(FIX) = W_{EX}(FL)$. By virtue of the result for γ obtained above, any value of γ greater than $\frac{1}{3}$ will never lead to a change of preference from a peg to a float. And from the result for ϕ, nor will any value of ϕ smaller than 1. Summarizing, when the salutary effect of ι under a float are greater than under a fix require a combination of parameters that also imply that a floating exchange rate regime will never be preferred to a peg.

We are finally ready to evaluate the effect of centralization on

exporters' exchange rate regime preferences. Given the derivatives of $W_{EX}(FL)$ and $\partial W_{EX}(FIX)$ with respect to c, and after some algebra, it can be easily shown that $\frac{\partial PFIX}{\partial \iota} > 0$ if $\gamma > \frac{1}{3}$, and $\frac{\partial PFIX}{\partial \iota} \leq 0$. Evaluating the exporters' utilities under $\gamma > \frac{1}{3}$ and $\phi = 1$ shows that $W_{EX}(FL) = W_{EX}(FIX)$.From the previous results, larger values of γ and lower values of ϕ unambiguously lead, if anything, to stronger preferences in favor of pegs. As a result, therefore, greater levels of centralization might lead to a change in preference *towards pegs* if $\gamma < \frac{1}{3}$, and will keep exporters committed to pegs otherwise.

Chapter 4

Institutional Change and the Evolving Political Conflict over the Exchange-Rate in Mexico

"One of your biggest responsibilities is to avoid an abrupt devaluation of the peso" *President Carlos Salinas de Gortari to Pedro Aspe, after nominating him as new Secretary of Finance, November 1988.*

"The devaluation will reduce the imports of goods and services by making them more costly, and it will boost our exports by making them more attractive abroad. It will also contribute to bring new foreign investors into our country". *President Ernesto Zedillo, message to the nation introducing the Plan of Economic Emergency, December 1994.*

4.1 Introduction

In December 21, 1994, the Mexican economic authorities announced the abandonment of the crawling-peg regime that had guaranteed a stable nominal exchange-rate for the previous six years. At that precise moment, the Mexican peso began its free falling journey. By mid March, one US dollar was worth twice as much pesos than three months before. The financial chaos that followed the devaluation (in the view of many, aggravated by the late attempt of the Mexican authorities to enhance the credibility of the fixed regime through the emission of dollar-denominated debt[1]) provoked a deep economic recession: investment and consumption plummeted, salaries fell, and in only a few months, per capita GDP had returned to its 1990 level. The decision to abandon the peg was very soon dubbed as *el error de Diciembre* –the December mistake.

The 1994 Mexican devaluation example has been widely used to show how exchange rate policies can have severe welfare consequences. But exchange rate politics are distributive politics too. As previously discussed, the benefits and costs of different exchange rate regimes are not equally shared by all economic groups, and they also vary by the macroeconomic institutional environment in place. This chapter explores whether the political support for the different exchange rate regimes experienced in Mexico in the 1990s can be understood in the light of the theory developed in the previous chapter. Given the characteristics of the Mexican political

[1] In order to avoid capital outflows and to signal the commitment to the fixed exchange-rate regime, the Salinas government altered dramatically the structure of the debt: by the end of 1994, more than 80% of the debt was denominated in US dollars (through *Tesobonos*). A literature quicky emerged trying to understand the causes of the crisis. Kessler's (2000) analysis put special emphasis on political-economy factors. An enormous literature on the causes of the financial crisis emerged right after the collapse. See also Wilson *et al* (2000), Roett (1996), and the debate in *American Economic Review,* May 1996: Gil-Díaz and Carstens (1996), Edwards (1996b) and Calvo and Mendoza (1996).

economy, were supporters and opposers of these different exchange rate strategies the groups that we should expect from that theory? Did the nature of the political conflict over the exchange rate regime evolve as a result of the institutional changes experienced by Mexico in that period?

Two factors make the Mexico an ideal case to test the validity of the theory of exchange rate regime preferences. First, the Mexican economy witnessed dramatic changes in the main explanatory variables of the model: the level of economic integration (although president de la Madrid already initiated the first trade liberalization reforms in the mid-80s, the creation of the North American Free Trade Agreement (NAFTA) in 1992 represented the definitive impulse to the internationalization of the Mexican economy), and the institutional determinants of wage-setting: the degree of coordination of wage bargaining, and the political independence of the central bank. The variation in these variables within a single case allows us to focus on the effect of these covariates while 'controlling' for the potential effects of other cross country-varying factors.

Second, data on exchange rate regime preferences are typically very difficult to obtain. However, the highly politicized nature of the debates surrounding the adoption of different exchange rate strategies in Mexico in the 90s (the country went from a crawling peg in the first half of the decade to a managed float after the 1994 devaluation) made this type of data more easily available. The bulk of the empirical analysis conducted in this chapter is based on the analysis of a series of public opinion surveys carried by the Mexican *Secretaría de la Presidencia* in which Mexicans were asked (among many other things) about their attitudes toward different exchange rate polices.

The chapter is structured as follows. I first discuss the evolution of exchange rate regime policies, the institutions of wage-bargaining and the degree of central bank independence in Mexico

during the 1990s. Based on this descriptions and the theoretical model presented in the previous chapter, I next derive empirical expectations regarding the political conflict over the exchange rate regime. To empirically test these expectations, I use four surveys conducted at different moments between 1990 and 1999. The last section of the chapter analyzes the electoral consequences of these conflicts, and presents evidence suggesting that distributional consequences of the exchange rate regime have non-negligible effects on Mexicans' voting behavior –those expected to (relatively) gain from the devaluation (according to our theoretical expectations) were much less likely to penalize the PRI in the aftermath of the devaluation than those who were expected to lose.

4.2 Exchange Rate Regimes and the Evolution of the Macroeconomic Institutional Environment in Mexico

Mexico has recently lived under two very different exchange rate regimes. In December 1987, in order to tame rampant inflation, the de la Madrid government signed an 'economic and solidarity' pact with unions and employers that, in exchange for price and wage controls, included the executive's compromise of keeping the exchange rate stable.[2] This exchange rate based stabilization plan remained basically in place throughout the Salinas presidency.[3]

[2] For a more detailed account of the content of the Pact of Economic Solidarity (later renamed under Salinas in 1989 as 'Pact for Stability and Growth'), see Lustig (1998, chapter 2).

[3] Formally, the exchange rate regime took different forms. From a strict peg in 1988, the regime evolved into a preannounced crawling peg (also known as *tablita* in the Latin American context) in 1989, in which the peso followed preannounced small devaluations, to the adoption of a band in 1991 within which the peso was allowed to fluctuate. The 1994 devaluation originally took the form of a mere expansion of the band a 15%. But the immediate exhaustion

The regime yielded unprecedented levels of nominal currency stability (see figure 4.5 below). However, the sustainability of the regime begun to be put into question in the mid-90s, as a result of the loss in competitiveness of Mexican firms[4] caused by the inflation gap between Mexico and the anchor country and increasing doubts among investors about the political will of the Mexican authorities to defend the value of the peg in the face of surmounting political troubles.[5] In spite of the (even desperate) attempts to defend the exchange rate regime during 1994 in the face of capital outflows, such as the emission of short-term dollar-denominated short-term debt –the (in)famous *Tesobonos*–, which increased tenfold from 3.1 billion dollars in March 1994 to 29.7 billions in only nine months,[6] the central bank eventually run out of reserves to

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of reserves forced the government two days later to announce the total abandonment of the fix regime. In spite of these (mostly technical) changes, from 1988 to 1994, the commitment to nominal stability of the peso against the US dollar played a central role in the conduct of Mexico's monetary policy during that period, as illustrated in the quote from president Salinas when secretary of Finance Pedro Aspe took his post.

[4] During the peg years, the current account balance steady deteriorated: the deficit of 5.8 billion dollars in 1989 had increased to 29.7 billion dollars in 1994.

[5] A series of events greatly destabilize Mexican politics during 1994: in January, the Zapatista guerrilla erupted in the the Southern state of Chiapas. In March, the front-runner in the presidential election, the PRI-candidate Luis Donaldo Colosio was assasinated in a political rally in the city of Tijuana. After the election, but before the new president Ernesto Zedillo took office, the secretary-general of the PRI, Jose Francisco Ruiz Massieu was also killed.

[6] The emission of *Tesobonos* played a double role: first and foremost, it was aimed a preventing capital outflows by insuring investors against the risk of a devaluation. But indirectly, by increasing the cost of a devaluation for the government, it intended to send a signal to investors about the credibility of the exchange rate commitment. In the end, this proved to be a double-edge sword: once the devaluation became unavoidable, the *Tesobonos* (denominated in US dollars) dramatically increased the short-term foreign liabilities of Mexicans as the value of the peso went down. The 29 billion dollars debt generated by the *Tesobonos* was seen by many as one the main causes of the financial crisis that followed the devaluation (Lustig 1998: 211).

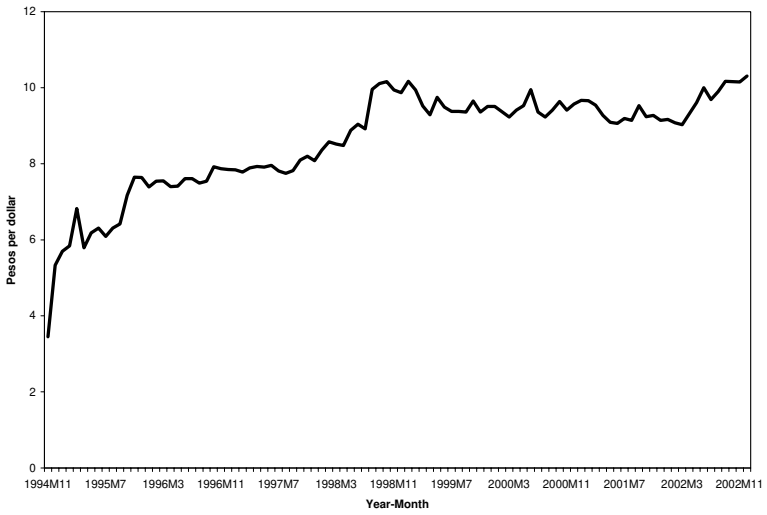
defend the peg and by the end of 1994 president Zedillo announced that the Mexican peso would be allowed to float.

A floating exchange rate regime has been in place in Mexico since. The regime can been characterized as a 'managed float' in which monetary authorities have intervene actively in the foreign exchange market to stabilize the value of the currency over the medium run.[7] In contrast with the previous period, intervention has never been driven by the need to keep a particular level of the exchange rate. But in spite of this lack of a formal exchange rate commitments, the *de facto* stability of the Mexican peso during the managed float era has been quite remarkable, as shown in figure 4.1. In spite of the short-term fluctuations inherent to floating regimes, and with the exception of a 20% depreciation of the peso during 1998, the value of the Mexican peso has not experienced major changes after the drastic readjustment of 1995.

The *de facto* medium-run stability of the Mexican peso under the floating period does not necessarily indicate that the Mexican monetary authorities are intervening to stabilize the exchange rate just as *de iure* fixed exchange rate regimes are expected to do. But some pieces of evidence suggest indeed that the stability of the peso has been artificially engineered (i.e. the regime is not a pure float in which market forces freely determine the value of the currency). As early as 1997, the Banco de México, in spite of the lack of formal exchange rate commitments (that were associated with the 1995 financial crisis and thus widely avoided), set up a scheme to sell dollars to avoid 'disproportionate' depreciations of the peso (Carstens and Werner 1999). Perhaps more tellingly, the stability of the exchange rate sharply contrasts with the steady evolution of the Mexico's competitive stance during the floating years. As figure 4.2 shows, the sharp devaluation of 1995 quickly restored competitiveness, but this effect lasted only for

[7] For a detailed analysis of the conduct of Mexican monetary policy under the floating regime, see Carstens and Werner (1999).

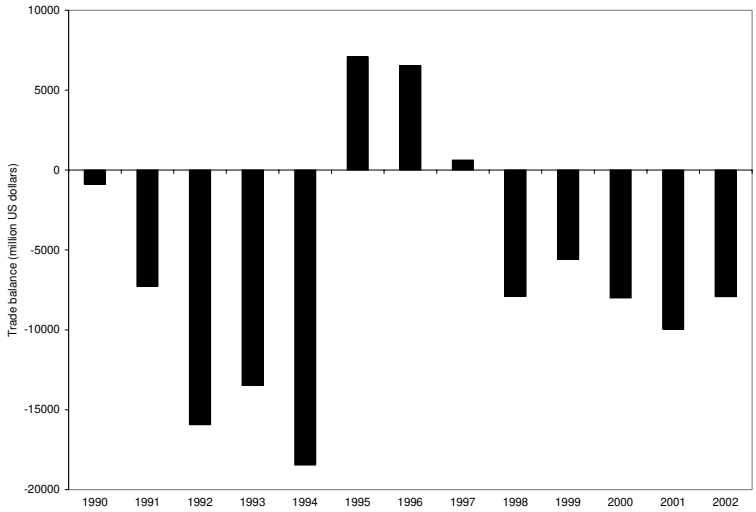
Figure 4.1: Nominal exchange rate of the Mexican peso under the floating exchange rate regime



two years. Since 1998 Mexico experienced significant trade deficits again, which have not been responded by significant depreciations of the peso, as could be expected in a pure floating regime.

Mexico's exchange rate regime history in the 90s can thus be summarized as follows: it began with a relatively rigid fixed exchange rate regime that yielded nominal stability, but turned out to be unsustainable in the end. The devaluation of December 1994 initiated the floating period, in which no formal exchange rate commitment was assigned to the monetary authorities. Yet the pursue of currency stability did not completely disappear in the new regime. Under the current regime, Mexican monetary authorities seem to prevent drastic changes in the nominal exchange rate, and

Figure 4.2: Mexico's trade balance, 1990-2002, in millions of US dollars (Source: IMF *International Financial Statistics*)



as a result have managed to keep the value of the peso relatively stable in the medium run. In short, Mexico has transited from a rigid exchange rate peg to a flexible approach to exchange rate stability.[8]

[8]The political objective of exchange rate stability under the floating regime has always been significant. In an address to the national association of exporters and importers in 1995, president Zedillo was explicit about the salutary consequences of currency stability: "The government is fully aware that the exporting sector ... requires certainty to take advantage of its potential. That is why we are committed to advance in the construction of a clear framework of certainty and fair treatment for our exporters. In this sense, we shall implement a policy of permanent support to exports, respectful with the international treaties and agreements signed by Mexico. We shall establish ... measures .. so that our exporters enjoy exchange rate certainty. Once we reach

4.2.1 Coordination of Wage Bargaining and Central Bank Conservatism in Mexico.

According to our theoretical expectations, to derive the preferences of economic groups towards these exchange rate regimes, we have to know the macroeconomic institutional environment in wage-setting takes place.

In December 1987, along with the adoption of the exchange rate peg described before, the economic and solidarity pact, *el pacto*, was signed by the government, employers, agricultural producers and unions. This pact included an unprecedented comprehensive incomes policy aimed at containing wages and prices to control inflation.[9] The pact was extremely successful in containing wages and prices in its first years of existence. In fact, the control of prices achieved by the incomes policy compounded with the fixed exchange rate yielded the regime yielded a *reduction* of the real exchange rate in the first two years of its existence. Wage coordination, in this context, can be presumed to be high –making, in principle, exporters relatively more attracted to fixed exchange rate regimes.

But the underpinnings of wage coordination were extremely weak, and soon after the corporatist pact and the incomes policy associated with it started to break apart (Murillo 2001: chapter

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the exchange rate coherent with a steady improvement of our international competitiveness, we will apply an exchange rate policy that will yield stability to the real value of the currency, so that exporters could make plans and investments in the long run, to avoid what we have experienced in the past. ... This is a commitment that we will invariably keep during my administration." Discourse to the Annual Meeting of the National Association of Importers and Exporters of the Mexican Republic, Mexico City, March 14th, 1995.

[9] The Economic Solidarity Pact had three basic elements: a commitment of the government to control domestic demand, a program of structural reforms including trade liberalization and privatization of state-owned companies, and a comprehensive incomes policy to stabilize infaltionary expectations. See Lustig (1998: 81-89).

5; Samstad and Collier 1995; Bensusán 1994, Teichmann 1997, Zapata 1994). The steady deterioration of corporatist institutions was driven mainly by the impossibility to rely on obsolete corporatist structures in a period of rapid structural changes in the Mexican economy and growing heterogeneity within workers and employers. The growth of the exporting maquiladora sector was associated with lower unionization rates (Anner 2001) and greater wage inequality (Revenga 1997, Hanson 2004, Calvo 2001b: 400), making economy-wide corporatist arrangements more difficult to sustain. These structural changes were not only the result of merely exogenous transformations of the Mexican economy –paradoxically, they were often the result of explicit government policies aimed at transforming the old system of labor relations. For instance, the Salinas' administration was pro-active in the emergence of new unions in key sectors of the economy, which damaged the strategic position of the official union, the CTM.[10]

The Salinas economic team was probably well aware of the problems that an uncoordinated union movement could pose to the functioning of the fixed exchange-rate regime. The government continuously made efforts to sustain the corporatist structures, although this seemed contradictory with the reformist economic policies in other areas.[11] But in spite of these efforts, the

[10] A clear example of this can be found in the privatization of the telecommunication sector. In exchange for selective benefits (as equities in the firm) and a considerable degree of control over the process, the Telephone Workers Union (SRTM) supported the privatization of 1989. The exchange between the administration and STRM led to the government-backed creation of FESEBES, a new service sector union federation, that would amplify the role of these sectoral union on national labor politics (Williams 2001: 115; Clifton 2000). From the point of view of the unions, challenging the role of CTM was the result of increasing heterogeneity of preferences within the labor force. For the government, this 'new unionism' (Samstad and Collier 1995) was seen as a way to secure the pro-reform attitudes of workers in key ssectors of the economy.

[11] Interestingly enough, Murillo (2001) finds in Mexico only one exception to the general pattern of labor movement subordination to the party in the face of

sudden internationalization of important sectors of the economy (Anner 2002), the privatization of heavily unionized sectors (Williams 2001) and the political liberalization of the regime (which weakened the monopolistic position of the PRI in providing access to the political process) eventually brought about the emergence of a more plural (Bensusán 1994) and politically weaker (Fairris 2003) labor organizations, much more difficult to coordinate nationally.[12]

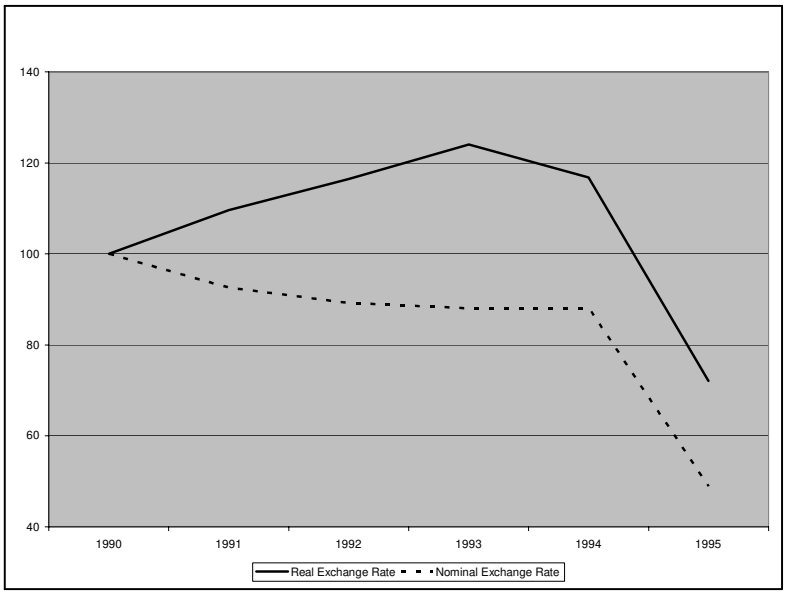
As a result of these changes, in coordinated nature of wage-setting that accompanied the implementation of the Economic and Solidarity Pact in the late 80s proved to be nothing but ephemeral. As a result, Edwards' (1996b) shows how, in spite of the successful beginning of the pact, inflationary inertia re-emerged after the second quarter of 1989, reaching its peak by the end of 1994. The good real exchange rate performance guaranteed by the peg regime in the first two years vanished as a consequence, and the real exchange rate begun to appreciate, as shown in figure 4.3.

According to our model, not only coordination of wage bargaining secures the support for pegs of the internationally-oriented sector. A non-accommodating central bank also makes this sector more favorable for exchange rate pegs. It is however highly questionable that the Mexico's central bank, Banco de México, could perform that role. Under the 1985 charter, Banco de México was

liberal reforms. One is the (lack of) reform in the labor code, in which she claims that in order to preserve the organizational power of the union movement, the PRI accepted a 'victory' of the CTM. The reform, she argues, "would have affected ... the main instruments of union influence in collective bargaining." In other words, such a reform would have weakened the possibilities for intersectoral coordination.

[12] Samstad and Collier (1995) emphasize the contradictory nature of the government-labor alliance under Salinas. On the one hand, national unions were necessary to control inflation under the peg regime. On the other, the increasing importance of internationally-oriented firms and new management techniques required a more flexible labor movement more oriented towards enhancing productivity at the plant level than to coordinating wages nationally.

Figure 4.3: Real and nominal exchange rate in Mexico. (100=1990 level) Source: Banco de México



not even commissioned to keep inflation down,[13] but more importantly, its very structure make it politically subordinate to the government.[14]

Only at the end of his mandate did the Salinas administration proposed to increase the autonomy of the central bank. The proposal crystallized in the central bank reform law of December

[13] Article 1 of the central bank charter listed as obligations of the bank to maintain the "purchasing power of the peso, the development of the financial system and the generally healthy growth of the national economy" (quoted in Boylan 2001).

[14] For example, the president of the republic could fire any of the 14 members of the board at his own discretion.

1993. The 1993 law did increase the degree of political autonomy of the central bank[15] and gave priority to its anti-inflationary role.[16] However, the reform was mild in many respects, and has been defined as 'partial' (Boylan 2001).[17] Most importantly for our purposes, the reform explicitly subordinated the central bank to the government in exchange rate matters. In this area, the 1993 law –Mexico was at the time still under the exchange rate peg– mandated the bank to follow the guidelines dictated by the "exchange rate committee" (*Comisión de Cambios*). The committee (article 21, Central Bank Charter, December 1993) was composed of three members from the Treasury and three members from the central bank board, but with Secretary of Finance holding the decisive vote in case of tie, giving the executive *de facto* control over the conduct of exchange rate policy. To give a sense of how important was for the framers of the law not to relinquish government control in this area, article 43 of the new charter included the failure to comply with the exchange rate committee's guidelines as one of the motives for the removal from office of the central bank governor.

Two factors might have increased the *de facto* independence of the central bank in the second half of the 1990s. First, the

[15] For instance, under the new law, central bank governors are appointed for 6-year terms, and they can only be removed under certain conditions (article 43, Banco de Mexico Charter, 12/23/1993). As a result of this and other regulatory changes, the Mexican central bank increased in 1994 their degree of legal independence by 0.19 points (from 0.34 to 0.53) as measured by the Cukierman index (which ranges from 0 to 1), according to the Guillen and Polillo's (2005) coding.

[16] Article 2 of the 1993 law reads: "The Banco de Mexico's aim is to provide national currency to the country's economy. To achieve this goal, it will have as prioritary objective to secure the stability of the purchasing power of that currency."

[17] Boylan not only bases this judgment on the analyzes the legal status of the bank after the reform. She contends that the pro-government behavior of the Banco de Mexico during the 1994 crisis shows the limited degree of political autonomy of the bank (Boylan 2001: 21-22).

adoption of a flexible exchange rate regime in 1994 meant that the central bank regained control over monetary policy by removing the constraints imposed by the Exchange Rate Committee.[18] Second, the erosion of the monopoly of power of the PRI over all branches of government reinforced the real independence of the bank. In 1997, the PRI lost control of the Low Chamber (Cámara de Diputados), and in 2000, the victory of Vicente Fox of PAN in the presidential election meant that for the first time the executive and the majority in Congress would be in the hands of different parties. Divided government, has been shown in the literature (Lohmann 1998), increases the degree of autonomy of *Banco de México*.

In sum, the high degree of political subordination of the central bank to the government at least in the first half of the decade make it highly unlikely that this institution would help solidify the support of exporters to the peg regime. If anything, central bank independence could have make the international sector less opposed to pegs only in the late 90s, when the central bank started acting in a more autonomous way, and more concerned with inflation control.

4.2.2 Expectations

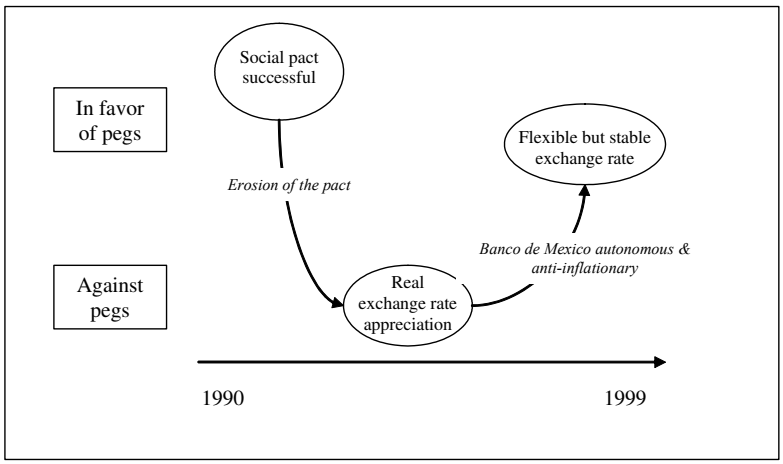
Following the theoretical discussion developed in the previous chapter and the evolution of the institutional environment just described, what should we expect the preferences of the internationally oriented sectors of the Mexican economy to be?

In the first years of the peg in which the *pacto* was successful in securing wage restraint, we would expect exporters to more in favor of the exchange rate regime. As the competitiveness of the Mexican firms started to deteriorate (evidence that the corporatist institutions were not delivering wage restraint any longer), the

[18] Boylan (2001: 22) notes that public disagreement between the government and the central bank over exchange rate policy increased after the abandonment of the peg.

international sector should be expected to become relatively more opposed to the peg regime. By the end of the decade, the increased autonomy of the central bank should muted this relative opposition to fixed exchange rate regimes. Figure 4.4 summarizes these predictions. The next section tests these hypotheses by analyzing a series of surveys conducted in Mexico in these three periods.

Figure 4.4: Expected (relative) exchange rate regime preferences of the international sector in Mexico in the 1990s



4.3 The Changing Political Conflict over the Exchange Rate

To analyze exchange-rate preferences, I will use three different surveys,[19] conducted in June 1990, in December 1994, right after the

[19] All surveys were provided by the *Base de Datos de Estudios sobre Opinión Pública* at CIDE's library.

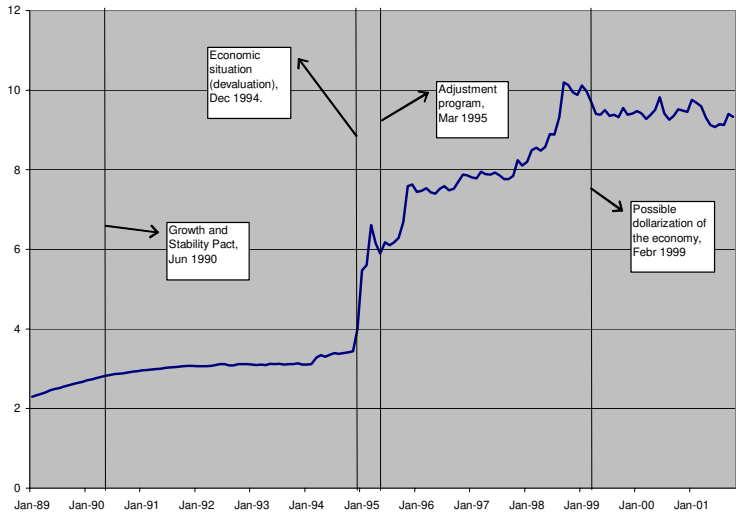
peso devaluation, and in February 1999. Each of these moments correspond to the different institutional scenarios described above, and therefore should be associated with different exchange-rate *politics*. In 1990, under the successful fix exchange rate regime, we should expect the international sector to support the regime, given the stable peso guaranteed by the regime at the time. Clear differences in exchange-rate preferences should have emerged by mid-1990s, as a consequence of the erosion of the institutions for wage restraint and the concomitant gradual real appreciation of the peso. To analyze preferences in this period, I have selected a survey conducted only a few days after the December devaluation,[20] and expect exporters to be significantly more coalescent with Zedillo's decision to abandon the peg. Finally, I examine a third survey conducted in February 1999, in the middle of the flexible exchange rate period. Figure 4.5 situates in its (currency) context each of these surveys along with a fourth one conducted in 1995, used to identify the international sector.

To test the theory in these three different contexts, first we have to identify the international sector in these surveys. To deal with data limitation problems and comparability across surveys, I follow a twofold approach. First, in every survey, I estimate two baseline models with variables that are i) theoretically and empirically related to the probability of being a member of the tradable group[21] and ii) are available in all the three surveys. Second, I also

[20] The timing of the survey is particularly appropriate here. The huge contractionary effects caused by the devaluation needed at least a few months to be felt in the real economy -in fact, some export-oriented firms experienced a *rise* in their stock prices right after the abandonment of the peg: Wilson et al 2000. This implies that public opinions on the devaluation in December 1994 were less contaminated by the welfare effects of the devaluation than, say, one year after. By 1994, with considerable uncertainity about the ultimate economic consequences of the devaluation for the country, one would expect pure distributional concerns to show up more clearly in survey responses.

[21] Of course, it is more realistic to think of individuals as 'weighted averages'

Figure 4.5: Pesos per dollar at the time of the surveys



estimate an additional model including survey-specific variables in order to ameliorate the identification of the tradable group and to test the robustness of the baseline specification to the inclusion of new controls.

The baseline model includes both individual and state-specific variables. Given that the Mexican exporting sector is overwhelmingly dominated by manufactures,[22] I expect those living in states

of tradables and non-tradables preferences, rather than members of a specific group -an owner of an exporting firm is also a consumer of imported goods. This distinction, however, bears no implications for the empirical analysis.

[22] Manufactures accounted for 68% of total exports by June 1990, 82% by December 1994, and 90% by February 1999, and Revenga (1997) finds evidence that the Mexican trade liberalization reforms of the 80s and 90s had significant postive effects in wage developments in manufactures.

highly specialized in manufacturing to have preferences closer to those of the international sector. To live in a state heavily dependent on maquila exports should have a similar effect. This effect might be mediated by the individual income of the respondent: those in an exporting region with a higher income would be even more sensitive to tradable interests. Given that, relative to its main trade partners, Mexico is abundant in low and middle-skilled labor, low-skill Mexicans should reflect best Mexico's international comparative advantage, and would be more representative of exporters.[23] Finally, I use a dummy variable that equals one when the respondent is a state employee, on the assumption that the public sector is sheltered from international competition.[24] In table 4.1 I use of a survey conducted in Mars 1995 to test whether these variables are consistently associated with how much 'worried' is the respondent about the exchange-rate (a variable that I assume to be a proxy for being a member of the internationally-oriented group).

Although the adjustment is quite poor, most of the signs are in the right direction and are statistically significant, and are robust to the inclusion of control variables (as expected, being worried by imports is highly correlated with sensitiveness to the exchange rate). The only exceptions are the public sector dummy (not significant), and the interaction between maquila exports and individual income. It is the poor who seem to be more worried by exchange-rate developments.

Table 4.2 uses these variables to estimate the impact of tradable

[23] Scheve and Slaughter (2001) find that individuals in the US tend to derive their trade policy preferences from their endowments in terms of factor of production. Mayda and Rodrik (2005) also find (based on cross-national survey data) that preferences are based factor endowments, and that cross-national differences can be explained in terms of each country's degree of relative abundance and scarcity of factors of production.

[24] See appendix at the end of the chapter for a full description of all the variables used.

Table 4.1: Dependent variable: Being worried by the exchange rate. Ordinal logit estimations. March 1995

	Logit Coef. (Std. Err.)	Logit Coef. (Std. Err.)	Logit Coef. (Std. Err.)
Public Sector	0.157	0.143	0.199
	(0.141)	(0.141)	(0.157)
Income	-0.091**	0.002	0.069
	(0.039)	(0.043)	(0.048)
Education	-0.086**	-0.090**	-.080**
	(0.021)	(0.021)	(0.024)
Maquila Exports (%GDP)	-0.001	0.024**	0.024**
	(0.002)	(0.006)	(0.006)
Manufactures (%GDP)	0.568**	0.510**	0.232**
	(0.100)	(0.101)	(0.114)
Maquila * Income		-0.010**	-0.009**
		(0.002)	(0.002)
Worried imports			0.528**
			(0.064)
Worried NAFTA			0.007
			(0.115)
Worried (general)			4.162
			(0.210)
_cut1	-1.934	-1.818	4.626
	(0.132)	(0.134)	(0.326)
_cut2	-0.287	-0.156	6.842
	(0.124)	(0.127)	(0.345)
Log likelihood	-2,475	-2,462	-1932.144
PseudoR2	0.0145	0.0197	0.1923
N	2,635	2,635	2, 516

concerns in preferences for devaluation in 1990.

In the 1990 survey, after being informed of the new scheduled devaluation of the peso (a typical announcement under the crawling peg regime), respondents were asked about their opinion about the devaluation.[25] As expected from the previous discussion, there was widespread consensus in favor of the currency regime in place.

[25] The fact that devaluations were limited and controlled in this period makes it difficult to assume that those who disagreed with the statement were necessarily in favor of a floating regime. However, it is still reasonable to assume that those disagreed with the devaluation wanted a more rigid peg than those who supported it.

Table 4.2: Dependent variable: Being against devalution. Rare events logit estimations. June 1990

	Rare Events Logit Coef. (S. E.)	Rare Events Logit Coef. (S. E.)	Rare Events Logit Coef. (S. E.)
Public sector	-0.433	-0.435	-0.386
	(0.429)	(0.429)	(0.432)
Income	-0.324	-0.286	-0.296
	(0.205)	(0.231)	(0.239)
Education	0.125	0.124	0.125
	(0.078)	(0.078)	(0.078)
Maquila exports	0.002	0.010	0.009
(%GDP)	(0.008)	(0.021)	(0.021)
manufactures	-0.534	-0.555	-0.500
(%GDP)	(0.410)	(0.411)	(0.409)
Maquila *		-0.003	-0.003
Income		(0.008)	(0.008)
Pact controls			0.736**
inflation			(0.296)
Constant	-3.235**	-3.293**	-3.563**
	(0.509)	(0.551)	(0.546)
N	2,505	2,505	2,505

Only 7.5 percent of respondents agreed with the proposition that "the peso should not have been devalued." Because of this unbalanced dependent variable, I use, instead of the standard logit procedure, the rare events logit method developed by King and Zeng (1999).[26] Given this low level of exchange-rate regime conflict, it would be surprising to find strong effects of the proxies for tradables indicators in explaining this little variation. In fact, none of the variables turn out to be statistically significant.[27] Interestingly enough, the only variable that is statistically significant is the belief that the pact is successful in controlling prices. 'Believers' in the anti-inflationary effects of the pact, consistently with the institutional story developed before, were more supportive of the peg regime.

In the line of the theoretical discussion, one would expect the tradable sector to become increasingly hostile to the exchange-rate regime as the real appreciation increased in the early 90s. There is evidence to suggest that it did. Schamis (1999:254) detects grievances from certain tradables as a response to these developments. However, the political opposition to the regime remained weak.[28] Two reasons could account for that: On the one hand, the peg regime was still associated with the macro-economic stability and the structural transformations that had benefitted exporters in the late

[26] Standard logit estimations yield substantially undistinguishable results.

[27] In fact, one should expect tradables to face two opposing forces simultaneously. On the one hand, a stable exchange-rate is beneficial in that it stabilizes cross-border interactions. On the other hand, they could be already aware of the weakness of the Mexican institutional backing for such a regime and start worrying about the overappreciating consequences of the peg regime in the medium and long run.

[28] President Salinas de Gortari (2000: 1091) argues in his memories that by November 1994, 80% of the firms were satisfied with the exchange-rate regime in place. The Salinas economic team believed that the case of the real appreciation of the peso was overstated, since the now more industrialized and diversified nature of the Mexican exporting sector economy need not rely on a competitive exchange rate as in the past (Salinas 2000: 1090).

80s and early 90s.[29] On the other, part of the potential opposition to the strong peso was bought-off by the pro-stable camp through the emission of dollar-denominated debt. By dollarizing the firms' financing, an increasing number of business became extremely dependent on the maintenance of the value of the peso, solidifying the political support of the regime. Among the fifty-nine largest economic groups, dollar-denominated debt doubled between 1998 and 1991, reaching over half of total liabilities (Kessler, 2000: 50). Furthermore, this constituency against devaluation became increasingly powerful within the PRI, as a consequence of Salinas' strategy of incorporating 'big business' in the party's decision-making process (Thucker 2000). At any rate, in spite of these political manoeuvering, exporters are expected to become *relatively* more opposed to the peg regime than the rest of the economy, according to our institutional model of exchange rate preferences.

Right after the decision to devalue the peso in December 1994, a survey was conducted to examine people's preferences over the government's economic choices. Given the developments discussed below, one should expect i) higher social polarization over the exchange-rate issue, and, to the extent that the variables measure correctly the 'tradable' interests of respondents, ii) greater impact of the 'exporting sector' proxies in the opinions about the devaluation.

First, conflict there was: 52.8 per cent thought that the government did wrong to devalue, 23.5 thought it did right, and 22.7 did not know. More interestingly, as table 4.3 shows, the export sector indicators are statistically significant this time. The less skilled and those with medium and high income living in exporting states[30] are now more likely to exonerate the government. This

[29] The peg regime had been also instrumental in the major trade liberalization reform, the creation of NAFTA in 1993. The stable peso greatly facilitated the negotiations with Canada and the US (Wise 2000).

[30] The maquila coefficient is negative (as expected) when no interactions are

Table 4.3: Dependent variable: Being against devaluation. Logit estimations. December 1994

	Logit Coef. (S. E.)	Logit Coef. (S. E.)	Logit Coef. (S. E.)
Public sector	-0.142	-0.121	-0.246*
	(0.142)	(0.144)	(0.149)
Income	-0.180**	-0.045	-0.060
	(0.045)	(0.049)	(0.051)
Education	0.149**	0.157**	0.146**
	(0.026)	(0.026)	(0.027)
Maquila exports	-0.007**	0.025**	0.033**
(%GDP)	(0.002)	(0.005)	(0.005)
manufactures	0.120	0.148	-0.052
(%GDP)	(0.133)	(0.134)	(0.140)
Maquila *		-0.012**	-0.012**
Income		(0.002)	(0.002)
Industry			-0.100
			(0.175)
Dev. affected			1.279**
personally			(0.123)
Devaffect*			-0.012**
Income			(0.004)
Constant	-0.177	-0.629**	-1.191**
	(0.201)	(0.212)	(0.228)
Log Likelihood	-1,356	-1,330	-1,270
Pseudo R2	0.0193	0.0379	0.0817
N	2,003	2,003	2,003

results are robust to the inclusion of a variable indicating whether the devaluation affected them personally or not, which is highly significant, and an interaction of this variable with income, also significant and negative, indicating that among those affected by the devaluation, the rich are more likely to oppose it than the poor.

To analyze exchange-rate preferences in the floating period, I use a 1999 survey about preferences over dollarization and exchange-

introduced in the estimation (column one). When the variable is interacted with individual income, it shifts sign, and the interaction is negative and significant. This shows a higher polarization of opinions in highly internationalized states: in these states, those with low income are more likely to be against the devaluation, while those with higher income are more in favor.

rate arrangements. The sample is significantly smaller in size, which affects the significance tests. The dependent variable now is significantly different: the respondent's answer to the question of whether she would be in favor of an arrangement as the one implemented in Argentina –in which the government established a one-to-one parity between the peso and the dollar[31]– or not. Table 4.4 presents the results.

Although the variables' signs are in the right direction, and the maquila indicator is significant at the 90% confidence level in the first specification, little can be derived from these results. An additional variable that could be taken as a proxy for the interest of the respondent in the exchange-rate (a dummy variable that equals one when the respondent gets right the existing exchange-rate regime in Mexico) is negatively and significantly correlated with the probability of supporting a peg. Tradables thus seem to be somehow more reluctant to a fixed exchange-rate regime, perhaps suggesting that the institutional developments in the late 90s were not still not enough to secure the support of exporters to more rigid exchange rate regime. But at any rate, given the lack of political conflict over the exchange rate regime, the explanatory value of the model in the late 90s is very limited.

Table 4.5[32] summarizes the predictive power of the model of

[31] The exact wording of the question is "In Argentina, to stabilize its economy, the government established that the value of one Argentine peso would be equal to one dollar. To your knowledge, do you think this would be a good measure for our economy, or not?" A similar question was made about dollarization, with Panama as an example. I preferred not to use the dollarization question because it is highly 'contaminated' by sovereignty and national pride considerations (although its economic consequences in the light of the model would be exactly the same). In any event, the results using the dollarization question did not vary considerably.

[32] The table displays predicted probabilities calculated from the estimations shown above, with 95% confidence intervals in parentheses. "Export minimum" refer to an individual leaving in a state without maquila exports and with a manufactural sector half the size of the national average, and highly educated.

Table 4.4: Dependent variable: Being in favor of a fixed exchange rate regime with a currency board. Logit estimations. February 1999

	Logit Coef. (S. E.)	Logit Coef. (S. E.)	Logit Coef. (S. E.)
Public sector	0.210 (0.328)	0.235 (0.331)	0.281 (0.336)
Income	-0.101** (0.049)	-0.071 (0.053)	-0.079 (0.054)
Education	0.000 (0.043)	0.001 (0.043)	0.034 (0.045)
Maquila exports (%GDP)	-0.005* (0.003)	0.004 (0.007)	0.003 (0.007)
manufactures (%GDP)	0.158 (0.240)	0.159 (0.240)	0.207 (0.244)
Maquila * Income		-0.002 (0.002)	-0.002 (0.002)
Knows ER regime in place			-0.752** (0.203)
Constant	0.716** (0.359)	0.590 (0.368)	0.751** (0.377)
Log Likelihood	-302	-301	-294
Pseudo R2	0.0148	0.0185	0.0414
N	457	457	457

exchange rate preferences for each survey.

Table 4.5: Probability of supporting devaluation

	June 1990	December 1994	February 1999
Exporters minimum	**0.03** (0.02, 0.06)	**0.66** (0.59, 0.72)	**0.65** (0.54, 0.75)
Exporters medium	**0.02** (0.01, 0.02)	**0.52** (0.49, 0.55)	**0.64** (0.58, 0.69)
Exporters maximum	**0.01** (0.00, 0.02)	**0.40** (0.32, 0.49)	**0.61** (0.47, 0.74)

While in 1990 and 1999 (periods of relative political consensus around the exchange-rate policies in place) the interests of exporters and non-exporters seem to explain very little of the variation in opinions on the currency regime, in 1994 there is a clear difference between exporters and the rest of the economy regarding their degree of support for the decision to devalue the peso: as expected, the latter were significantly more welcoming of the devaluation decision than the former.

"Export maximum " refer instead to a low-skilled individual living in a state where the maquila exports represent a 50% of the state GDP (approximately the level of Sonora in the late 90s), and a manufacturing sector 50% larger than the national average. The 1999 figures refer to the probability of preferring a fixed exchange-rate regime with a currency board.

4.4 The Electoral Consequences of Exchange Rate Regime Preferences

The political salience of the 1994 devaluation can hardly be exaggerated. However, the only empirical study in Mexico that deals with it from a political perspective (Magaloni 2000a) looks only at its welfare consequences, and argues that the economic costs (at least in the short run) of devaluations explains why politicians tend to postpone them after elections.[33] Given the negative welfare effects of sudden devaluations, it would be certainly surprising to find that the electorate do not react negatively to these policies and/or that politicians do not forecast these reactions and try to manipulate the electoral cycle.

My purpose here is not to ascertain the political consequences of the crisis caused by the devaluation,[34] but to analyze whether the *distributional* effects that exchange rate decisions have according to our model, also had electoral implications. The simple expectation is that political behavior will mirror these distributional consequences –the more a particular constituency is harmed by these decisions, the more it will punish electorally the incumbent.

Both in the 1990 and 1999 surveys, given the lack of political conflict over the exchange rate regime noted before, it would be surprising to find strong electoral effects derived from currency policy. But in 1994, the conflict over the exchange rate regime was patently obvious: as just shown, the society was divided in their view of the government's decision to devalue the peso. Were the groups that, according to our theoretical expectations, benefitted the most (or suffered the least) from the devaluation, more likely

[33] This is a result in line with a large literature that uses political business cycles to explain the timing of devaluations and exchange rate-based stabilizations. See, for instance Frieden *et al* (2001), Edwards (1994), Gavin and Perotti (1997), Schamis and Way (2003), Bonomo and Terra (2005).

[34] See Magaloni (2000a).

to vote for the incumbent party?

To estimate the impact of exchange-rate concerns on electoral preferences, I estimate the probability of supporting electorally the PRI (the incumbent throughout the period under study) as a function of a set of political and economic evaluations (measured in the different ways across samples but aimed to grasp the same underlying variable), the opinion of the respondent on devaluation, and some other survey-specific controls. Because it has been argued that Mexican voters first decide their allegiance to the "regime party" first, and only if they reject the PRI they take into account instrumental considerations when casting their ballots (Domínguez and McCann 1996), a correlation between opinions on exchange-rate preferences and vote choices does not guaranteed that the former are consequences of the latter. It could well be that PRI voters just support the currency choices of their party –whatever these choices happen to be. To solve this endogeneity problem, I rely on instrumental variables. As always with this approach, the problem is to find good instruments (explanatory variables for the independent variable of interest, but assumed to be uncorrelated with the dependent variable). It is here where the model of exchange-rate preferences developed before comes at hand. Export-like interests, as shown before, are expected to be correlated with exchange-rate preferences, and it is not unreasonable to assume that are unrelated to PRI vote. In table 4.6, I present logit estimations for each year. In the first column, a simple logit model is estimated. In the second column (two stages logit coefficients) for each year I correct for endogeneity by instrumenting the "opposing devaluation" variable with the predictions from the models presented in the previous section.

The results are in line with the expectations. Obviously, there are strong effects of economic and political evaluations on vote choice: good economic and political evaluations are significantly associated with higher probabilities of voting for the PRI, the in-

Table 4.6: Dependent variable: Vote for PRI. Logit estimations.

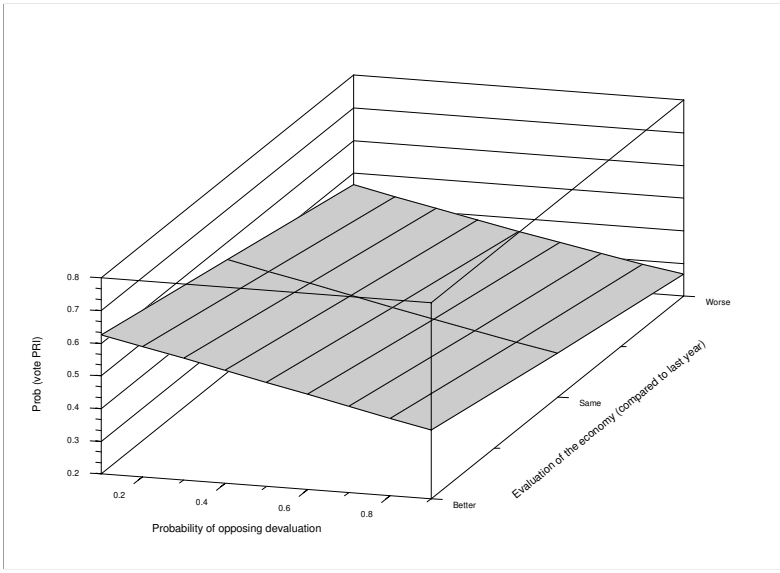
	1990		1994		1999	
	Logit Coef. (S. E.)	2SLS Coef. (S. E.)	Logit Coef. (S. E.)	2SLS Coef. (S. E.)	Logit Coef. (S. E.)	2SLS Coef. (S. E.)
Economic evaluation	2.571** (0.165)	2.352** (0.201)	0.302** (0.073)	0.328** (0.072)	0.380** (0.132)	0.389** (0.135)
Political evaluation	-0.133** (0.056)	-0.133** (0.068)	1.469** (0.166)	1.629** (0.163)	0.845** (0.243)	0.821** (0.242)
Opposing devaluation	0.467** (0.231)	0.022 (0.086)	-0.707** (0.110)	-1.094** (0.339)	0.149 (0.231)	-0.529 (0.973)
Personal economic situation	-0.103 (0.142)	-0.277 (0.194)	0.069 (0.079)	0.088 (0.079)		
Employment prospectives			0.197** (0.076)	0.181** (0.075)		
Economic instability					-0.136 (0.134)	-0.149 (0.136)
Constant	-1.580** (0.109)	-1.305** (0.351)	-1.277** (0.170)	-1.148** (0.257)	-1.612** (0.395)	-1.113 (0.729)
Log Likelihood	-2,184	-1,590	-1,014	-1,030	-239	-234
PseudoR2	0.0938	0.0773	0.1211	0.1079	0.0516	0.0528
N	3,502	2,500	1,699	1,699	450	432

cumbent party through the period. What is remarkable is that, even after controlling for these variables (which, it could be argued, are also endogenous to deeper economic considerations), exchange rate preferences still matter for vote choice. They seem to matter in 1990 those critical with the devaluation are more likely to vote for the PRI, which shows that voters associated the Salinas' government to the peg regime. However, when the devaluation preference is instrumented for, the variable losses statistical significance, which is hardly surprising, given the relatively poor fit of the first stage regression.

In 1994, exchange rate preferences are highly relevant in explaining vote behavior –and they are still significant after the instrumenting the exchange rate preference variable with the model used in the previous section. These results seem to go in line with a recent strand of literature on economic voting in Mexico (Poiré 1999, Magaloni 1999, 2000b Buendía 2000) pointing out the relatively high level of sophistication of the Mexican electorate and the important role of instrumental considerations in electoral choices. To see in more substantive terms the impact of the exchange rate opinion variable, figure 4.6 uses the estimates from column 4 in table 4.6 to plot the probabilities of declaring a preference for the PRI as a function of the position on the exchange rate issue and the evaluation of the economic situation (the rest of the variables are kept at their sample means). Recall that as long as exchange rate preferences are instrumented for in this estimation, the effect of the "opposing devaluation" variable should be understood as the effect of purely distributional concerns, as estimated in the exchange rate preferences regressions. The size of this effect is considerable. An individual that, because of her "exporting" characteristics has a probability of .8 of opposing the devaluation has a probability of supporting the PRI 15 percentage points lower than someone whose probability of opposing the devaluation is only .2 –an effect roughly comparable to a change from evaluating the economic situation as

'better than a year ago' to 'worse than a year ago'.

Figure 4.6: Probability of supporting the PRI as a function of the probability of opposing devaluation (instrumented) and the retrospective evaluation of the economy



Finally, the 1999 estimations show that preferences for a fixed exchange rate regime are uncorrelated with party preferences – quite reasonable again, given the lack of salient political conflict over the exchange rate under the floating regime

4.5 Conclusions

In spite of the inherent problems of studying exchange rate regime preferences using general population surveys, the evidence presen-

ted in this chapter suggests that, in the case of Mexico, the evolution of exchange rate politics in the 1990s can be understood in the light of the model of regime preferences developed in the previous chapter. Respondents who were more likely to hold *export-like* preferences became increasingly hostile to the peg regime (i.e. valued positively the decision to let the peso float) in the mid-90s, when the institutional conditions of the Mexican political economy were such that a fixed exchange rate regime imposed clear costs for this sector. In the previous years, when the *pacto* was able to imposed wage restraint, exporters did not seem to oppose pegs. In the late 90s, no difference in exchange rate regime preferences between exporters and non-exporters, probably the consequence of the lack of conflict over the exchange rate regime in the 'flexible but stable' exchange rate years.

This relatively sophisticated way in which Mexicans form their opinions on economic policies also permeates their electoral behavior. When the political economy model of exchange rate preferences seemed to be more powerful (in 1994), electoral preferences were influenced by the distributive consequences of exchange rate policy. The party responsible for the devaluation (the PRI) was electorally rewarded or, more precisely, less punished, by those groups expected to be benefitted by the abandonment of the peg in those years –exporters.

This chapter has explored variation across time in exchange rate politics in one country to see whether the drastic changes in the macroeconomic institutional framework map into different exchange rate politics, as expected from the model developed in the previous chapter. In the next chapter, I explore another set of public opinion surveys conducted in different countries to see whether the cross-country variation in exchange rate preferences can be understood as a consequences of institutional differences across countries, as the model would predict.

4.6 Data Appendix

All Mexican surveys were conducted by the *Oficina de Presidencia de la República* (Mexican Office of the Presidency), and were made available to me by the *Banco de Información de Opinión Pública* (Public Opinion Information Database) at the *Centro de Investigación y Docencia Económicas* (CIDE) in Mexico City. Except the 1999 survey on the possible dollarization of the economy, which was conducted by phone, the samples of the other three are representative samples of the Mexican population.

4.6.1 Adjustment Program, March 1995

Worried about the ER Nothing / something / very much worried about the peso exchange rate versus the US dollar. Mean: 1.42. Range: 0-2.

Public Sector Respondent works in a public institution. Mean 0.16. Range: 0-1.

Income Family Income 1: $<$ minimum wage (490 new pesos); 2: 1-3 times the min. wage 3: 3-5 times the min. wage; 4: 5-7 times the min wage; 5: 7-10 times the min wage; 6: $>$ 10 times the min. wage. Mean: 2.35. Range: 1-6.

Education Education attainment (none, incomplete primary, complete primary, incomplete secondary, secondary, preuniversitary incomplete, preuniversitary, incomplete tertiary, tertiary). Mean: 4.67. Range: 1-9.

Worried Imports Nothing / something / very much worried about imports. Mean: 1.31. Range: 0-2.

Worried NAFTA Nothing / something / very much worried about NAFTA. Mean: 1.85. Range: 0-2.

Worried (general) Average score (nothing / something / very much worried) about... the situation in Chiapas, crime, lack of jobs, corruption in government, the quality of national products, the Mexican economy, environmental degradation. Mean: 1.51. Range: 0-1.78.

Manufactures Manufacture production as proportion of the state GDP. National level=1. Own elaboration, using data from INEGI's Banco de Información Económica. Mean: 1.01. Range: 0.09-1.71.

Maquila Maquila exports as a share of state GDP. Source: INEGI. *Banco de Información Económica.* Mean: 9.35. Range: 0-87.65.

4.6.2 Stability and Growth Pact, June 1990

Against devaluation Respondent agrees with the sentence 'the peso should not have been devalued'. Mean: 0.03. Range: 0-1.

Public Sector Respondent works in a public institution. Mean 0.15. Range: 0-1.

Income Family Income 1: < minimum wage (304,000 old pesos); 2: 1-3 times the min. wage 3: 3-7 times the min. wage; 4: > 7 times the min. wage. Mean: 2.31. Range: 1-4.

Education Education attainment (none, incomplete primary, complete primary, incomplete secondary, secondary, preuniversitary incomplete, preuniversitary, incomplete tertiary, tertiary). Mean: 5.47. Range: 1-9.

Pact controls inflation 'Do you believe the pact is helping in controlling inflation?' Mean: 0.25. Range: 0-1.

Economic evaluation 'Do you believe the government's economic policies are appropriate to solve the economic situation of the country?' 0: No. 0.5: Not all of them. 1: Yes. Mean: 0.58. Range: 0-1.

Political evaluation 'Speaking generally, do you agree with the way president Salinas is governing?'. 0: Disagree. 0.5. Don't know. 1. Agree. Mean: 0.76. Range: 0-1.

Vote PRI If elections for federal deputies were held today, which party would you vote for? 1: PRI (incumbent). 0: other. Mean: .45. Range: 0-1.

Manufactures Manufacture production as proportion of the state GDP. National level=1. Own elaboration, using data from INEGI's *Banco de Información Económica*. Mean: 0.86. Range: 0.08-1.67.

Maquila Maquila exports as a share of state GDP. Source: INEGI. *Banco de Información Económica*. Mean: 11.14. Range: 0-48.79.

4.6.3 Economic Situation (Devaluation), December 1994

Against devaluation After the questions 'Last Tuesday a devaluation of the peso of about the 15% was announced. In your opinion, the Chiapas conflict had something to do with it or not?' and 'The government says that it devalued the peso to protect the national dollar reserves that were being depleted as a consequence of the instability provoked by the conflict in Chiapas. Do you believe it or not?', respondents were asked 'Viewed that way, do you believe the government did right or wrong in devaluing the peso to protect the re-

serves?' 0. Right/Don't Know. 1. Wrong. Mean: 0.53. Range: 0-1.

Public Sector Respondent works in a public institution. Mean 0.13. Range: 0-1.

Income Family Income 1: < minimum wage (457.90 pesos); 2: 1-3 times the min. wage 3: 3-5 times the min. wage; 4: 5-7 times the min wage; 5: 7-10 times the min. wage. 6: > 10 times the min wage Mean: 2.76. Range: 1-6.

Education Education attainment (none, incomplete primary, complete primary, incomplete secondary, secondary, preuniversitary incomplete, preuniversitary, incomplete tertiary, tertiary). Mean: 5.56. Range: 1-9.

Devaluation affected personally 'Does the devaluation of the peso affected you in personal terms' 0: No/ Don't Know. 1: Yes. Mean: 0.68. Range: 0-1.

Manufactures Manufacture production as proportion of the state GDP. National level=1. Own elaboration, using data from INEGI's *Banco de Información Económica*. Mean: 0.99. Range: 0.09-1.64.

Maquila Maquila exports as a share of state GDP.Source: INEGI. *Banco de Información Económica*. Mean: 16.09. Range: 0-62.57.

Economic evaluation 'Compared with the situation one year ago, do you think the situation of the economy has improved or not?' 0: Got worse. 1: It has not change. 2: Improved. Mean 0.80. Range: 0-2.

Political evaluation 'Speaking generally, do you agree with the way president Zedillo is governing?' 0: Disagree. 0.5: Don't know. 1: Agree. Mean: 0.52. Range: 0-1.

Personal economic situation 'Please think in your wages or income (or those of your family), and tell me: Do you think your personal situation (or your family's), is better or worse than one year ago?' 0: Worse. 1 Same. 2: Better. Mean: 0.84. Range 0-2.

Employment situation 'Compared with the situation one year ago, do you think there are more or less jobless people?'. 1: More. 2: Same. 3: Less. Mean: 1.61. Range: 1-3.

Vote PRI 'Out of the candidates to the presidency in the last August elections, Diego Fernández de Cevallos, Ernesto Zedillo and Cuauhtémoc Cárdenas, with whom do you simpatize the most?' 1: Ernesto Zedillo of PRI. 0: Rest.: Mean: 0.42. Range: 0-1.

4.6.4 Possible Dollarization of the Economy, February 1999

In favor of a currency board / against devaluation 'In Argentina, in order to stabilize the economy, the government established that one Argentine peso is worth one US dollar. As far as you know, would you agree or disagree if such a decision were adopted in Mexico to stabilize the economy? 0: Disagree / Don't Know. 1: Agree / partly agree. Mean: 0.49. Range: 0-1.

Public sector Respondent works in a public institution. Mean 0.18. Range: 0-1.

Income Family Income 1: $<$ minimum wage (1026 pesos); 2: 1-3 times the min. wage 3: 3-5 times the min. wage; 4: 5-7 times the min wage; 5: 7-10 times the min. wage. 6: $>$ 10 times the min wage Mean: 3.05. Range: 1-6.

Education Education attainment (none, incomplete primary, complete primary, incomplete secondary, secondary, preuniversitary incomplete, preuniversitary, incomplete tertiary, tertiary). Mean: 5.81. Range: 1-9.

Manufactures Manufacture production as proportion of the state GDP. National level=1. Own elaboration, using data from INEGI's *Banco de Información Económica*. Mean: 0.96. Range: 0.06-1.75.

Maquila Maquila exports as a share of state GDP. Source: INEGI. *Banco de Información Económica*. Mean: 14.49. Range: 0-125.90.

Economic evaluation Opinion on the economic situation. 0: 'The country is still in a deep economic crisis'. 1: 'The country's economy is in crisis, but it is starting to recover. 2: The crisis is over, but the economy has not recovered yet, 3: The crisis is over, and the country is in open recovery'. Mean: 0.77. Range: 0-3.

Political evaluation 'Speaking generally, do you agree with the way president Zedillo is governing?' 0: Disagree. 0.5: Don't know. 1: Agree. Mean: 0.52. Range: 0-1.

Knows ER regime in place Tell me, what is the system that Mexico follows to establish the exchange rate of its currency. 0: Fixed Parity / Don't Know. 1: Floating. Mean: .59. Range 0-1.

Vote PRI 'If presidential elections were held today, which party would you vote for?' 1: PRI (incumbent). 0: Others. Mean: .20. Range: 0-1.

Chapter 5

Explaining Preferences towards Monetary Unification in Europe

Monetary unification has been a long-lasting dimension of the post-war project of European integration. The first formal attempts to unify monetarily the continent go as back as 1970. In the European Community-commissioned Werner Report, the main arguments for a common currency in the continent were already explicitly stated:

> "Economic and monetary union will make possible to realize an area within which goods and services, people and capital will circulate freely and without competitive distortions... A monetary union implies the total and irreversible convertibility of currencies, the elimination of margins of fluctuation in exchange rates, the irrevocable fixing of parity rates and the complete liberation of movements of capital".

Although a monetary union has been presented ever since as the ultimate step towards the creation of an economically integ-

rated continent – a necessary corollary to realize the full gains of the elimination of barriers to trade and factors of production in Europe –, not until three decades later did the project of monetary unification became a reality. It was only after the completion of the single market project in the 90s when the Maastricht Treaty, negotiated and signed in 1991, set up a clearly defined program towards the creation of a monetary union in Europe. In spite of the political and economic turmoil that accompanied the first stages of the project, on January 1st, 1999, eleven EU members entered in the third phase of the Economic and Monetary Union (EMU). As a result, the nominal value of the eleven participating members' currencies became at that point irrevocably fixed against each other and a new currency, the euro, whose bills and coins started circulating three years later, became the single monetary unit in these eleven economies.[1]

Prevailing accounts of the process of European integration have usually emphasized three sorts of explanatory factors accounting for the adoption of the euro. First and foremost, drawing on the large and well-established economic literature on Optimal Currency Areas (OCAs), one can always find the 'official account' present in the previously mentioned Werner Report. As OCA theory would predict, the desirability of a common currency increases under high levels of trade integration: not only the gains from pegging increase (more gains from trade could be realized if currency volatility is costly), but also the costs of pegging are reduced (because the value of monetary autonomy decreases as business cycles are internationally synchronized). In short, after removing all formal barriers to cross-border economic exchanges, currency fluctuations were seen as the last standing obstacle for the creation of a fully integrated European market. EMU was simply a desirable corollary of economic integration.

[1] The number increased to twelve after the incorporation of Greece in 2001 and to thirteen after that of Slovenia in 2007.

For a parallel strand of literature, an additional (and potentially even more important) benefit of a fixed exchange rate regime (or a currency union) derives from the automatic constraint these international arrangements impose on domestic monetary policy. Because the EMU entails complete abandonment of monetary policy autonomy by domestic authorities, and gives control over it to the new European Central Bank, which is probably the most independent central bank of the world,[2] the inflationary pressures caused by the inability to credibly commit monetary policy are expected to recede. As a consequence, the creation of the EMU would be particularly welcomed (and hence was politically supported) in the most inflationary environments, while much less so in those countries that already had solved (through politically independent central banks, basically) the time-inconsistency problem of monetary policy.

In contrast with purely economic accounts, some scholars have emphasized the role of state interests in the context of the German reunification in explaining the approval of the Maastricht Treaty that paved the way towards the EMU. According to these scholars, it was the *de facto* dependence on German monetary policy in the 80s and early 90s and the desire to keep exchange rates stable within the EU what catalyzed the political support for monetary integration on Germany's European partners, effectively pushing for the adoption of the EMU in the Maastricht Treaty.

Without denying the validity of these contributions, this paper proposes an alternative explanation for the varying degree of enthusiasm towards the EMU project in European countries. It coincides with extant accounts in that support for a monetary union is both a function of the benefits it provides for cross-border trade and in-

[2] This is true at least in legal terms. While changes in the level of autonomy of other (national) central banks only requiere (typically) the approval of a new bill by the legislature, in the European Union it requires a constitutional change that can only be achieved by unanimity of all EU country members.

vestment flows, and the salutary consequences it has on prices on inflation-prone economies. However, it departs from these accounts in that, following a simple model of exchange-rate preferences, I expect monetary unification to have different real exchange rate consequences depending on the degree of domestic cross-sectoral wage coordination. To anticipate the predictions of the model and the conclusions of the empirical analysis, support for EMU is high under high levels of intra-EU trade dependence and absence of a sheltered sector capable of wage push. Under low levels of intra-EU trade, on the contrary, anti-inflationary concerns prevail: countries without wage setting institutions preventing sheltered sector-led inflation are those with higher levels of public opinion support for monetary unification.

The chapter is structured as follows. Section 2 reviews the existing literature on the political demand for monetary unification in Europe. Section 3 uses the theoretical framework presented in the previous chapter to derive an alternative explanation for the variation in the levels of support for the common currency across countries and time. I then test that predictions using public opinion survey data from 1991 to 2004. Next I discuss to what extent the reshaping of labor relations that occurred in several European countries throughout the 90s was related to the process of monetary integration, given the predictions of our theory, and analyze in detail the case of Spain. A final section summarizing the main conclusions and implications closes the chapter.

5.1 The Political Demand for Monetary Unification in Europe

Exchange rate stability has always been perceived as a highly desirable objective of European economic policy-making at least since the end of World War Two. The demand for a formal European currency system to guarantee exchange rate stability was first felt,

however, along with the weakening of the Bretton-Woods in the late 1960s. The increasing demand for a European solution resulted in the Commission-sponsored Werner Report, that set up the first full-fledge plan to achieve monetary union. However, the economic crisis of the early 70s precluded its realization. But the demand for currency stability intensified in the following years, leading ultimately to the adoption of a fixed-but-adjustable exchange rate regime known as the 'snake in the tunnel.'[3] The currency shocks provoked by the oil crisis eventually destroyed the system, but in 1979 a new mechanism aimed at limiting exchange rate volatility was adopted: the European Monetary System (EMS). Under the EMS, a new basket currency was created (the ECU), against which all participating countries had to maintain a stable exchange rate. The single market initiative spurred demands for monetary unification. As a response to these demands, the Delors Report in 1989 set up in motion the process of monetary unification that eventually led to the adoption of the EMU program, after tough negotiations, in the Maastricht Treaty in 1991. In spite of the political turmoil that surrounded the ratification of the treaty and, most importantly, the currency crises in the early 90s that caused the lira and the sterling to abandon the EMS and other currencies to widen the fluctuation bands, in 1999 the EMU finally became a reality.

The functionalist logic that prevails in standard accounts –i.e. that the adoption of a common currency was the (almost inevitable) consequence of the removal of cross-border economic barriers– is an insufficient explanation for the adoption of the euro. Not only there has always been (and still is) considerable skepticism about the salutary consequences of monetary integration in Europe, but there is a great deal of cross-country variation in the political support for the EMU project. Why were some citizens and countries

[3]The system was designed to narrow the fluctuation margins between European currencies, while simultaneously limiting the fluctuations of these currencies against the dollar.

more enthusiastic than others? Where did the demand for a common currency emanate from? Several attempts have been made in the literature to understand the sources of political demand for the EMU. In what follows, I briefly review three of them: the problems created by the *de facto* dependence of German monetary policy in the 90s, the effects of currency stability on cross-border trade, and the anti-inflationary consequences of monetary unification.

5.1.1 Dependency on the *Bundesbank* and the Intergovernmental Bargains of the 1990s

The greater mobility of capital in the 1990s and the continent's dependency on the performance of the Germany economy pushed under severe stress the functioning of the EMS. The hegemony of the German economy in the continent implied that the EMS had evolved in a *de facto* system of fixed exchange rates against the Deutsche mark. As a response of the German government's loose fiscal policy of the 90s (a consequence of the national reunification), the Bundesbank begun raising interest rates to keep inflation under control. Problems arose, of course, in the other EMS members as they were forced to mirror the Bundesbank's policy to keep their currencies within the EMS bands. Pressure in the foreign exchange markets mounted as it became evident that, for EMS participating countries, the economic costs of a highly contractionary monetary policy would, at some point, outweigh the benefits of keeping the EMS alive. In the end, speculative attacks in the 1992 and 1993 pushed the lira and the sterling out of the EMS, while other currencies remained within the system only after a radical reform that widened the fluctuations bands of the system, *de facto* allowing for significant devaluations against the Deutsche mark.

These currency crises made evident that any attempt to control currency fluctuations in the continent unavoidably implied a transfer of monetary authority towards the Bundesbank. This asymmetry of power was obviously contested in the rest of Europe. The

only way to eliminate the German hegemony without sacrificing currency stability objectives was therefore to establish a Europe-wide monetary union with a supranational monetary authority.

While the reasons for economic integrationists outside Germany to desire a supranational monetary policy were straightforward under this framework, the cause of German support or acquiescence with the project was much less evident. The conventional account suggests that the reasons for Germans to give in monetary autonomy has to be found in the geopolitical change that Europe was experiencing at the time. The fall of the Berlin wall and the German reunification gave Germany's partners a political tool to bargaining with. In exchange for political recognition of the new Germany and an increased international power of Germany in EU institutions, Germany would forgo monetary autonomy and accept the creation of a European common currency with a central monetary authority. In the interpretation of many, the Maastricht treaty, by setting up the third phases towards the creation of the Economic and Monetary Union (EMU) while simultaneously expanding the powers of the European parliament (where Germany was better represented due to its higher population) reflected this fundamental exchange (Kaltenthaler 2002, Garrett 1993, Hosli 2000).

To be sure, the role of these intergovernmental bargains can hardly be exaggerated in explaining the adoption of the euro. But intergovernmental approaches have two important pitfalls in accounting for the variation in the demand for monetary unification in Europe. First, this approach assumes a total homogeneity of preferences within nations. But domestic political conflict over the EMU issue there was -and still is. In countries were referenda were needed to approve the EMU, governments faced deeply divided public opinions.[4] And as Gabel (2001) has shown, economic groups that would be most benefitted from exchange rate stability

[4]France, Ireland and Denmark held referenda on the Maastricht treaty, which included the adoption of the third phases towards the EMU.

are more supportive of the euro. In sum, any convincing account of the demand for EMU must allow for the existence of heterogeneity of preferences over the desirability of EMU within countries.

Most importantly, the intergovernmentalist account would also predict a complete homogeneity of preferences around EMU in all EU countries except Germany. But it is self-evident that not all European governments (and publics) wished a common currency with the same intensity. To explain the political demand for monetary unification in Europe, something beyond the desire of freeing Europe from the Bundesbank's monetary hegemony is needed.

5.1.2 The Completion of the Single Market, the OCA Logic, and the Growing Constituency for Monetary Union

OCA theory provides the more straight-forward justification for a positive link between trade integration and the political demand for monetary unification. According to OCA theory, the benefits from sharing the same currency increase at greater levels of economic interdependence. One reason is obvious: exchange rate stability is more valuable the larger the share of traded goods and services in the economy. Indirectly, by synchronizing the economic cycles of trade partners, economic integration also reduces the possibility of asymmetric shocks, so the loss of monetary autonomy as a result of currency unification is less costly.

In Europe, thanks to the completion of the single market initiative in the early 90s (an exhaustive legislative program of product regulation convergence in the European Community), EC member countries had almost fully integrated their markets. But a major obstacle for the free flow of goods across countries persisted: exchange rate uncertainty. Converting money in one currency -an operation consubstantial to any economic exchange across borders- was already costly. But more important, however, is that in ex-

change rate fluctuations force economic actors involved in cross-border operations to 'hedge' against currency risks -which is also costly. A currency union, by securing completely irrevocable fixed exchange rates across European countries, would automatically eliminate these costs to cross-border economic activity, thereby maximizing the potential 'gains from trade'.

Economic openness not only made currency unification among European countries a more economically sensible decision, as the OCA logic suggests. According to Frieden (2002), it also created the political constituency that ultimately pushed for EMU. Frieden shows that European countries with a higher level of manufactured exports to what he calls the 'German currency bloc' (Germany, Belgium and the Netherlands) tended to experience more currency stability against the Deutsche Mark.[5] In line with Frieden's insight, other studies have shown that in fact the demand for monetary unification came fundamentally from the internationally-oriented sectors of the economy (Hefeker 1997, Josselin 2001).

Eichengreen and Ghironi (1996) argue that the deepening of the single market created indirectly a new set of incentives for the creation of a monetary union. As the early 1990s devaluations made clear, in a fully integrated European market, the distributional consequences of exchange-rate changes are magnified: in the absence of trade restrictions of any kind, devaluations in the periphery lead to rapid surges of exports. This in turn created a new powerful constituency in favor of currency stability: import-competers in strong-currency countries.

[5] Frieden's other major finding is that countries experiencing a deterioration of their trade balance were more prone to devalue their currencies to restore the competitiveness of domestic exporters and import-competers. As will become clear later, this results goes very much in line with the theory developed here.

5.1.3 The Euro as an Anti-inflationary Device

The straight-forward consequence of the adoption of a peg in a world of international capital mobility is that it imposes a constraint on domestic monetary policy. This link between currency and monetary policy, that follows directly from the Mundell Fleming conditions analyzed in chapter 2,[6] has been widely used as a rationale for the adoption of exchange rate straitjackets by European governments with low monetary stability credentials. If the commitment to a highly visible exchange rate target is credible, the central bank will not be able to use discretion in monetary policy for political ends.

The 'nominal-anchor approach' to fixed exchange rate regimes has long been used as an explanation for the adoption of the EMS. Giavazzi and Pagano (1988) show how inflationary countries could gain monetary credibility by 'tying their own hands' and fixing their currency against the German mark. The empirical implication of this approach in terms of political support for EMU is that the more adamant defenders of EMU would be those countries with inflationary credentials. Although Frieden fails to notice any impact of credibility considerations on the propensity of countries not to devalue their currencies against the Deutsche Mark during the EMS years,[7] other studies looking at social preferences

[6] These widely-known conditions state that only two out of the three (in principle, desirable) policy ends can be achieved at the same time: international capital mobility, fixed exchange rates, and domestic monetary autonomy. The argument works as follows: any commitment to fix the nominal exchange rate under free cross-border movements of capital forces the domestic monetary authorities to intervene selling and buying the national currency to compensate for changes in supply and demand conditions in the foreign exchange market. Provided that the central bank's foreign exchange reserves are finite, this always implies, at some point, the is implies the subjugation of monetary autonomy to exchange rate ends.

[7] Frieden's findings, however, do not contradict the credibility argument, since he examines observed exchange rate behavior, rather than the relative

towards EMU have found a significant correlation between the inflation performance political appeal of EMU project. Gärtner's (1997) analysis of public attitudes towards a single European currency finds that the average level of inflation between 1980 and 1996 is positively correlated with the percentage of people in the country in favor of the euro in 1997.

A similar argument can be made in the realm of fiscal policy. Since the creation of EMU also entailed stringent fiscal policy rules by the participating countries, governments with low fiscal discipline credentials should be expected to be amongst those who would gain the most from the existence of a monetary union. This would explain why countries with larger debt burdens tend to be the most supportive of a common currency (Gärtner 1997, Gabel 2001).[8]

Just as with the OCA argument, the data presented below reveals that there is some merit in such explanations. Inflationary concerns seem to matter for EMU support: the more inflationary countries tend to be the more enthusiastic about the prospects of a common currency. However, considerations about the effect of monetary union on price levels are more complex, once it is acknowledged that EMU does not mean, strictly speaking, the adoption of more contractionary monetary policies across-the-board, *but a domestic monetary policy totally conditioned by the obliga-*

usefulness of the exchange rate regime as a commitment technology for different countries. It might well be the case, for example, that inflation-prone countries prefer fix exchange-rates more than those with highly credible monetary authorities, and yet the former fail to sustain a more stable exchange rate across time, precisely because of the inflationary domestic conditions. Banducci et al (2003), in fact, find that the weakness of the national currency in the run up to the EMU is a predictor of the national level of support for the common currency.

[8] Another plausible reason why higher levels of public debt are associated with more public support for EMU is that the monetary commitment implied by the euro is expected to reduce the cost of debt financing through a reduction in interest rates. Of course, this benefits disproportionally the most indebted countries.

tion to keep the exchange rate stable. As I shall try to show in the next section, our theory of exchange rate regime preferences is best suited to explained variation both across countries and across time in preferences for monetary unification in Europe.

5.2 Institutionally-mediated Exchange Rate Preferences and Political Support for Monetary Integration in Europe

According to the model developed in chapter 2, preferences over monetary unification in Europe should depend upon two key parameters: the weight of exporters' interests in those preferences (high in contexts in which the international sector makes a large part of the economy), and the institutional macroeconomic framework, namely the degree of central bank conservatism and the level of coordination of wage bargaining. Being the adoption of a common currency a special (if extreme) case of fixing the exchange rate, we should expect the degree of support of exporters for the project to be conditional on the anti-inflationary bias of the monetary authorities and the degree of coordination of wage bargaining. Because these two institutions make wage militancy costly for nontradables, the risk of a real wage loss for exporters (i.e. a real appreciation of the exchange rate) is mitigated.

By virtue of the very process of integration, however, variation in the one of these institutions –the non-accommodating nature of the central bank– has been since the 1990s strongly limited. On the one hand, the Maastricht treaty signed in 1991, mandated EU member states to make sure that their national central banks could meet the high standards of independence and autonomy required by the newly created European System of Central Banks (article 108 of the Treaty on the European Union). As a result, a great deal of regulatory convergence took place within EU countries, particu-

larly among countries that did not have a tradition of independent monetary authorities. As a result, statutory laws granted more independence to national central banks in no less than eight countries (Tavelli et al. 1998). Most important for our purposes, the Treaty also established the obligation for all EMU candidates to keep inflation below 1.5 percentage points higher than the average inflation rate of the three countries with highest price stability. This obligation effectively made central banks throughout Europe similarly non-accommodating.[9] The lack of variation in this institutional variable allows us to focus on the effect of the other one –the level of coordination of wage bargaining– that did vary a great deal across EU member states.

Being the level of central bank independence constant, the model of exchange rate preferences predicts that exporters should become relatively more enthusiastic about monetary unification in countries with centralized wage-setting institutions, and comparatively less so if these institutions are absent. In terms of the data we will be analyzing, we expect the public opinion to become more supportive of monetary integration in contexts where the economy is more heavily influenced by the international sector, but *contingent on the existence of high levels of wage bargaining centralization.* In the absence of such institutions, we should expect increasing levels of trade integration to be less associated with stronger preference for the idea of a European common currency, or even with greater opposition to that idea. This is the main empirical contention that the next section of the chapter tests out.

[9]It could be argued, of course, that the Maastricht treaty anti-inflationary constraint only affected those countries willing to join EMU. However, for the reasons discussed before, the project of monetary union was particularly attractive in "inflationary" countries. In other words, the Maastricht treaty made central banks more conservative precisely in those contexts in which they were more accommodating, effectively homogenizing the degree of conservatism of monetary authorities across the EU.

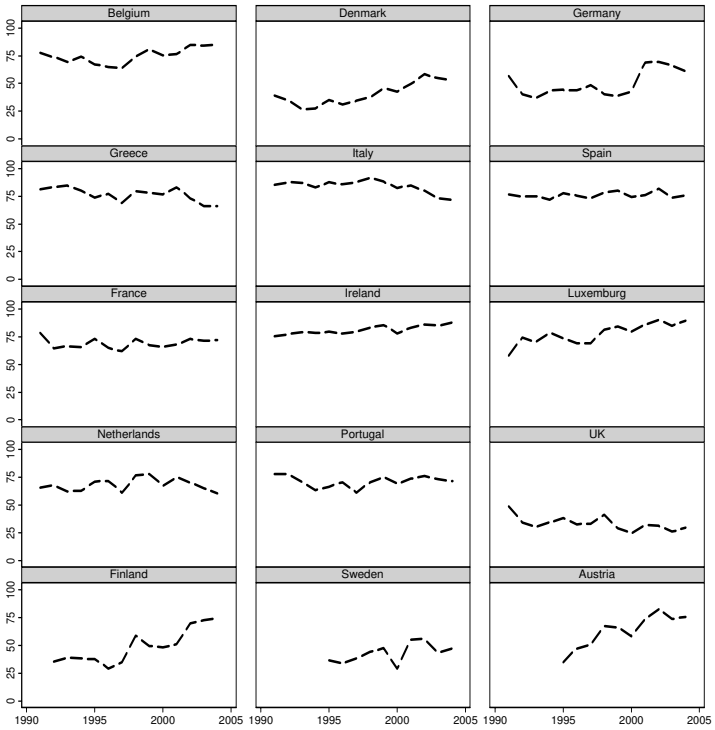
5.3 Intra-EU trade, Coordination of Wage Bargaining and Public opinion Support for EMU

To test these hypotheses, this section uses a dataset composed of fourteen Eurobarometer surveys, [10] carried out from 1991 to 2004. I use one survey per year (the one conducted in spring) because some of the other variables of interest are only conducted on a yearly basis. The indicator I use to measure support for EMU is whether the respondent is for or against the following statement: "There has to be a European Monetary Union with one single currency, the euro." Figure 5.1 depicts the variation of this variable by country and year.

Although there seems to be some clear differences across countries in their general level of *EMU-enthusiasm* –typically, the public tends to be more favorable to the common currency in countries traditionally considered "supporters" of the process of European integration (Southern Europe, Belgium, Luxembourg...), and less so in more Euroskeptic polities (Britain, Scandinavia)– there is also interesting cross-time variation.

[10] Euro-barometer conducts homogeneous surveys on a sample that, after making some adjustments (the sample size is about one thousend respondents per country) is representative of the whole population of the EU. Since the surveys (conducted typically twice of three times a year) are topic-specific, most of the questions asked vary from one survey to the next. Some 'core' variables are always included in the questionnaire, however. Because I pool data from different surveys, I have to rely on these subset of questions for the empirical analysis.

Figure 5.1: Public support for monetary unification in EU-15, 1991-2004



The overall level of support for monetary union has been stagnant for some countries, has steadily increased in others, and has decreased in yet another group of countries. To see whether these differences across time and across time can be understood in the light of the our theory of exchange rate preferences, I run three different kinds of tests. First, I use individual-level data from the Eurobarometers surveys to see whether, after taking into account

the effect of the individual characteristics of the respondents, the institutional setting and the degree of exposure to trade interact in the way predicted by the theory to determine attitudes towards the project of a common currency. Second, I look at differences in national levels of support for EMU, and I run time-series cross-sectional models to see whether the institutional effects hold. Finally, I analyze variation within country, across-time to see whether the relationship between the degree of trade integration and general attitudes towards monetary unification in countries with and without coordinated wage bargaining is different.

5.3.1 Individual Attitudes towards the Common Currency

Rather Unsurprisingly, previous studies (Kaltenthaler and Anderson 2001) have noted that the single most important determinant of individual attitudes towards monetary unification is the opinion of the respondent about the whole process of integration: those holding positive attitudes towards the EU are more likely to support the adoption of a common currency. Although the diffuse level of support for the EU could be endogenous to the domestic institutional framework,[11] the expectation is that the institutional variables should affect preferences towards *monetary* union even after taking into account the general pro- or anti- EU attitude of the respondent. In other words, keeping the preferences for integration constant, we expect individuals with interests close to those of the exporting sector to oppose monetary integration if wage bargaining is loosely coordinated, but to increasingly support the project

[11] According to the logic of our model, some institutions should be expected to make supranational integration more or less palatable domestically and therefore should make regional integration less conflictual (Scheve 2000) and, perhaps, more politically attractive. If that were the case, the diffuse attitudes towards the EU would be already capturing part of the institutional effects of our model.

of a common currency in contexts with coordinating wage-setting institutions. To control for the degree of *euroenthusiasm* of the respondent, I include in the estimation two variables commonly used to that end: a variable measuring the extent to which the respondent believes that the country has benefitted from the European Union (benefit), and an dummy variable indicating whether or not the respondent thinks that membership in the European Union has been a good thing or not. In the more fully specified models, I additionally include the degree of satisfaction with the way democracy works in the respondent's country and in the European Union.[12] While the latter can be undeniably interpreted as a measure of europeism (and therefore is expected to be associated with positive attitudes towards the adoption of a common currency), the interpretation of the former is less clear-cut. General positive attitudes toward the political system have been associated with greater levels of support for European integration (Anderson 1998), but it has also been argued that the opportunity cost of delegating powers to supranational levels should be lower for those dissatisfied with the functioning of the domestic political system (Sánchez-Cuenca 2000).

The baseline model also estimates the effect of the ideology of the respondent. Since extremists on the left and the right are expected to oppose monetary integration, I add a quadratic term –a negative sign in the non-squared variable and a positive sign in the quadratic one would support this inverted U-shape hypothesis. Since the costs and benefits of economic (and monetary) integration might vary by the economic position of the respondent, along with the classic demographic controls (gender, age), several measures of the socioeconomic status of the respondent are also included in the estimation: dummies for the class of the respondent's

[12] Since these variables are not included in all surveys, I do not include them in the first models to maximize the number of surveys used and the total sample size.

class,[13] the relative income,[14] and the level of education.[15]

Model 1 in table 5.1 reports the results of a baseline model in which, along with all these covariates, two country-level variables are also included: the level of inflation of the country –individuals leaving in countries suffering high levels of inflations are expected to benefit the most for the anti-inflationary credibility associated with the common currency– and the intensity of trade links with other EU member states, measured as the level of exports to other EU countries over the GDP –according to OCA theory and its political-economy corollaries reviewed in chapter 2, highly integrated economies should benefit the most from monetary unification.[16]

Regarding the socioeconomic and political controls, men and aged respondents seems to be associated with more positive attitudes towards the common currency, and in line with previous

[13] A 6-type classification is used, and it refers to the class of the main income earner in the household: farmers (the reference category in all models), manual unskilled, manual skilled, low skilled in the service sector, middle-skilled service sector, skilled professional, or business owner.

[14] This corresponds to the respondents' income quartile for each country/survey.

[15] Education is operationalized with four dummies: educated until less than 15 years of age (reference category in the models), last year of education between 15 and 18, last year of education between 19 and 21, and educated until 22 years of age or more. Because the first surveys do not report the educational level of the respondent in a way that makes it possible the construction of this variable, these variables are excluded in the baseline models.

[16] Since the institutional variables I use below are only available until 2000, the individual-level analyisis conducted here only uses Eurobarometer surveys until that date (i.e from 1991 to 2000). Extrapolating the values of tha last observed year to complete the missing institutional data does not change substantively the results. Since the total sample size in the individual-level analysis is sufficiently large even after eliminating the latest surveys from the analysis, I prefer to report here the results in which no extrapolation has been made. The situation is different in the cross-national analysis, in which, given the fewer degrees of freedom, I also use survey data from 2001 and 2004 and extend the value of the institutional variables for 2000 to the following years.

findings, the unskilled and the poor are significantly more opposed to monetary unification than the highly-skilled and the wealthier. Ideology does seem to have a curvilinear effect (although not always significant), and reassuringly, the indicators of europeism (*benefit* and *membership*) are strongly associated with favorable attitudes towards the adoption of a common currency. Inflation is positively associated with preferences for pegs, and in line with previous studies (Frieden 2002), respondents in economically integrated countries seem to be more supportive of the common currency than those living in the more 'closed' economies.

But according to the model presented in chapter 3, the relationship between higher levels of economic integration (which are assumed to translate into higher sensitiveness of respondents in those contexts to the preferences of exporters) and stronger preferences for monetary integration should be mediated by domestic institutions, in this case, by the degree of coordination of wage bargaining. Model (2) uses the level of coordination of wage bargaining measured by Golden and Wallerstein (2006), adjusted by the country's level of union density,[17] to test that contention. Because the effect of this variable is expected to mediate the effect of trade integration, I interact the degree of coordination with the level of intra-EU exports as percentage of GDP. In model (2), the coefficient of the level of exports changes sign and is now negative. Note however that in an interactive model, the raw coefficient on an interacted variable should be interpreted as the effect of that variable when the variable that is interacted with equals zero (in this case, when coordination of wage bargaining equals zero –a com-

[17] Data from union density is also from the Golden and Wallerstein's (2006) database. Results are less robust if that correction is not applied, which makes perfect sense – the real effects of centralized wage bargaining institutions increase if the workforce is represented by the peak associations than when it is not. At any rate, the next table shows that the main results are extremely robust to the use of other available indicators of the degree of coordination of wage bargaining.

pletely imaginary situation, since the Golden-Wallerstein indicator ranges from 1 to 5. More important for our purposes, the new coefficient on the interaction is positive and highly significant: the higher the level of coordination of wage bargaining, the stronger is the association between trade and preferences for monetary unification. In fact, it can be shown that the positive but moderate effect of the level of exports found in model (1) was obtained by averaging the strong positive effect of trade on positive attitudes toward pegs in highly coordinated wage-setting countries with the almost negligible effect of exports when the level of coordination is low. Model (3) adds a series of year dummies and while the effect of some variables changes slightly, the key coefficient of interest, the interaction between coordination of wage bargaining and the level of intra-EU exports remains strong, positive and statistically significant.

Since the interpretation of interacted coefficients in logit models is not straightforward, figure 5.2 uses the estimates from model (2)[18] in the previous table to plots the predicted probability (and 95% confidence intervals) of supporting the common currency for a manual skilled worker with average values on all other covariates of the model. When coordination of wage bargaining is one standard deviation below its sample mean ("CWB low"), changes in the degree of export intensity of the economy slightly *decrease* the probability of supporting the common currency, but these changes are not statistically significant. The situation is markedly different in economies with high levels of coordination of wage bargaining. When this variable is one standard deviation above its mean ("CWB high"), the level of exports of the country is positively and significatively correlated with stronger preferences for monetary unification. This is consistent with the theory –as exporters preferences become more important, stronger preferences for the

[18] The graph would have conveyed essentially the same message had I used any other specification from table 5.1 instead.

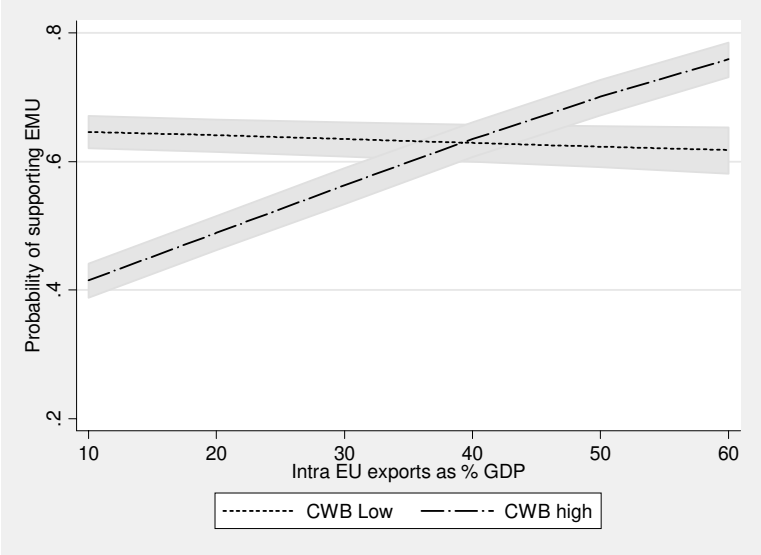
Table 5.1: Explaining individual support for a common currency. Logit models. Dependent variable: In favor of EMU. Sample: Pooled eurobarometers from 1991-2004 conditional on data availability

	(1)	(2)	(3)	(4)	(5)
Intra EU exports	0.967**	-0.632**	-0.780**	-0.020	-0.221
	(0.075)	(0.144)	(0.146)	(0.180)	(0.182)
Coordination of Wage Bargaining		-0.603**	-0.565**	-0.495**	-0.499**
		(0.020)	(0.020)	(0.025)	(0.025)
Exports * CWB		1.533**	1.289**	1.095**	1.076**
		(0.093)	(0.094)	(0.109)	(0.110)
Inflation	0.073**	0.011	0.121**	-0.088**	-0.051**
	(0.007)	(0.007)	(0.009)	(0.013)	(0.016)
Benefit	0.876**	0.960**	0.977**	0.824**	0.839**
	(0.021)	(0.021)	(0.022)	(0.029)	(0.029)
Membership	0.836**	0.823**	0.837**	0.914**	0.919**
	(0.013)	(0.013)	(0.013)	(0.018)	(0.018)
Satisfaction EU democracy				0.509**	0.485**
				(0.019)	(0.019)
Satisfaction national democracy				-0.201**	-0.211**
				(0.018)	(0.018)
Ideology	-0.079**	-0.057**	-0.048**	-0.013	-0.009
	(0.018)	(0.018)	(0.018)	(0.024)	(0.024)
Ideology squared	0.003*	0.003	0.002	0.001	0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Sex (1=woman)	-0.306**	-0.322**	-0.335**	-0.369**	-0.378**
	(0.017)	(0.017)	(0.017)	(0.023)	(0.023)
Age	0.002**	0.002**	0.001*	0.004**	0.003**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Relative Income	0.034**	0.047**	0.043**	0.088**	0.088**
	(0.008)	(0.009)	(0.009)	(0.011)	(0.011)
Unskilled	-0.348**	-0.311**	-0.352**	-0.300**	-0.336**
	(0.059)	(0.060)	(0.061)	(0.079)	(0.079)
Skilled	-0.036	-0.110	-0.137*	-0.047	-0.074
	(0.056)	(0.056)	(0.057)	(0.074)	(0.074)
Service Low skilled	-0.094	-0.069	-0.104	-0.035	-0.062
	(0.057)	(0.058)	(0.058)	(0.076)	(0.076)
Service Mid Skilled	0.096	0.089	0.071	0.156*	0.147*
	(0.056)	(0.056)	(0.057)	(0.074)	(0.074)
Professional	0.210**	0.153*	0.127*	0.178*	0.171*
	(0.059)	(0.060)	(0.060)	(0.079)	(0.079)
Business	0.163**	0.105	0.100	0.174*	0.170*
	(0.062)	(0.062)	(0.063)	(0.083)	(0.083)
Education 15-18				-0.116**	-0.139**
				(0.036)	(0.037)
Education 19-21				0.093*	0.066
				(0.043)	(0.043)
Education +22				0.092*	0.051
				(0.044)	(0.044)
Year dummies	No	No	Yes	No	Yes
N	72607	72607	72607	45646	45646
pseudoR2	.1558	.1756	.1880	.2165	.2236

Constant and year dummies (when included in the estimation) not shown

common currency emerge only if the institutional environment (i.e. high levels of coordination of wage bargaining) guarantees wage restraint in the nontradables sector. When these institutional guarantees are absent, in contrast, increases in the expected weight of exporters' considerations do not increase at all the level of support for the common currency.

Figure 5.2: Trade integration and probability of supporting the common currency under low and high levels of coordination of wage bargaining (see text for details)



What the model cannot account for is the finding that, at low levels of export intensity, the probability of supporting the common currency is significantly higher for countries without institutions for wage bargaining coordination than for countries endowed with those institutions (the graph provides an estimate of the mag-

nitude of that effect, but the negative and significant coefficient on the raw CWB variable, which captures the effect of CWB in a completely closed economy, already shows that). We can only speculate here, but the reason probably lies in the fact that the monetary straitjacket is more attractive (or less costly to adopt) in countries lacking institutions for macroeconomic management (such as coordinated wage-setting). In these countries, greater levels of economic integration does not increase the support for monetary unification, given the lack of enthusiasm for that policy on the part of the international sector. In contrast, integration does seem to galvanize support for monetary unification in countries with coordinated wage bargaining. Although the public opinion in these countries are not particularly eager to support monetary unification in principle (i.e. in the absence of strong trade links), once they are highly internationalized, they become the strongest supporters of the common currency.

Finally models (4) and (5) in table 5.1 presents the estimates when a few more covariates are added to the model –without and with year dummies, respectively. Note that the inclusion of these new variables, only available for the most recent Eurobarometers, reduces the total sample size. The degree of satisfaction with the way democracy works at the EU level is, as expected, associated with stronger preferences in favor of a common currency, but satisfaction with the way democracy works *nationally* has the opposite effect: it increases the probability of being against the euro, a result in line with Sánchez-Cuenca's political opportunity cost hypothesis. With respect to education, higher levels of education are associated with stronger support for EMU. After the addition of these new controls, the previous results remain essentially unchanged.[19]

[19] The only noticeable difference is the change in sign of the inflation coefficient. The new results suggest that countries experiencing higher price increases tend to be more opposed to the idea of a common currency. This is probably

Table 5.2: Explaining individual support for a common currency, with different indexes of wage bargaining coordination. Logit models. Dependent variable: In favor of EMU. Sample: Pooled eurobarometers from 1991-2004 conditional on data availability

	(1)	(2)	(3)	(4)
IntraEU exports	-12.099**	-10.660**	-11.574**	-70.279**
	(0.546)	(0.578)	(1.036)	(4.647)
Coordination (Kenworthy)	-0.499**	-0.550**	-0.575**	
	(0.024)	(0.024)	(0.044)	
Exports*Coordination	3.156**	2.869**	2.865**	
	(0.131)	(0.137)	(0.236)	
Centralization (Iversen)				-31.994**
				(1.668)
Exports*Centralization				213.157**
				(13.435)
Benefit	0.079**	0.216**	0.082**	0.196**
	(0.010)	(0.013)	(0.028)	(0.023)
Membership	0.885**	0.926**	0.853**	0.809**
	(0.027)	(0.028)	(0.043)	(0.064)
Inflation	0.706**	0.706**	0.790**	0.733**
	(0.016)	(0.016)	(0.025)	(0.039)
Satisfaction EU democracy			0.468**	
			(0.028)	
Satisfaction national democracy			-0.307**	
			(0.026)	
Ideology	-0.110**	-0.097**	-0.076*	-0.044
	(0.023)	(0.023)	(0.035)	(0.053)
Ideology squared	0.007**	0.006**	0.004	-0.001
	(0.002)	(0.002)	(0.003)	(0.005)
Sex (1=woman)	-0.371**	-0.377**	-0.446**	-0.384**
	(0.022)	(0.022)	(0.034)	(0.049)
Age	0.002**	0.002*	0.005**	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Relative Income	0.030**	0.034**	0.096**	0.045
	(0.011)	(0.011)	(0.017)	(0.024)
Unskilled	-0.212**	-0.243**	-0.180	-0.138
	(0.069)	(0.069)	(0.103)	(0.175)
Skilled Manual	0.028	-0.029	0.020	-0.096
	(0.063)	(0.064)	(0.095)	(0.163)
Services Low Skill	-0.019	-0.090	-0.005	-0.001
	(0.065)	(0.066)	(0.097)	(0.168)
Services Mid Skill	0.232**	0.158*	0.343**	0.117
	(0.063)	(0.063)	(0.095)	(0.162)
Professional	0.351**	0.282**	0.379**	0.161
	(0.068)	(0.069)	(0.103)	(0.171)
Business	0.275**	0.215**	0.348**	0.192
	(0.071)	(0.072)	(0.108)	(0.176)
Education 15-18			0.008	
			(0.055)	
Education 19-21			-0.109	
			(0.063)	
Education +22			-0.302**	
			(0.063)	
Year dummies	No	Yes	Yes	Yes
N	42509	42509	20000	9191
pseudoR2	.1472	.1579	.1893	.1785

Constant and year dummies (when included in the estimation) not shown

Table 5.2 estimates the same models, but using two different measures of coordination of wage bargaining: the Kenworthy's (2001, 2003) measure of coordination, with and without country dummies, and with the additional controls discussed before, and the centralization index developed by Iversen (1999), which is only available until 1993. For this last indicator, since only three Eurobarometers are used, the sample size is significantly smaller. At any rate, regardless of the indicator of coordination of wage bargaining used, the main result always holds: the level of exports is (weakly) associated with negative attitudes towards the common currency when the degree of coordination is low (the raw coefficient on the level of intra-EU exports is always negative), but with positive ones once these coordinating institutions are in place (the coefficient on the interaction is positive and highly significant).[20]

5.3.2 Analyzing Differences in National Levels of Support for EMU

In the previous section we have seen how individual attitudes towards monetary unification are related to the economic and institutional context of the respondent in a way consistent with our theory. Now we conduct a similar exercise, but using as dependent variable the national level of support for a European common cur-

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due to the different time-spans covered by the different specifications. The new models onlys use data from the latest surveys, in which the years in which the euro was already in place (since 1999) or even in curculation (2004) dominate the sample. While in the early 90s the public opinion saw the hypothetical common currency as a way to fight inflation (and was therefore particularily attractive in inflation-prone countries), once the euro was in place, the public tended to blame the common currency for price rises whenever they occur. This is probably why support for the common currency was associated with high inflation when the euro was just an idea, but with low inflation once that idea became reality.

[20] Obviously, the magnitude of the coefficients vary as the institutional variables are measured in different units (see appendix for descriptive statistics).

rency, using data from the same Eurobarometers, now from 1991 to 2004. To do that, I run a series of models that take into account the time-series cross-section nature of the data. Typically, his type of data forces the analyst to deal with two problems: serial autocorrelation (the observation for a given country in time t is not independent from the observation for the same country in time $t-1$), and panel heteroskedasticity (the structure of the errors typically reflects the panel panel structure of the data).[21] To overcome the first problem, I transform the data to remove serial correlation assuming a common autoregressive parameter (rho) for all countries. To solve for panel heteroskedasticity, I report the more conservative Beck and Katz's (1995) panel corrected standard errors.

In the estimations, along with the main parameters of interest (the level of intra-EU exports and the interaction with a measure of the degree of coordination of wage bargaining), I also use the level of inflation, the general level of 'europeism' operationalized as the proportion of respondents that believe that membership of the EU is "a good thing", the level of public debt as proportion of GDP (as discussed below, debt levels have been linked to stronger preferences for a common currency, see Gabel 2001), and a dummy variable for all years after the third phase of the EMU (i.e. when the euro actually came into existence), to see whether preferences towards the common currency changed after the euro became reality. Table 5.3 shows the results.

Let us first analyze the effect of the controls: only the general level of europeism and the size of the debt of the country seems to be significantly associated with a stronger preference for a common currency. The level of intra-EU exports (see model (1)) seems to be positively but insignificantly associated with the proportion of supporters of the common currency. But a clearer picture as regards the effect of trade integration emerges once the institutional effects

[21] See Beck and Katz (1995) for a discussion of Time-Series Cross-Section models.

Table 5.3: Explaining overall national levels of support for EMU, 15 EU countries, 1991-2004. OLS Estimates assuming a first-order autocorrelation (AR1) within panels, with common rho for all panels. Panel corrected standard errors in parentheses

	(1)	(2)	(3)	(4)	(5)
Intra-EU exports	5.797	-37.719	-23.164	-105.082*	-76.672
	(10.591)	(31.078)	(19.698)	(58.958)	(47.318)
Coordination of WB (Golden & Wallerstein)		-4.385**			
		(1.631)			
CWB* IntraEU exports		12.006**			
		(5.985)			
Union density-adjusted CWB (GW)			-8.405**		
			(2.123)		
Adjusted CWB * IntraEU exports			20.062**		
			(9.067)		
Centralization (Iversen)				-75.299*	
				(39.885)	
Centralization * IntraEU exports				390.887*	
				(207.581)	
Coordination (Kenworthy)					-2.385
					(1.513)
Coordination * IntraEU exports					18.954**
					(8.759)
Inflation	0.391	0.260	0.060	-0.604	-0.305
	(1.137)	(1.133)	(1.251)	(1.276)	(1.145)
Europeism	0.692**	0.714**	0.622**	0.524**	0.657**
	(0.110)	(0.113)	(0.123)	(0.122)	(0.103)
Debt (%GDP)	0.192**	0.222**	0.245**	0.297**	0.242**
	(0.051)	(0.052)	(0.055)	(0.057)	(0.040)
EMU in place	3.656	3.831	4.311	5.276	3.162
	(3.769)	(3.760)	(3.795)	(3.784)	(3.552)
Constant	4.682	15.919*	15.980**	25.547**	10.831
	(8.243)	(8.500)	(7.854)	(11.887)	(7.651)
N	127	127	116	115	74
R squared	0.513	0.526	0.519	0.464	0.618
Rho	.653	.652	.602	.600	.492

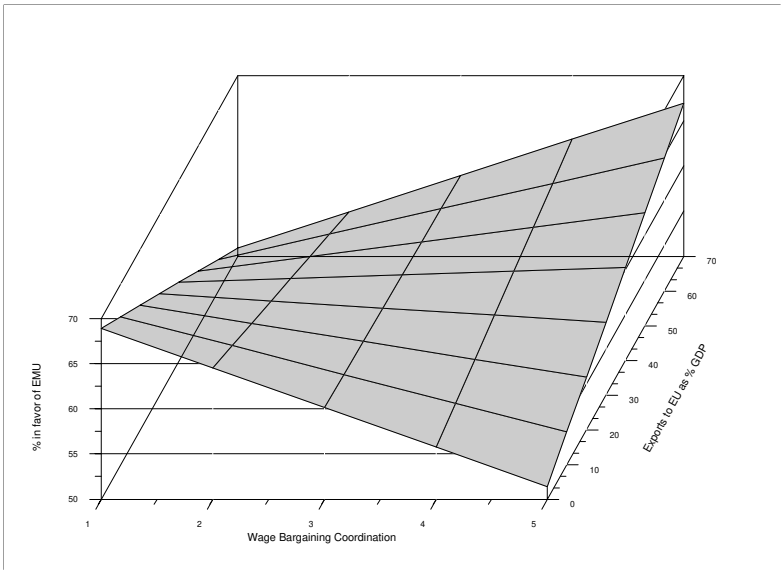
are included in the estimation. Model (2) uses as an indicator of the degree of coordination of wage bargaining the raw Golden and Wallerstein's indicator, model (3) uses the union density-corrected index, model (4) the Iversen's centralization index,[22] and model (5) the Kenworthy's coordination variable. In all instances, the interacted variable (which is the central test for our theory) is positive and statistically significant: trade links increase the overall level of support for the common currency when the level of coordination of wage bargaining is high.

As in the individual-level case, the interpretation of coefficients in interactive models is relatively complex. Figure 5.3 plots the predicted proportion of respondents in favor of the euro in a country with average levels of support for the EU, debt, and inflation, as the level of exports to the EU and the degree of wage bargaining coordination changes, using the estimates from model 2 in table 5.3.[23] The graph nicely shows the institutionally-mediated effect of the level of exports on preferences towards monetary unification (it is negative under very low levels of coordination –the left side of the picture–, and strongly positive under very high ones –the right side), and makes clear why, when these institutional effects are not accounted for, as in model (1) a clear relationship between trade integration and attitudes towards the common currency is difficult to detect.

[22] Since the Iversen's index is only available until 1993, I take the average for each country for the 1991-1993 years and use that mean level of centralization as the indicator of coordination of wage bargaining for the whole period.

[23] The Golden and Wallerstein's raw classification of the wage-setting system ranges from 1 (plant-level wage bargaining) to 5 (central wage setting with sanctions).

Figure 5.3: Intra-EU trade links, level of coordination of wage bargaining and predicted overall level of support for the common currency (see text for details)

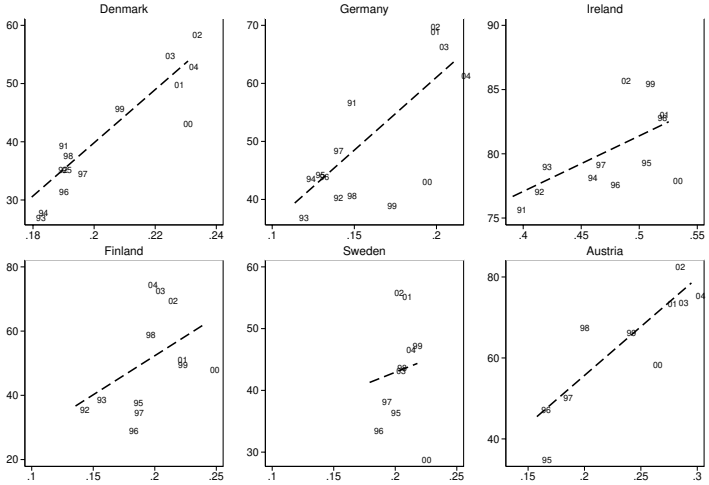


5.3.3 Variation in Attitudes towards EMU Within Country, Across Time

Finally, a last simple exercise to check the validity of the theory consists in examining the variation in preferences towards the common currency within countries, but across time. Very much in line with our expectations, figures 5.4 and 5.5 show that there seems to be in fact a systematic difference between countries with coordinated wage bargaining and the rest.[24]

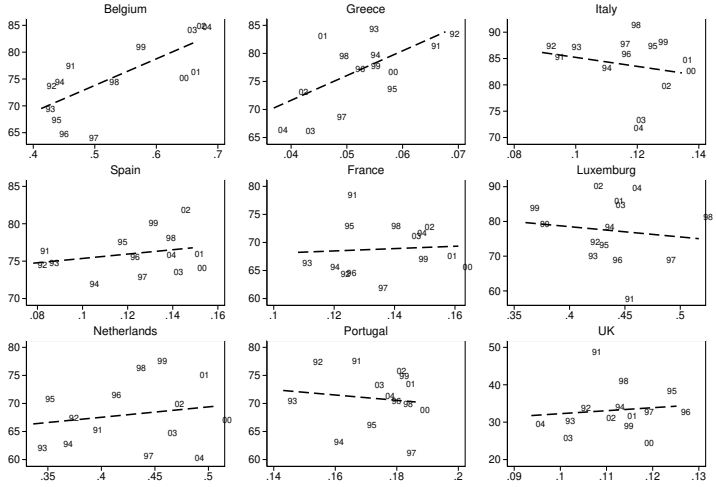
[24] Every measure of wage bargaining centralization yields a different ranking of countries. Subjectively, but also rather uncontroverisally, I include in

Figure 5.4: Intra-EU trade dependence and support for EMU. Highly wage-coordinated economies



the 'highly coordinated' category the three Scandinavian countries, Ireland, a country that as I shall discuss below, has implemented since 1987 a highly centralized incomes policy, and Austria and Germany, two countries where the practice of pattern-bargaining makes them highly centralized for our purposes. In these countries, although wage negotiations occur predominantly at the industry level, wage developments through the economy follow the pace dictated by wage negotiations in the highly internationally-exposed metal sector (Ebbinghaus 2004, Traxler et al 2001). The privileged position of the metalworkers' union in the union confederations in both countries, IG Metall in Germany and GMT in Austria secures the compliance of the rest of the economy with the interests of the exposed sector. According to our logic, the effective constraint that pattern-setting imposes on nontradables should make exporters in these countries favorable to exchange rate pegs or, in this case, to the project of monetary union. There is anecdotal but abundant evidence that this is fact the case (Collignon and Schwartzer 2002: 161; Dophne 2001).

Figure 5.5: Intra-EU trade dependence and EMU support in weakly wage-coordinated economies



While in the first group of countries it can be easily seen how the national levels of support for monetary union increased as trade links with the EU accelerated during the 90s, the same cannot be said of countries without these institutions. Only in two out of the nine countries classified as not-highly coordinated, Belgium and Greece, it is detected a positive correlation between openness and support for the euro.

One way of explaining these two 'anomalies' could be that the (institutionally-mediated) effects of export intensity on the level of support for monetary unification are non-linear. At very highs levels of export-intensity (e.g. Belgium), the demand for stability becomes less dependent on the macroeconomic institutional framework –perhaps because the large international sector in these con-

texts has other ways to impose wage discipline in nontradables–. Greece, on the other hand, is a curious case in which the level of exports towards the EU has *decreased* during the 90s (probably as a result of the emergence of alternative exporting markets in Eastern Europe in the 90s). Maybe the rise in export intensity increases the support for monetary unification only when the 'appropriate' institutions are in place, but the fall in export intensity unconditionally dampens it.

5.4 The Emergence of Social Pacts in Europe in the Run-up to the EMU

The evidence presented below suggests that coordinating wage bargaining institutions might play an important role in securing public opinion support for EMU in highly internationalized economies. If the defense of the interests of the international sector is compatible with participation in EMU only under institutional guarantees for wage restraint, we should expect increasing pressures to adapt the institutional framework of wage bargaining in those countries without those institutions in place and committed to the common currency project. The well-accounted phenomenon of the re-emergence of social concertation in Europe in the 1990s (Pochet 1999, Goetschy 2000) suggests that this could be the case.

This literature offers some explanations for the recent trend of social concertation in Europe. Some authors have argued that the new wave of social pacts simply reflect the new balance of power between capital and labor, imposing new obligations and sacrifices on workers and their representatives (Negrelli 2000).[25] Others have argued that the new social pacts are in fact the consequence of increasing international competitive pressures and the

[25] In contrast with the classic 'corporatist' pacts of the past in which greater political clout was given to workers in exchange for moderating their wage demands.

desire of governments to reshape in a coordinated way the functioning of the domestic political economy (Regini 1995). For most analysts, the temporal coincidence between the emergence of these new wave of social pacts and the accession to economic and monetary union was not coincidental. In the view of many (Hancke and Rhodes 2005, Traxler 2002, Hassel 2003, Dolvik 2004), centralized social concertation the government's response to the pressing need to meet the Maastricht criteria to access the third phase of monetary union, particularly the obligation to implement welfare reform to control spending and to keep inflation in line with the most anti-inflationary countries of the EU.[26]

Our theoretical framework suggests yet a slightly different way of understanding the emergence of social concertation in Europe in the 1990s. In our view, participation in EMU was a key element pushing for re-centralization of wage bargaining, but its effects should not be expected to be the same across countries. More precisely, we should expect countries politically committed to participate in EMU but without coordinating wage bargaining institutions to be particularly prone to introduce new forms of centralized concertation, and these pressures to be particularly strong in economies highly internationalized. Do these theoretical expectations match the variation in the emergence of social pacts in Europe in the 1990s?

5.4.1 Where Did the 1990s Social Pacts Emerge?

Previous comparative analyses of the emergence of social pacts have found, very much in line with our general expectations, that social pacts emerged in countries without a coordinating wage bargaining framework and experiencing high problems of inflation

[26] The Maastricht Treaty stipulated that, among other things, to be eligible for EMU accession, a country's economy must have kept for two years at least a rate of inflation not superior in 1.5 percentage points to the average of the three lowest inflation countries in the EU.

(Rhodes and Hancke 2005), that "might it find difficult to sustain a single currency in the future" given the lack of social consultation systems (Pochet 1999: 24), or expecting high levels inflation given their expected overexpansionary common monetary policy of the European Central Bank for these contexts (Enderlein 2006).

Although it is well-established that social pacts tended to emerge in contexts without well-established coordinating wage bargaining institutions –a finding broadly consistent with all these theories–, our argument adds two little twists: the pressure for reform will be more intense the more politically committed the country is to the EMU project, and the more internationalized the economy is. To see whether these predictions hold, table 5.4 reports the instances of increased centralization of wage bargaining in EU countries except Luxembourg, along with two of our explanatory variables: whether the country was an early member of EMU, and whether institutions for coordinated wage bargaining existed prior to the process of monetary unification.

Six out of the seven cases of increased centralization occur in countries committed to early entry in EMU and without previous solid wage coordinating institutional foundations. A careful look at the reform episodes in this group of countries reveal, moreover, that the more centralizing reforms took place in countries more dependent on the international sector: Ireland, Belgium, and the Netherlands. In spite of its Anglo-Saxon tradition of lack of social concertation, the contemporary trend towards greater levels of centralization of wage bargaining in Ireland is well-documented (O'Donnell and O'Reardon 2000, 2002), and it goes back to the effort of the Fianna Fail government in 1987 to establish a national tripartite agreement between the government and the social partners to foster international competitiveness (Pochet 1999). A series of national social partnership programs followed, strengthening further the centralizing features of the wage determination process and, most importantly, setting centrally wage development guidelines

Table 5.4: The centralization of wage bargaining in Europe in the 1990s

Country	EMU early membership?	Pre-existing Institutions for CWB?	Centralization of wage bargaining in the 1990s?
Ireland	Yes	No	Succession of social pacts in the 1990s with centralized pay norms
Spain	Yes	No	Collective bargaining accords (1997, 2002) with wage developments guidelines
Italy	Yes	No	Concertation since 1993. Social pact in 1998.
Portugal	Yes	No	Tripartite agreements (1996, 1997) with incomes policy
Netherlands	Yes	No	Yes. Tripartite agreement about wage formation in (1993)
Belgium	Yes	No	Social pacts with wage developments guidelines (1998)
France	Yes	No	No
United Kingdom	No	No	No
Greece	No	No	No
Germany	Yes	Yes	No
Austria	Yes	Yes	No
Finland	Yes	Yes	Several incomes policy agreements in the 1990s
Denmark	No	Yes	No
Sweden	No	Yes	No

for 3-year periods (O'Donnell and O'Reardon 2002: 198). Interestingly, opposition to the process, as in the case of the "Program for Prosperity and Fairness" of 1997, came from public sector unions (von Prondzynski 1998); nontradables should be those less expected to benefit from wage restraint, according to our argument). If anything, EMU membership since 1999 has only contributed reliance on social partnership functioning of the system, in Ireland there is a "widespread belief that the inflationary effect of collective bargaining must be reined in, and that is easier in the context of centrally determined pay norms" (von Prondzynski 1998: 64).

Similar developments took place in the other two high-trading countries lacking centralized wage setting institutions: Belgium and Netherlands. In Belgium, given the fragmentation of social partners and their inability in the early 90s to come up with a national agreement on collective bargaining, it was the government who actively pushed for the centralization of wage-setting (Arcq and Pochet 2000). The 1996 Law for the Promotion of Employment of 1996, which set up new norms for collective bargaining, had as a clear objective to control wages, and to make wage developments conditional on wage developments in the three main trade-partners: Germany, France and the Netherlands (Vilrokx and Van Leemput 1999). Although the reform was negotiated with the social partners, the mainly nontradables-oriented of the two union confederations ended up rejecting the agreement.[27] In the Netherlands, social pacts started earlier, with the adoption of a hard peg policy for the Dutch guilder in 1993. Employers' peak associations, concerned about the international position of the Dutch economy under such monetary regime, and with the shadow help from the government, who was willing to intervene in wage norms if necessary, set in motion the "New Course" Agreement of 1993.

[27] The agreement negotiated with unions was finally approved by the Christian (mainly Flemish, more centralized, less public-sector oriented) union CSC, but not by the Socialist (Wallonia-based, more public-sector oriented) FGTB.

(Visser 1998, Hemerick et al. 2000). The agreement, in the tradition of the Wassenaar accord of 1982 (de Beus 2004), called for wage moderation in all sectors to improve international competitiveness. The Agenda 2002 program, with the EMU already in place, only extended the previous pact main provisions.

The weakness of coordinating wage bargaining institutions in Southern Europe should have make these countries the more active in setting up social pacts as a response to EMU membership. Although Spain, Portugal and Italy did have social pacts in the 1990s,[28] it is doubtful that the reforms introduced by national accruements in these countries went further than, say, the Dutch or Belgian reforms –perhaps a consequence of the lower degree of international exposure of these economies. France stands as the only case in which no centralizing trend in wage formation rules took place in spite of participating in EMU and not having centralized wage bargaining institutions.[29]

In the remaining set of countries, there are no reasons to expect changes in the wage bargaining system: some countries opted for not participating in EMU (UK, Denmark, Sweden), or had already institutions to promote wage restraint (Germany, Austria).[30] Supporting this expectation, with the exception of Finland, no country in this group experienced a re-birth of centralized social concertation in the last decade. In line with the expectations too, the evidence seems to suggests that in countries with these institu-

[28] See (Pérez 2000, 2002, Regalia and Regini 1998). On the complex and conflictual evolution of social pacts in Portugal and Ireland, see Hancke and Rhodes (2005). I discuss at length the Spanish case below.

[29] Hancké and Rhodes (2005: 11-12) suggest that the central role the state plays in the French case (by setting minimum wages, or affecting wage developments in the large public sector) could substitute for the absence of institutionalized negotiations between social partners.

[30] I discussed before how the pattern-bargaining system that prevails in these countries gives the exposed sector control over wage developments across the economy.

tions, EMU was particularly favored by the international sector, interested in stabilizing the nominal exchange rates with the main trading partners (Josselin 2001, Collignon and Schwartzer 2002: 156, Traxler 1998). In countries that have ultimately remained outside the monetary union but with those institutions (Sweden, Denmark) support for monetary unification came, as expected, from the international sector. In sharp contrast, the exporting sector's support for the common currency with the most decentralized wage bargaining system (the United Kingdom) it has never been extraordinary: a survey conducted quarterly to British manufacturing exporters shows that the level of support for the common currency evolved from about 60% in the late 90s, and has gone done down steadily since. By 1995, only 31% of British exporters believed that joining the euro would be helpful for the export industry.[31]

The case of Finland deserves some attention, since it is the only economy with a relatively well developed system of wage bargaining coordination that went through a further strengthening of centralized institutions in the 90s. Before the 1990s, the Finnish international sector, dominated by the highly price-sensitive timber industry, had relied on periodic devaluations to maintain competitiveness (Lilja 1998). In 1991, the first proposal of a social pact came from the Bank of Finland, at the time it pegged of the Finnish Mark to the Ecu, the European basket currency. Sectoral unions

[31] DHL *Quarterly Export Indicator*. Interestingly, opposition to the euro came above all from the most price-sensitive producers: 25% of the exporters in the textile sector believed the joining the common currency would be actually "unhelpful" for British exports. The results of another survey conducted by the British Chamber of Commerce in 2003 shows similarly a relatively skeptic attitude of business towards the common currency. A plurality of them (49%) supported the government's "wait and see approach," with a full 12% outright rejecting accession. Perhaps more tellingly, less than half of the firms believed that participation in EMU would increase the competitivenness of the British industry. (BCC 2003).

rejected the pact, and in less than six months, wage developments had already forced a new devaluation of the currency (Kaupinnen 2000). This failure made clear at the eyes of the government that, for the new export-diversifying economic strategy based on the European market to work, more institutional guarantees for wage moderation had to be built into the collective bargaining system. A series of social pacts ensued. Since 1995, a centralized Incomes Policy Committee defines the norm for wage increases depending on inflation and productivity (Hancke and Rhodes 2005: 22). With the advent of the euro, the perceived need to coordinate wages across the economy has become even more important (Uusitalo and Variainen 2005). Just as the Irish, the other big European internationalizing economy, the Finns were well aware that the export-oriented economic strategy –in which EMU membership was a key element– required a strenghtening of wage coordinating institutions. Under our theoretical framework, it makes perfect sense one of Hassel's (2003) main conclusions in his comparative assessment of social concertation in the 90s, namely that the Irish and Finnish experiences were the ones that "most closely resemble old style incomes policy of the 1970s."

All in all, the findings reported here differ very little from the conventional wisdom on the emergence of social pacts in Europe: in the face of the increased pressure to guarantee wage restraint under EMU, governments and social partners in countries lacking coordinating wage bargaining institutions had to resort to new social pacts to fill this institutional gap. We have noted here, however, that these pressures resulted in more encompassing pacts in those countries more dependent on the performance of the international sector. Most notably, the two cases that reinforced the most the centralizing features of their industrial relation systems, Finland and Ireland, were –very much in line what we should expect from our theory– highly open countries in which EMU membership had become a cornerstone of their export-oriented economic strategy.

Next I analyze at length the pressures for wage bargaining reform emanating from EMU membership by looking at the experience of one country: Spain.

5.4.2 Centralizing Social Pacts in a Decentralized Wage Bargaining System: The Spanish Case

Spain provides an interesting case to understand the intricacies of the recent wave of social pacts for a number of reasons. Firstly, it is a country that since the entry in the European Community in the mid-80s was experiencing in the 90s dramatic increases in the magnitude of trade and capital flows with the rest of Europe. Secondly, for economic, political, and even historic reasons, EMU membership was a policy objective shared by virtually all political parties in Spain[32] and shared by a large majority of the electorate, as shown in figure 5.1 above. These two features (the increasing internationalization of the Spanish economy and the high level of support for the EMU project) coexisted, paradoxically according to our logic, with a labor relations system traditionally characterized by its high level of atomization of bargaining units.[33] The recognition of this problematic coexistence on the part of the government, firms and unions laid the foundations for a new era of social concertation in Spain.

Starting in 1994, the employers' peak association CEOE and the two main union federations, UGT and CCOO initiated a period of concertation at the national level that culminated with the sign-

[32] In contrast with other European countries, it is remarkable that the only national party experiencing internal divisions over the issue of monetary integration was the Communist-led coalition Izquierda Unida. The affirmative vote of the moderate faction to the Maastricht Treaty sparked off a period of profound tensions within the coalition that only ended with the dissenters abbandonment of the party.

[33] For an extensive and critical review of the Spanish wage bargaining system, see González and Gutiérrez (2002) Bentolila and Jimeno (2002).

ing of three pacts in April 1997 with the aim of strengthening collective bargaining: one (on 'job stability') tried to limit the extension of fixed-term contracts, another ('on the extension of coverage to situation of legal vacuum') extended the provision of collective agreements to sectors in which the Francoist labor ordinances had been dismantled, and a third one ('on collective bargaining') gave a set of guidelines to structure the system of wage bargaining that the Labor Law of 1980 had left largely undefined.[34] Although no dramatic changes in the configuration of the industrial relations system took place in that period, the atomization of wage negotiations was stopped and the proportion of workers covered by national (sectoral) wage agreements increased substantially (Pérez 2002: 1212).

Pérez contends that these institutional transformations cannot be understood as the result of governments' short-term need of cooperation from the social partners in their attempts to meet the Maastricht inflation criteria. In her view, it was the recognition that a fixed exchange rate regime under the existing labor relations system in place would create serious problem of competitiveness for the Spanish international sector what ultimately explains the emergence of centralizing social pacts in Spain (and in Italy).[35] In line what with our argument would suggest, the economic sec-

[34] The structure of collective bargaining in Spain is quite cumbersome. Most workers's (57.6% in 2004) wages and working conditions are negotiated at the provincial sectoral level. About a quarter of the workforce (25.5 %) is covered by national sectoral wage agreements, 5.8% by regional sectoral wage agreements. Only 10.2% of the workers have firm-based collective agreements.

[35] The experience of the high Spanish inflation of the 80s was, according to Pérez (2002: 1216), key for the new positive attitudes of employers and unions towards concertation in the 90s. In the 80s, the tough monetary policy of the strong peseta fixed to the Deutsche Mark proved ineffective to discipline wages given the Spanish unstructured collective bargaining system (Pérez, 2000). Nontradables were able to reap the gains of nominal rigidity, at the cost of a massive loss of competititveness, only to be restored thanks to the devaluations in the 90s.

tors that were more proactive in reinforcing social concertation at the central level were the metal confederations among unions – one of the most internationally exposed sectors– and *Fomento del Trabajo*, the Catalan employers's association (Pérez 2002), where the interests of export-oriented small and medium-sized firms were comparatively better represented.

To be sure, a significant part of the Spanish exporting industry did not developed a strong interest in the renationalization of wage bargaining. Multinational firms, which dominate some key exporting sector such as automobiles, were little interested in investing their efforts in reconstructing the Spanish collective bargaining system, and focus their efforts in securing a highly flexible wage negotiation system in the relation with their workforce.[36] Two reasons account for this 'anomaly': First, these multinational companies typically demand a higher degree of management flexibility to adjust the activities of the domestic subsidiaries to the requirements dictated by the firm's global strategy. Secondly, the multinational nature of these firms means that they can easily 'pack and leave' (or, perhaps more realistically, they can transfer some activities to other countries) whenever the local conditions were not favorable to their interests.[37]

The Spanish industrial system went through yet another centralizing reform after 2001. Paradoxically, the origins of this later transformation have to be found in the attempt by the conservat-

[36] The automobile sector (arguably one of the most internationally-oriented of the Spanish economy) is one of the few in which plant-level wage bargaining predominates. Employers (often joined by workers too) have been very zealous in defending the high degree of flexibility that this type of labor relations allows for (Interviews with CEOE's Labor Relations Department Advisors , Confederate Secretary of Union Activity of UGT and Secretary Labor Relations Secretary of CCOO.

[37] This would explain the little involvement of some internationally-oriented firms in the reshaping of the Spanish collective bargaining system (Interview with the Economics Department of the Union Confederation of CCOO, May 2006).

ive government of decentralizing the wage bargaining system. The government believed that the intermediately-centralized Spanish system of collective bargaining was incompatible with the wage flexibility required under EMU. As a result, the government proposed a full-fledged decentralization of the wage-setting system. The proposal –too unrealistic, 'as if it were made in a laboratory', in the employers' assessment[38]– soon faced fierce opposition by unions and employers. Fearing the de-stabilizing effects of the government's decentralizing proposal, the social partners quickly responded with the 2002 Agreement, which was aimed at addressing the government's concerns, but effectively centralized further the Spanish wage bargaining system.[39] The great novelty introduced by the Inter-Confederal Agreement for Collective Bargaining (AINC, in its Spanish acronym) was the introduction of economy-wide wage norms: "The negotiation of wages," article 2 of the Agreement reads, "should take as first reference the expected inflation level, as established by the government....There could be further increases to that level within the limits derived from increases in productivity." The Agreement explicitly guarded against the use of other inflation references: "The use of other inflation forecasts should be avoided... for specific sectoral or geographic areas."

As it is always the case for social pacts, the question of compliance is crucial.[40] Given the loopholes and flexibility provisions

[38] Interview with Fernando Moreno Piñero, CEOE Labor Relations Director, May 2006.

[39] The CEOE (the peak employers' association) Director of the Labor Relations describes the origins of the 2002 pact quite graphically: "The government unilaterally said: 'I want to reform collective bargaining.' 'What is the problem you have with collective bargaining?', we asked. 'Wage formation? Allright, we commit ourselves (employers and unions)... to find ways to reform the wage formation process by ourselves'... That knocked the government down." (Interview with Fernando Moreno Piñero, May 2006).

[40] Regardless of its importance, this is an understudied issue in the literature on social pacts. Baccara (2005) argues that compliance can paradoxically be favored by decentralized structures of decision-making within the union.

included in the pact and the *de facto* impossibility of punishing firms and workers who deviate from the pact's obligations,[41] it is pertinent to ask whether the pact was just an inconsequential declaration of good will on the part of social partners, or, on the contrary, it actually help to promote wage restraint. How to get the wage negotiators at the sectoral and firm levels to comply with the central agreement's provisions is a really pressing issue in contexts as the Spanish one, in which the central structures of the employers' peak association is particularly weak vis-a-vis their sectoral and individual members. This meant that the agreement's ability to achieve wage restraint across the economy relied almost exclusively on the union confederations' capacity to discipline workers in sectoral and plant-level negotiations.

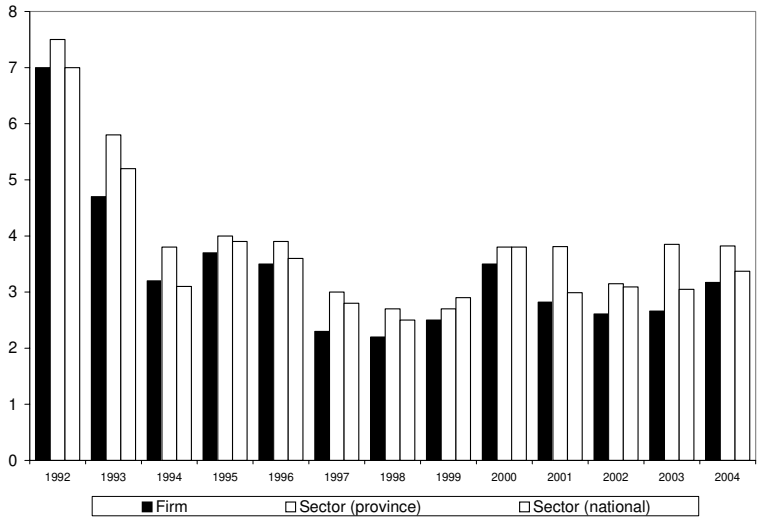
With an important caveat that I will discuss later, some pieces of evidence do suggest that the agreement was something more than just 'cheap talk', and that has been indeed effective in guaranteeing wage restraint. At first sight (see figure 5.6), although the provincial sectoral agreements do tend to show slightly higher wage increases, wage moderation has prevailed in all type of collective agreements, regardless of its coverage. Other pieces of evidence also indicates that wage moderation owns a great deal to the pressure exercised by the central union confederations in lower-level wage negotiations.[42] First, employers recognize that when the two

Analyzing the case of Italy, he shows that democratic decentralization had the result of marginalizing the radicals and ended up reinforcing the positions of the moderate central negotiators.

[41] In this respect, the agreement only established a standing committee composed of employers and unions whose purpose is to exchange information between the social partners about the degree of compliance of the pact (chapter 3 of the AINC).

[42] Employers recognized that, while being often uncapable of controlling the behavior of its own members, they often resorted to the central union confederations to make them discipline their members in negotiations in which the wage demands entered in conflict with the AINC's guidelines (Interview with CEOE Labor Relations Department Advisors, May 2006).

Figure 5.6: Nominal wage increases negotiated in collective agreements in Spain by degree of coverage of the agreement. Source: Ministerio de Trabajo y Asuntos Sociales, Encuesta de Convenios Colectivos



union who sign the pact (UGT and CCOO) were not dominant in the low-level wage bargaining rounds, wage moderation was much more difficult to achieve. With the exception of some specific sectors, the two main union confederations virtually monopolize workers' representation in Spain, except for two regions: Galicia and the Basque Country, where UGT and CCOO coexist and compete with powerful nationalist unions that opposed the AINC. Employers report a recent increase in wage militancy associated to the presence of non-signatory unions.[43] And there are indeed signs

[43] Interview with the CEOE Labor Relations Department, May 2006. Accord-

of rising collective bargaining conflictivity in Galicia due to the more militant attitude of the nationalist (and non-signatory of the AINC) union CIG, as the recent case of the Pontevedra metal sector collective agreement negotiation illustrates. The evolution of collective bargaining in the Basque Country is recent years is also very telling. Since 2003, bitter conflicts between the two Spanish unions CCOO and UGT with the nationalist ELA and LAB (who were reluctant to accept the constraints imposed by higher-level wage agreements) have resulted in labor relations gridlock in key sectors of the Basque economy. (CCOO 2005: 46-47).[44] The fact that the more consistent patterns of wage restraint are found when the two pact-signing unions dominated wage bargaining suggests

ing to the employers' account, the competition from more demanding unions made UGT and CCOO more militant too.

[44] Although the conflict between unions was obviously strained by political issues, there was a clear clash about union strategies. Whereas UGT and CCOO remain clear defenders of strengthening the more encompassing wage negotiations (reinforcing sectoral collective bargaining), LAB and, especially ELA have pushed instead for increasing union acitivity at the firm level. The ELA's strategy for the metal sector is extremely revealling: "The model [of negotiation] followed by some unions [UGT and CCOO], that negotiate social pacts at the state level, setting limits to further wage negotiation rounds, their negative attitude towards confrontation,...have limited union power in the sectoral collective agreements. It is necessary to regenerate the aggresive capacity of workers, and to finde the most appropriate playing field to break the employers's positions. We have to organize bargaining from the firms, because that is feasible in the metal sector. [At the firm level], workers' participation is the conflict is closer, more direct, and it likely to be more succesful" (ELA 2005: 10).

This 'flexible' attitude of ELA towards collective bargaining, and clearly in conflict with the objectives of the logic of centralized social pact, was not circumscribed to the conflict in the metal sector. Asked in an interview about the interest of other unions to strengthen wage negotiation at the highest levels, Jose Elorrieta, secretary general of ELA declared that the real debate was not about bargaining levels, but about the "contents" of the negotiatiation. "What should our attitude be? The chosen bargaining level should be the one that make our claims possible. We will work at the sectoral level sometimes, but we will also have to work at the firm-level." (ELA 2006: 17)

that the informal mechanisms through which the central agreement guidelines were extended to the lower levels of wage bargaining were somewhat effective.

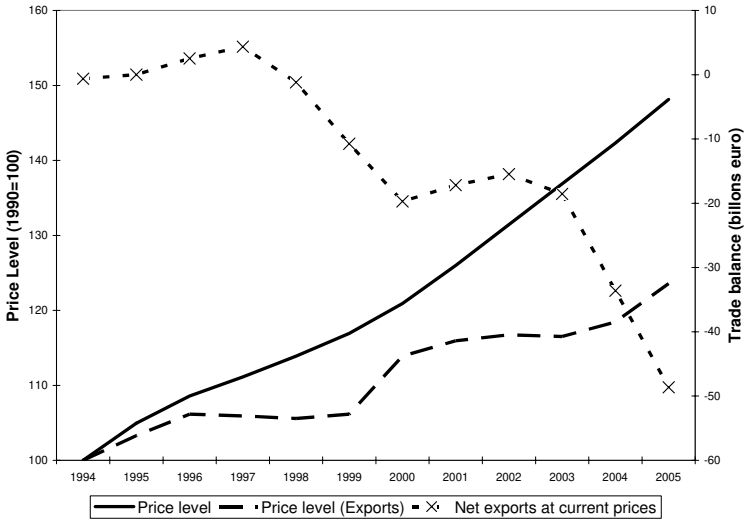
Probably the most definitive proof of the success of the AINC is the relative ease with which the agreement has been renewed on a yearly basis ever since.[45] Although important areas of conflict remain between unions and employers, the most important being about the width of the inflation-protection clause that the collective agreements should include–,[46] the interconfederal agreement on collective bargaining is today considered both by unions and employers (and the government) as the cornerstone to guarantee wage moderation in the context of EMU.

However, some recent signs suggest the social pact might not be enough in guaranteeing wage restraint in nontradables. As figure 5.7 shows, Spain is experiencing increasingly worrisome trade deficits, even though exporters have not kept up with price developments in the rest of the economy. In other words, exporters' are being forced to reduce their wages and/or mark-ups (relative to the rest of the economy) to remain competitive, but this cuts do not seem sufficient to improve the overall trade performance of the Spanish economy. In fact, the real effective exchange rate against the other members of EU-15 has increased 5 percentage

[45] See the Spain country reports of the European Industrial Relations Observatory: www.eiro.eurofound.eu.int.

[46] The unions' strategy of focusing their efforts in expanding the coverage of inflation-protection clauses throughout the economy (CCOO 2005) can be interpreted as a sign of the commitment of unions to centralized concertation. In the unions' view, the Spanish problem of inflation was not the consequence of wage militancy (inflation did not abate after years of significant wage moderation) but of lack of competition in certain markets such as the health or the legal sector (UGT 2006). By forcing employers in all sectors to increase wage compensation if prices continued to increase above expectations, the unions were hoping to increase the pressure on the uncompetitive sectors of the economy to bring the general price level down (Interview with Carlos XX, CCOO Economics Department, May 2006).

Figure 5.7: The steady deterioriation of Spanish competitiveness under EMU. General and export-sector price levels and trade balance, 1994-2005. Source: European Commission Annual Macro-Economic database



points since the introduction of the euro.[47] Interestingly enough, these are problems very similar to those of other EMU-members with equally weak institutions of centralized wage bargaining analyzed before, as Italy. Whether these developments will mark the beginning of new attempts to reconstruct centralized forms of wage bargaining, or are instead only signs of the problems of sustainability of EMU membership in countries without strong coordinating institutions, remains to be seen.

[47] Source: European Commission, Annual macro-economic database (AMECO).

5.5 Conclusions

The process of monetary unification in Europe offers a good opportunity to test one of the main implications of the institutional theory on exchange rate preferences developed in chapter 4. Because the creation of a common currency can be interpreted as the adoption of an extremely fixed exchange rate regime, the political demand for monetary unification should be expected to vary according to the economic and institutional characteristics of the country. As the degree of central bank 'conservatism' can be assumed as exogenously fixed at the same level for all potential EMU candidates by virtue of the legal requirements imposed by the process of EMU itself, the only institutional effect in this case should be that of coordination of wage bargaining –exporters should become firmer defenders of a common currency for Europe in highly coordinated economies, but less so when wage setting is decentralized. An analysis of preferences for monetary unification based on Eurobarometer data does suggest that high-trading countries (where the preferences of the average citizen should reflect more closely those of the exporting sector) are indeed more supportive of monetary unification as wage bargaining becomes more centralized. The evidence shows that this institutional effect is robust to the inclusion in the model of other potentially important determinants of the level of public opinion support for a common currency, such as the degree of inflation or debt of the country, or the general attitudes of the respondent toward the whole process of integration.

Given the central role that these institutions play in securing a high level of support for the common currency in internationalized economies, it is hardly surprising that the process of monetary unification in the economically integrated Europe has been accompanied by several attempts to re-centralize wage bargaining in many European countries. This is remarkable, given the argu-

ably increasing tension between these institutions and the workforce management flexibility required in postindustrial economies (Iversen 1999). But this puzzling trend can be easily explained with the help of our theory: without institutional guarantees for wage restraint in nontradables, the exposed sector will easily turn its back on the project of monetary unification. In fact, as it has been shown in the last section of the chapter, one of the main purposes (if not the central one) of the social pacts that have mushroomed in Europe since the late 90s has been to impose wage discipline to guarantee the competitiveness of the exposed sectors. Under a common currency –which effectively meant that competitive devaluations were off the table–, wage militancy in non-exposed sectors will automatically translate into a dangerous appreciation of the real exchange rate (i.e. a fall in the price of tradables relative to nontradables). To prevent it, European governments, employers and unions engineered central pacts to guarantee wage restraint across the economy. And the most dependent the economy was on the exposed sector, the greater the demand for centralization. The Spanish experience in the last decade illustrates well this phenomenon. The highly uncoordinated nature of the Spanish labor relations system did not marry well with the constraints imposed by EMU membership –particularly after the experience of the 80s, which showed how the nontradables sector could 'exploit' a fixed nominal exchange rate, much to the harm of the Spanish economy's competitiveness. Increasingly centralized wage bargaining patterns (including even explicit orientations about wage formation) consensually emerged. In spite of rising doubts about what this type of centralized pacts can and cannot achieve, the Spanish experience suggests that social pacts can prove effective in promoting wage moderation, and have become central to guarantee the sustainability of EMU participation in countries without well-established institutions for coordinating wage bargaining.

This chapter and the previous one have used public opinion

survey data to show that variation in preferences toward exchange rate regimes across time and space can be partly explained by the institutional theory developed in chapter 3: exporters' preference for pegs seems to be contingent on the presence of institutional guarantees for wage restraint in nontradables. But to what extent do these different preferences matter for actual exchange rate policies? Do governments' currency choices respond to the different exchange rate politics brought about by differences in the macroeconomic institutional environment? These are the questions I address in the following chapter.

5.6 Data Appendix

Table 5.5: Descriptive statistics and data sources

Variable	*Mean*	*S.D*	*Min*	*Max*	*Source*
Individual-level variables					
Support for EMU ('There has to be a EMU with a common currency, the euro')	0.628	0.483	0	1	Euro-barometer
Sex	0.516	0.5	0	1	Euro-barometer
Age	43.972	18	15	99	Euro-barometer
Relative Income	2.491	1.118	1	4	Euro-barometer
Unskilled	0.109	0.311	0	1	Euro-barometer
Skilled Manual	0.25	0.433	0	1	Euro-barometer
Service Low skilled	0.145	0.352	0	1	Euro-barometer
Service Mid Skilled	0.244	0.43	0	1	Euro-barometer
Professional	0.133	0.34	0	1	Euro-barometer
Business owner	0.071	0.257	0	1	Euro-barometer
Ideology	5.233	2.009	1	10	Euro-barometer
National Benefit from EU	0.619	0.437	0	1	Euro-barometer
EU Membership a good thing	1.377	0.760	0	2	Euro-barometer
Satisfaction EU democracy	1.444	0.716	0	3	Euro-barometer
Satisfaction national democracy	1.580	0.789	0	3	Euro-barometer
Educated up to 15-18	0.452	0.498	0	1	Euro-barometer
Educated up to 19-21	0.175	0.380	0	1	Euro-barometer
Educated up to +22	0.170	0.376	0	1	Euro-barometer
Country-level variables					
Exports to the EU (%GDP)	0.231	0.150	0.037	0.667	EU Commission, *European Economy*, various issues
Public debt as % GDP	65.99	29.50	5.5	137.9	EU Commission, *European Economy*, various issues
Inflation	2.896	2.338	0.1	19.5	EU Commission, *European Economy*, various issues
Level of Coordination of Wage Bargaining	3.256	1.330	1	5	Golden and Wallerstein (2006)
Adjusted Level of CWB	1.371	1.106	0.17	3.99	Golden and Wallerstein (2006)
Centralization	0.298	0.137	0.10	0.577	Iversen (1999)
Coordination	3.508	1.334	1	5	Kenworthy (2001)

Chapter 6

Trade Integration, Domestic Institutions, and Exchange Rate Regime Choices in the Post-Bretton Woods Era

6.1 Introduction

The unclear nature of the association between trade and monetary integration was the original puzzle motivating this research: while the theoretical literature on monetary integration, dominated by the optimal currency area approach predicted a positive correlation between economic internationalization and stronger preferences for fixed exchange rate regimes,[1] the empirical evidence has been any-

[1] This is a bit of an oversimplification, since the literature has also offered some explanations as to why the opposite relationship could also hold (see chapter 2). At any rate, these alternative views had not been incorprated in

thing but conclusive. In chapter 3, I advanced a political-economy explanation for that puzzle: because the effect that a exchange rate regime has on the internationally-oriented sectors of the economy is contingent on the presence of anti-inflationary central banks and/or coordinated wage bargaining, an increase in the political power of these groups should lead to divergent exchange rate regime government policies in different institutional settings. Chapters 4 and 5 provided suggestive evidence from two different contexts on the effect that these institutions exert on preferences towards exchange rate regimes. For the puzzle to be explained, however, it does not suffice to look at preferences: it should be in fact the case that the institutionally-induced heterogeneity of exchange rate regime preferences of exporters actually translate in different exchange rate regime *policies* across countries. This is the main conjecture that this chapter tests out.

The empirical analysis of exchange rate regime choice will not only allow us to see whether domestic institutions do in fact mediate the relationship between trade and currency integration, but also to compare the relative effects of each institution: are central bank independence and coordination of wage bargaining equally important in securing a positive link between trade integration and preference for fixed exchange rate regimes? Is the effect of these institutions circumscribed to the developed world (where they have become central elements of the configuration of the political economy), or do they also affect the propensity of developing countries to adopt different exchange rate regime strategies as they become more economically internationalized? Is the effect of these institutions symmetrical across existing regimes –i.e. do they equally affect the propensity of floating regimes to adopt pegs and the propensity of pegs to adopt floats? Notwithstanding the problems that the lack of comparable data for many countries creates for

a unified theoretical framework in which the effect of trade on exchange rate regime choices is conditional on some parameter(s).

the analysis, by the end of the chapter we shall be able to provide answers to all these questions.

The remaining of the chapter is divided into four parts. I start by presenting the data and the methodology I shall use throughout. Because the degree of data availability on the two main variables of interest greatly varies across countries, I present the results for two samples. First, I use a small sample of countries for which comparable and high-quality data on both of these institutions exists (about 20-25 OECD countries, around 400 country-year observations in most models). Next, I rely on lower quality indicators of these institutions to extend the analysis to a global sample of countries. The costs in terms of data quality are somehow compensated by a larger number of observations (and larger and potentially more interesting variation in the dependent variable: the exchange rate regime choices of governments), making it possible to run more data-demanding analysis, such as event-history models, that are just impossible to implement in the small OECD sample. A summary of the results closes the chapter.

6.2 Data Description and Methodology

6.2.1 Period of Observation

There are several substantial reasons to choose the aftermath of the collapse of the Bretton-Woods world monetary order as the starting point of the empirical analysis. First, it is after the break-up of the post-war 'world economic order' when it is more meaningful to talk genuinely about government decisions over the exchange rate regime. Second, the 70s also mark the beginning of the process of capital liberalization required by the model presented in chapter 3 to work. As the Mundell-Fleming model analyzed in chapter 3 clearly shows, if the capital account remains closed, the domestic monetary policy need not be affected by the desire to keep the

nominal exchange rate regime fixed. Given the centrality of the capital openness assumption in the model, it would be problematic to extend the argument to periods in which capital controls were the norm rather than the exception (Obstfeld *et al.* 2004). Finally, from a purely methodological standpoint, the choice of a year –1973– that could be considered as a marker of a 'regime change' nicely solves the problem of left censoring inherent to duration models as the ones I use later.[2] In a way, the regime break allows us to assume that, in a way, the 'world' actually started in the first year of observation, so that regime duration prior to 1973 (probably the result of a whole different set of factors and constraints) does not provide any information on the durability of regimes *after* that date.

6.2.2 Operationalization(s) of the Dependent Variable

The classification of exchange rate regimes has increasingly become a contentious area for economists. Until very recently, the only comparable data on exchange rate regimes, and therefore the one used by virtually all empirical studies, was the reported ex-

[2]Left-censoring refers to the problem created by the lack of information on the duration of the regimes prior to the entrance in the sample. In our context, observed floats in 1973 could have been floats for a long time before that date, or could have just adopted a float the year before. Right-censoring (i.e. lack of information on when do pegs (floats) get actually adopted by those countries that are floats (pegs) in the last period of observation) is a much less important concern, and is easily handled by the conventional event-history models as the ones presented here.

It could still be the case that countries with a previous experience of living for long periods under fixed exchange rate regimes before 1973 had a different tendency towards currency policies. It is impossible to test that proposition without collecting more data, but the findings for the post-1973 suggest that this would hardly make a difference in the main results. At least after 1973, having countries with a history of exchange rate regime transitions were no more likely to experience new transitions than countries without that record.

change rate regime, as declared by national governments to the International Monetary Fund (IMF), and as published by this institution in its Annual Report on Exchange Rate Arrangements and Exchange Rate Restrictions. The problem with that measure, as some scholars have noted (Levy-Yeyati, Ghosh et al, Reinhart and Rogoff) is that the official classification often provided little information about the actual conduct of the monetary and currency policies of governments. Note that the deviation of actual policy from the declared one can go both ways: some countries might declare to have a nominal peg, but are in fact allowing for the development of a secondary and flexible black market in which that makes the official rate meaningless. Other countries might declared to have no nominal peg commitment, but might be in facto intervening actively in the exchange market to keep the nominal exchange rate stable. According to Reinhart and Rogoff, deviations of these kinds in the post-war era had been so frequent that "whether the official regime is a float or a peg, it is virtually a coin toss whether the natural algorithm [the method they use to classify *de facto* regimes] will yield the same result" (2004: 32).

Reinhart and Rogoff's "natural algorithm" is not the only available classification of *de facto* exchange rate regimes. As the exchange rate regimes have multiple dimensions (it affects the public stances of governments, their monetary policy, and the evolution of the nominal exchange rate, among many other things), there is no 'best' way to classify *de facto* regimes. Different methodologies aimed to grasp different dimensions of the currency regime will thus give us different classifications of exchange rate regimes.[3] The Reinhart and Rogoff measure, which uses data on parallel markets rate to \ derive the *de facto* currency volatility, seems most appropriate to classify currency regimes as they affect the stability of the exchange rate. The main alternative classification, developed by

[3]The appendix in this chapter discusses in greater detailed these different methodologies.

Levy-Yeyati and Sturzenegger (2003), uses cluster analysis to classify countries according to the volatility of the exchange rate and the change in reserves (under the assumption that a fixed exchange rate requires a higher intervention in the foreign exchange market to keep the nominal exchange stable), seems to be more appropriate to address questions about the conduct of domestic monetary policy. Finally, Shambaugh's (2004) classification is similar to Reinhart and Rogoff's in that it only looks at the volatility of the peg, but uses only official exchange rates against some anchor country. As Shambaugh himself acknowledges when comparing the different methodologies, "the Reinhart and Rogoff system may be better suited to studies of trade ... where the behavior of the exchange rate used in transactions is relevant" (2004: 37). Finally the IMF de iure classification should not be considered meaningless either: for those interested in the signals that the government wishes to send about their exchange rate commitments, this is probably relevant variable to look at.

Although this brief discussion suggests that the Reinhart and Rogoff's *de facto* measure seems to be the most appropriate for the problem at hand, in the empirical analysis that follows I will check whether the results holds when other alternative methods are used. Reassuringly, in most cases the results seem to be robust to these other ways of operationalizing the dependent variable.

Reinhart and Rogoff's algorithm classify regimes in a qualitative 14-type scale, as shown in table 6.1. To divide the sample between 'fix' and 'floats', I use different criteria to classify a regime as a peg[4]. In table 6.1, I indicate the cut-off point in the

[4]The large number of categories could suggest that one could run standard OLS analysis on this data assuming that the dependent variable is continuous. However, this is problematic because regimes actually tend to cluster in just a few categories. More importantly, recall that this is a qualitative measure, so one cannot simply assume that a move from de facto peg to a pre-announced crawling peg is the same that a move from a moving band to a managed floating. Finally, from a substantive standpoint, we are not interested in marginal

Table 6.1: Reinhart and Rogoff 14-type classification and dichotomous peg definitions used in the chapter

Reinhart and Rogoff 14-scale classification	Peg definitions			
	Hard peg	Crawling peg	Narrow band	Moving band
No separate legal tender	☒	☒	☒	☒
Pre announced peg or currency board	☒	☒	☒	☒
Pre announced horizontal band < or = to +/-2%	☒	☒	☒	☒
de facto peg	☒	☒	☒	☒
Pre announced crawling peg		☒	☒	☒
Pre announced crawling band < or = to +/-2%		☒	☒	☒
de facto crawling peg		☒	☒	☒
de facto crawling band < or = to +/-2%			☒	☒
Pre announced crawling band > or = to +/-2%				☒
de facto crawling band < or = to +/-5%				☒
Moving band < or = to +/-2%				☒
Managed floating				
Freely floating				
Freely falling (not considered as float)				

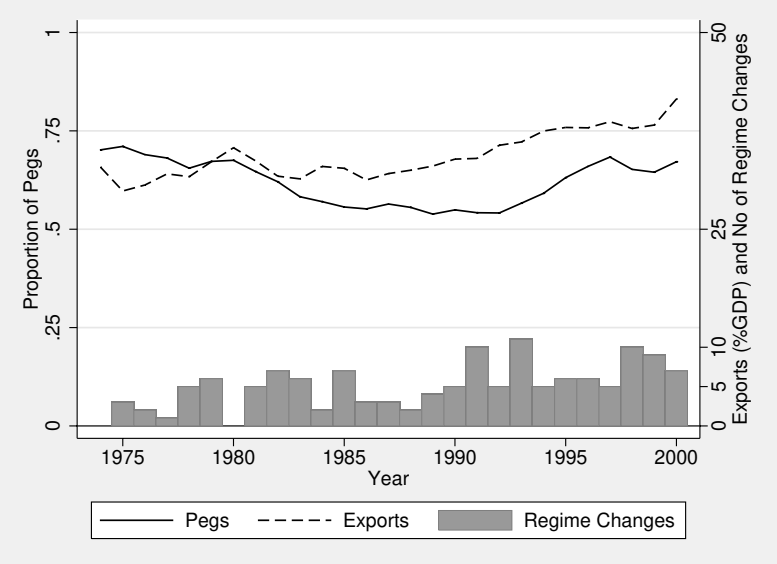
original scale for qualify as a peg under the different definitions of the dependent variable that I shall use in the analysis below.

Figures 6.1 and 6.2 present the evolution of the dependent variable operationalized as 'crawling peg' and 'narrow band', respectively, from 1974 to 2000.

Along with the proportion of pegs under a given year and the number of regime changes, these charts also plot the evolution of the average level of exports, measured as percentage of GDP. Both

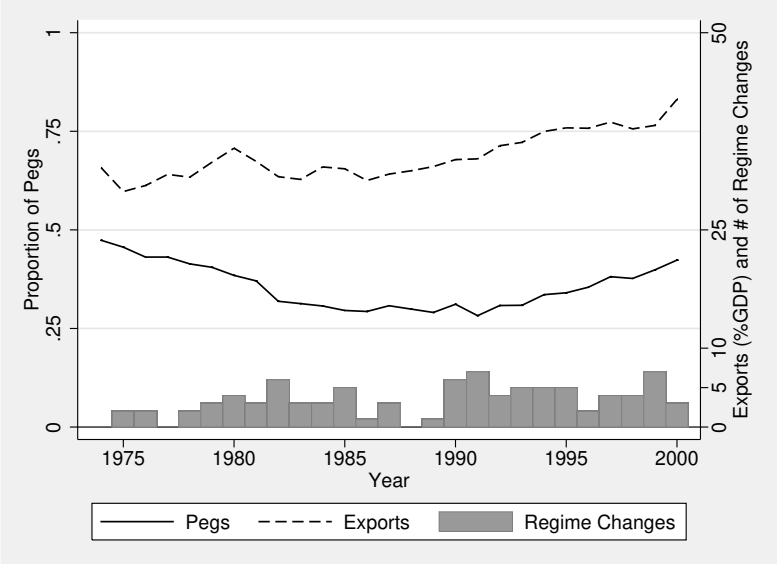
movements towards more or less flexibility, but rather in the more crude decision of committing or not to a stable nominal exchange rate.

Figure 6.1: Exports and exchange rate regimes, world sample, 1974-2001. Definition of peg: *de facto* narrow band (Rogoff and Reinhart's *de facto* classification)



figures show that there is no clear correspondence between the worldwide expansion of trade with any clear pattern in the adoption of a particular type of exchange rate regime. At face value, this already contradicts the main postulate of optimum currency area theory, which contends that the incentives to peg should be greater as economic internationalization increases. From a global perspective at least, exchange rate pegs appear to be as popular today as they were at the collapse of the Bretton-Woods era. Interestingly, these figures also show that this has not been the result of lack of regime changes during this period. This implies that some countries that were under exchange rate pegs decided to ad-

Figure 6.2: Exports and exchange rate regimes, world sample, 1974-2001. Definition of peg: *de facto* crawling peg (Rogoff and Reinhart's *de facto* classification)



opt more flexible currency arrangements, while others decided to move in the opposite direction.

Figures 6.3 and 6.4 look at variation across world regions, using the same two definitions of the exchange rate regime, respectively. Noticeable regional differential patterns emerge. While, from an aggregate perspective, trade integration seem to be either unrelated or even to go hand in hand with pegs (when the more restrictive definition of the exchange rate regime is used) in the advanced industrial countries, in other parts of the world the relationship appear to be the opposite: in East Asia, for instance, the dramatic increase in exports since the mid-80s has been ac-

companied by a greater propensity to adopt floating regimes (especially after the 1997 financial crisis). The same can be said of Latin America, a region in which previous studies have in fact detected a significant positive correlation between trade exposure and the adoption of floating exchange rate regimes (Klein and Marion 1997, Brock Blomberg et al. 2005) In the remaining of the chapter I test whether this apparently erratic link between the degree of export intensity and the choice of the exchange rate regime can be understood as the result of differences in domestic institutions, as the model developed in chapter 3 postulates.

Figure 6.3: Exports and exchange rate regimes by region, 1974-2001. Definition of peg: *de facto* narrow band (Rogoff and Reinhart's de facto classification)

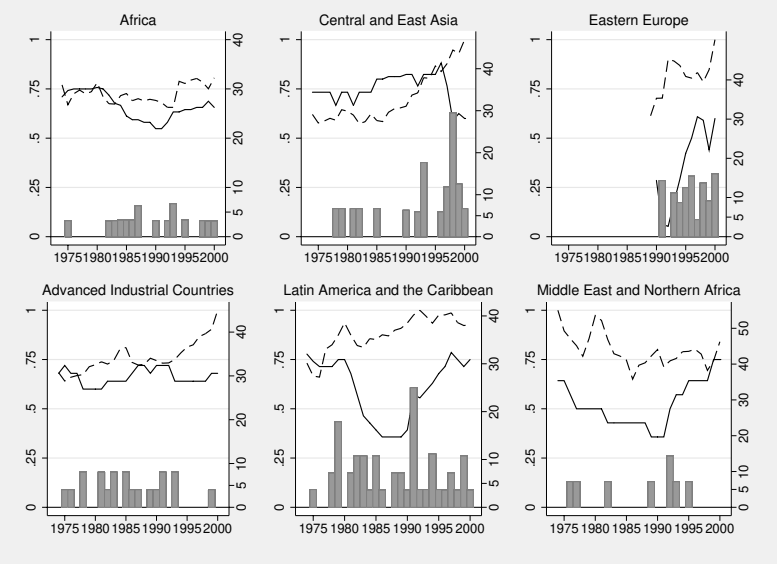
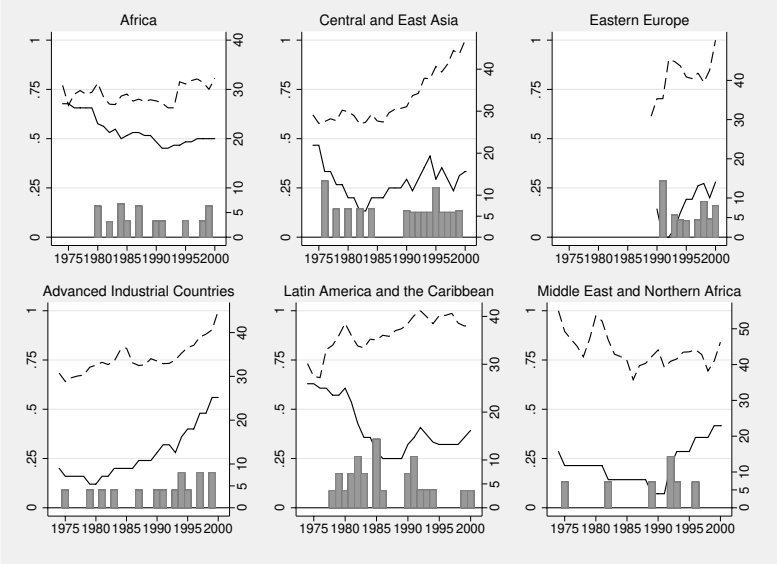


Figure 6.4: Exports and exchange rate regimes, world sample, 1974-2001. Definition of peg: *de facto* narrow band (Rogoff and Reinhart's *de facto* classification)



6.2.3 Modelling Strategies

There are several ways of dealing with time-series data in which the dependent variable is a binary choice (float or fix).(for a review, see). Conditional on data availability, I run two type of models: first, based on Beck, Katz and Tucker's (1998) approach (hereafter, BKT), I estimate logit models with duration dependence. BKT borrow insights from the event-history framework, and show that the 'duration dependence' nature of the data can be easily incorporated in a standard logit framework by including in the specification a series of dummy variables indicating whether

an 'event' was experienced at $t-1, t-2, ...t-n$, where n is the maximum length of years within the sample.[5] In the BKT model, the probability of experiencing an 'event' (a fixed exchange rate regime) in a given country-year can be written as

$$P(y_{it} = 1|\mathbf{x}_{it}) = \frac{1}{1 + e^{-(\mathbf{x}_{it}\beta + \kappa_{t-t0})}}$$

,where κ_{t-t0} is a dummy variable marking the length of the sequence of float years that precede the current observation. To avoid the estimation of too many parameters that the inclusion of these dummy variables would imply, BKT recommend to use, instead of this series of dummies, a variable indicating the number of years from the last event along with three cubic splines, which the show yields indistinguishable results. This is the strategy I use in all logit models with duration dependence shown below. The virtue of the BKT approach is that it allows us to use the conventional logit model (commonly used with in cross-sectional data) to estimate the parameters of interest, while accounting for the time-series nature (and the likely duration dependence) of the data.

The limited number of cross-sectional units (around 20-25) in the high-quality sample prevents us from implementing a richer full event-history approach, but such analysis becomes feasible in the 'low-quality' but larger global sample. As in the BKT logit models, the event-history analysis allows us to control for the duration dependent nature of the data, but it also permits us to analyze separately transitions from pegs to floats and transitions from floats to pegs. This is important because it might well be that the two processes (transitions from floats to pegs, and from pegs to floats) are not governed by the same determinants. For instance, a given covariate might be associated with the adoption of a peg, but not

[5] The inclusion of dummies for each number of years allows for the underlying time-dependent structure of data to take any form.

with a lower propensity to return to a float once the fixed exchange rate regime has been established.[6]

In the event-history framework, the focus of the analysis is to explain variations in the hazard rate, which is simply the rate of transitioning from a zero (one type of regime) to a one (the other) in time t, conditional on not having experienced a transition in $t-1$. There is a plethora of ways to model the hazard rate.[7] In the more general form, the hazard is a function of time, $h(t)$, and a vector of covariates $\mathbf{x}$:

$$h_i(t) = f(h(t), \mathbf{x}_{it}\beta)$$

In the most commonly used family of models, those assuming proportional hazards, the effect of these covariates on the hazard enters in exponential form:[8]

[6] Another way to model differently the two processes is the Markov-chain transition approach (Jackman 2001). This approach, which basically consists in estimating a logit model in which the lagged dependent variable is interacted with all covariates, allows to differentiate between the effects of a variable in prompting a transition and maintaining a regime. Simmons and Heinmuller (2005) apply it to the choice of the exchange rate regime. Using this methodological strategy, the results were remarkably similar to the ones presented below. I prefer to report only the event-history models because, as Beck *et al.* (2002) note, the transition framework might be problematic in that it fails to account for potentially complex patterns of duration dependence in the data.

[7] For reviews of event-history models with applications to political science, see Box-Steffensmeier and Jones (1997, 2004). A recent application of these methods in the exchange-rate regime literature can be found in Brock Blomberg et al (2005).

[8] These models are called 'proportional' because, as the expression shows, it is assumed that changes in the covariates have 'proportional effects' on the hazard (making it higher or lower), but do not change its specific form, $h(t)$. The intepretation of the coefficients in this framework is also straightforward: a 1-unit increase in the explanatory variable with coefficient β translates into a proportional change in the hazard of change in the hazard of e^{β}. If smaller than 1 (which will occur whenever β is negative), it means that the hazard decreases, while it will increase by a factor of e^{β} if β is positive.

$$h_i(t) = h(t)e^{\mathbf{x}_{it}\beta}$$

There are several ways of modelling the baseline hazard $h(t)$. Unless the analyst is theoretically interested in the particular form that this baseline probability takes, it is convenient to use the very flexible semi-parametric Cox model. This model, by leaving $h(t)$ unspecified, does not impose any restriction on the functional form that this baseline hazard takes. Since our interest is in the effect of some key covariates on the likelihood of transitioning across exchange rate regimes, rather than in the specific form of the underlying hazard, all the event history models shown below are estimated as Cox proportional hazard models.

6.3 Results: OECD Sample

I start by analyzing the small OECD-based sample for which comparable data on central bank independence and coordination of wage bargaining exists. Using the BKT method discussed above, I estimate first an 'economic' model of exchange rate regime choice in which I include as covariates the standard variables that, according to the main empirical literature, should be associated with the choice of the exchange rate regime. This variables[9] include: i) the magnitude of the foreign-denominated liabilities as a proportion of money (greater foreign liabilities make floats more costly and thus make countries more attracted to pegs, see Lahiri and Vegh 2001, Calvo and Reinhart 2002), ii) size measured as the log of the GDP (small countries benefit less from the monetary autonomy that a floating regime guarantees, as in Honkapohja and Pikkarainen 1994), iii) the lagged level of inflation (countries with recent episodes of high inflation might find more attractive to adopt

[9]Data sources and descriptive statistics for all variables are provided in the appendix to this chapter.

pegs as a way of borrowing monetary credibility to control domestic prices, see Corden 2002, Tavlas 2000), iv) the proportion of exports constituted by agricultural raw products, to control for the expected salience of 'pass-through' concerns on the part of exporters (this type of tradable goods, highly sensitive to real price changes, should lead exporters to value nominal stability less, see Frieden 2002), v) the volatility of the terms of trade (according to standard OCA theory, countries with a higher probability of asymmetrical shocks should be less prone to fixed exchange rate regimes) vi) the degree of capital openness as measured by Quinn's index of capital account liberalization (according to Mundell-Fleming, capital integration makes fixing more costly in terms of monetary policy autonomy) and vii) the log of GDP per capita, to control for the effect of economic development on the choice of the exchange rate regime. Finally, recent studies in international political economy (Simmons and Elkins 2004, Simmons et al 2006) have emphasized the interconnected nature of economic policy choice across economically integrated countries. In the area of exchange rate regime choice, there are powerful reasons to believe that government's policy is affected by that of its neighbors, since the benefits of a peg is increasing in the number of countries that also have a peg. To control for this possibility, I include in the specification a variable measuring the proportion of the regional GDP under fixed exchange rate regimes[10]. In this first economic model, the trade integration variable (exports as a percentage of GDP)[11] is included in its raw form. According to OCA theory, a greater level of exports should lead to a greater preference for pegs. Model 1 in

[10] Operationalizing this 'diffusion' variable simply as the proportion of countries under pegs, yields very similar results.

[11] I choose this measure to better capture the basic notion underlying the model presented in chapter 3, which focuses on the exchange rate regime preferences of exporters. However, as shown in the appendix to this chapter, the results are indistinguishable if the more conventional trade openness variable (imports plus exports as percentage of GDP) is used instead.

Table 6.2: Dependent variable: *De facto* exchange rate peg (Reinhart and Rogoff). Logit coefficients

	(1)	(2)	(3)	(4)	(5)
Exports	0.010	0.012	-0.129**	-0.283**	-0.396**
	(0.049)	(0.050)	(0.065)	(0.114)	(0.171)
CWB		-0.210		-2.271*	-5.093**
		(0.958)		(1.238)	(2.077)
Exports*CWB		0.001		0.080*	0.129**
		(0.031)		(0.044)	(0.064)
CBI			-14.315**	-19.225**	-20.343**
			(4.210)	(5.852)	(6.791)
Exports*CBI			0.636**	0.850**	1.015**
			(0.153)	(0.231)	(0.292)
Foreign Liab.	1.825**	1.749**	1.375*	1.353*	1.110**
	(0.756)	(0.739)	(0.736)	(0.697)	(0.503)
Inflation (lagged)	0.031	1.169	0.855	2.431	8.545
	(9.651)	(9.635)	(10.553)	(11.110)	(11.012)
Raw agr exports	0.155*	0.156*	0.290**	0.386**	0.979**
	(0.085)	(0.094)	(0.110)	(0.139)	(0.258)
Cap openness	0.028	0.029	0.031	0.036	0.065*
	(0.022)	(0.022)	(0.026)	(0.026)	(0.039)
ToT Volatility	2.038	2.896	1.614	-0.630	21.297
	(12.597)	(13.025)	(13.180)	(12.509)	(19.842)
Diffusion	5.673	5.423	6.703	6.295	3.941
	(5.750)	(5.794)	(5.473)	(5.701)	(6.346)
Size (Log GDP)	-0.353	-0.457	0.237	0.181	-0.235
	(0.421)	(0.590)	(0.536)	(0.690)	(0.727)
Log GDP pc	-1.190	-1.095	-2.011	-3.413	-5.538**
	(2.263)	(2.426)	(2.473)	(2.745)	(2.798)
Federalism					-5.318**
					(1.289)
Multiparty govt.					3.500**
					(0.755)
N	377	377	377	377	377
Pseudo R2	.7950	.7954	.8133	.8183	8597

**:sig<.05 *:sig<.10 Constant, years under float and three cubic splines not shown.

Table 6.2 presents the results of this economic model.

Although most of the coefficients have the expected sign, only the level of foreign liabilities to money is significantly associated with a greater propensity to adopt pegs. Our interest however lies in the effect of the export variable. The coefficient is positive, but is not statistically different from zero. To test the two main theoretical propositions of the model, specifications (2) through (5) in table 6.2 include as explanatory variables the degree of coordination of wage bargaining (CWB) and of independence of the central

bank (CBI), along with interactions of these institutional variables with the level of exports. If, as the theory predicts, the presence of these institutions affect positively the propensity of the exporting sector to embrace fixed or floating exchange rate regimes, then we should expect these interactions to be positive.

Model (2) looks at the effect of the degree of coordination of wage bargaining, using the comprehensive Golden and Wallerstein's (2006) database. Specifically, to measure coordination of bargaining I take their 1-5 qualitative indicator of the dominant level at which wage bargaining between employers and unions takes place,[12] weighted by union density (under the assumption that lower levels of union density mitigate the economic effects of these institutions).[13] The results do not seem supportive of the theory: wage bargaining institutions, according to this model, do not seem to play a mediating role in the relationship between export intensity and the adoption of fixed exchange rate regimes, which remains statistically insignificant. Model (3) does the same exercise, but for central bank conservatism. Central bank conservatism is operationalized using the index of legal independence developed by Cukierman et al.(1992) and updated and extended by Guillen and Polillo (2005).[14] The results now do seem to corroborate the

[12] This index ranges from 1 to 5, with higher values meaning higher levels of centralization. The exact coding is as follows: 1 = plant-level wage-setting, 2 = industry-level wage-setting without sanctions, 3 = industry-level wage-setting with sanctions, 4 = central wage-setting without sanctions, 5 = central wage-setting with sanctions.

[13] The results are somehow weakened if this correction for union density is not used. At any rate, as I show later, the substantive results are robust to the use of other indicators of coordination of wage bargaining available in the literature.

[14] In effect, it is not exactly political independence but conservatism (i.e. the anti-inflationary preferences of the monetary authority) what, according the model, should matter. But as Rogoff (1985) noted long ago, for independence to deliver low levels of inflation, a anti-inflationary biased on the part of the monetary authority must be assumed. It is thus safe to assume that political in-

theory: the coefficient on the interaction between export intensity and central bank independence is positive, and highly significant. Interestingly, the raw coefficient on exports (which, as in any interactive model, is interpreted as the effect of export intensity on the adoption of pegs *when central bank independence equals zero*, is negative, and also statistically significant. In other words, the size of the exporting sector is *negatively* associated with pegs when the central bank is politically dependent (≈when is not conservative), but as the monetary authority gains independence (≈becomes more non-accommodating), the relationship between exports and pegs becomes 'less negative' and the positive coefficient on the interaction term shows.

Model (4) analyzes simultaneously the effects of both institutions. Interestingly, when the effect of central bank independence is controlled for, wage bargaining institutions do seem to mediate the effect of the level of exports on the choice of the exchange rate regime choice: the higher the level of coordination of wage bargaining, the relationship between exports and fixing becomes less negative (now the raw coefficient on exports is even more negative than in model (3), meaning that when both CWB and CBI are low, the negative effect of the level of exports on the adoption of pegs is greater), or even positive, as I show below. Analogously, the effect of central bank independence is reinforced after controlling for the effect of wage bargaining institutions. These results indicate that the mediating effects of both institutions are stronger and more precisely estimated when the effect of the other institution is also accounted for.

Model (5), finally adds two institutional dummy variables that has been linked in the literature to the propensity of governments to adopt fixed exchange rate regimes: federalism and multiparty gov-

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dependence means conservatism, since delegation is only useful if the monetary authority has in fact more anti-inflationary preferences than the government (or the general public).

ernments. Hallerberg (2003) has argued that central governments in federal countries prefer floating exchange rate regimes because their lack of control over fiscal policy makes them concerned about controlling monetary policy, which is easier to manipulate under a flexible currency regime. He also argues that the loss of monetary policy caused by the adoption of a fixed exchange rate regime makes single-party governments also more likely to prefer floats.[15] These two contentions seem to be borne out by the data: other things equal, federal countries tend to opt for pegs, as do multiparty governments. Once the effect of these political variables is controlled for, the effect of central bank independence and coordination of wage bargaining in mediating the effect of exports on the choice of the currency regime is, if anything, reinforced.

Since the interpretation of the interacted terms is not straightforward, particularly in nonlinear models, figure 6.5 uses the estimates from this last model to plot the predicted probabilities of adopting a exchange rate peg for different values of the level of exports as % of GDP under different values of the institutional variables and keeping the other variables fixed at their sample means. The left part of the figure holds the value of the wage bargaining coordination variable at its minimum to evaluate the effect of changes in the level of independence of the central bank from one standard deviation below its mean (CBI low), to its mean (CBI medium) and one standard deviation above (CBI high). Whereas higher levels of exports are associated with floats when the central bank is not independent, this effect reverses when central bank independence is at its mean and particularly when central bank independence is high. The right side of the same figure conducts the same exercise to see the effect of coordination of wage bargaining. Although the effect is similar, it seems that higher levels of coordination of wage bargaining are needed to revert the neg-

[15] Bernhard and Leblang (2003) use a similar argument to argue that unitary governments must be less inclined towards exchange rate pegs.

ative effect of exports on the adoption of pegs. All in all, these institution-dependent effects of trade integration on the probability of adoption of fixed exchange rate regimes are consistent with the theory developed before.

Figure 6.5: Predicted probabilities of observing a peg for different degrees of export intensity under diiferent levels of central bank independence (left) and coordinated wage bargaining (right)

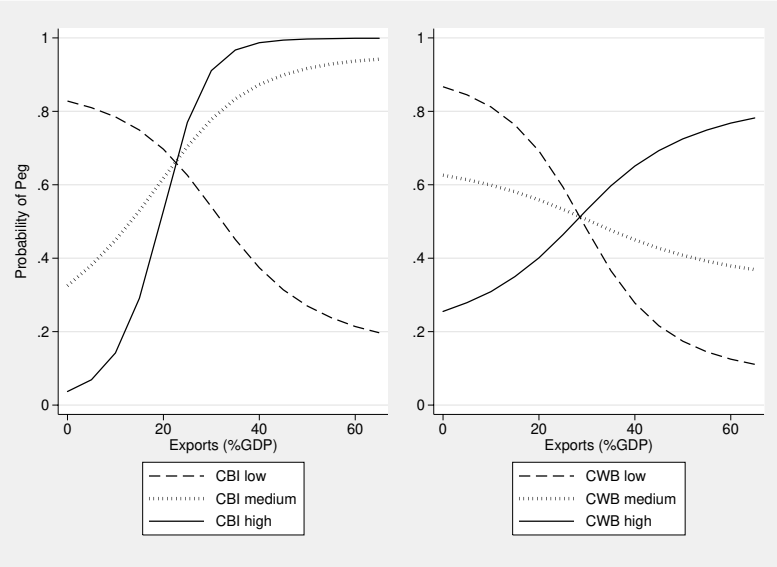


Figure 6.6 examines the joint effect of the two institutions. The solid line plots the predicted probability of an exchange rate peg for different values of export intensity when the values of central bank independence and coordination of wage bargaining are at its minimum, with the 90% confidence intervals (again, keeping the remaining covariates fixed at their sample means). The dashed line performs the same exercise, but when these two variables have been

increased by one standard deviation.[16] The figure nicely captures the main claim of this dissertation: at low levels of trade integration, the decision of adopting a peg or a float is not significantly influenced by the domestic institutions –the predicted probability of adopting a peg is higher if there is neither central bank independence nor coordination of wage bargaining than when these tow institutions are present, but the difference is not statistically significant (the confidence level regions overlap). But when exports make out a large portion of the domestic economy, and, arguably, exporters' preferences become more politically relevant, whether a country will have a peg or a float will be greatly influenced by the political-economy institutional environment: if central bank independence and coordination of wage bargaining are absent, the likelihood that the country will adopt a fixed exchange rate regime is very slim. When, on the contrary, these two institutions coexist, higher levels of exports will be associated with a very high probability of a fixed exchange rate regime.

6.3.1 Robustness Checks

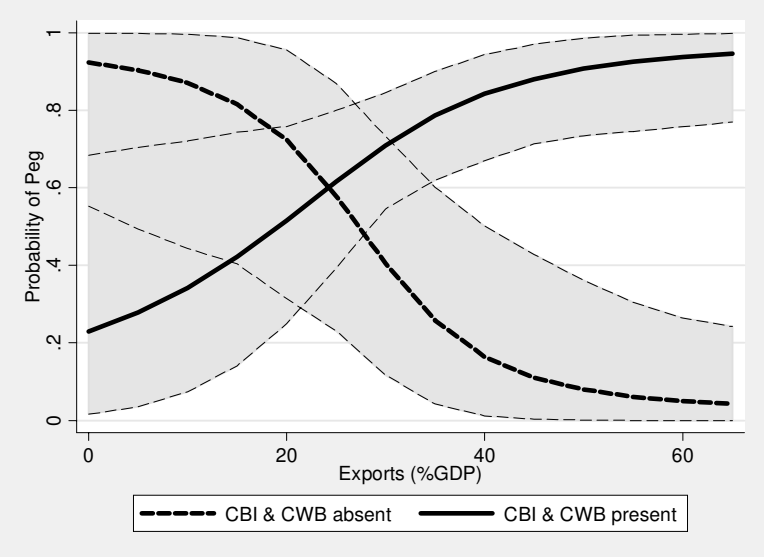
To see whether these findings are sensitive to a specific operationalization of the relevant variables, I conduct now a series of robustness checks using different measures of the coordination of wage bargaining, and of the exchange rate regime. In table 6.3, I replicate model (5) from the previous table using three alternative measures of coordination of wage bargaining available in the literature.[17] In column 1 I use Iversen's (1998) measure of centralization of wage bargaining.[18] In column 2 Kenworthy's (2001b)

[16] Roughly, this corresponds to values for the two variables slightly below their respective means.

[17] For a review of the indicators of corporatism, see Kenworthy (2001a, 2003).

[18] The index theoretically ranges from 0 (no centralization) to 1 (total centralization). It is defined as $\sum_{j=1}^{j=3} \sqrt{w_j \cdot p_{ij}^2}$ where w_j is the weight ac-

Figure 6.6: Export intensity and predicted probabilities of observing a peg when both CBI and CWB are absent (predicted probability estimated at their minimum sample values), and when both are present (predicted probabilty after increasing that values by by one standard deviation)



time-variant 5-point coordination index is used,[19] and in the third

corded to each bargaining level j (peak, sector/industry, and firm/plant, so that $\sum w_j = 1$), and p_{ij} is the share of workers covered by union i at level j. For more details on how the index was constructed, see http://www.people.fas.harvard.edu/~iversen/centralization.htm.

[19] This is a qualitative indicator about the degree of coordination of wage arrangements: 1= fragmented wage bargaining; 2=mixed industry and firm-based bargaining; 3=industry-level with "somewhat irregular and uncertain pattern setting" (pattern setting refers to the existence of a leading sectoral

column coordination of wage bargaining is operationalized by the 3-point (firm, sectoral, central) qualitative indicator used in the OECD's Jobs Study (1997). Two common results are worth noting. First, the interacted variable is always positive and statistically significant in all three models, and the magnitude of the effect is similar to the one reported before, once the different value range of each indicator is taken into account (the raw coefficient on exports is negative in all three models, and the interactive coefficient only outweighs this effect when the degree of coordination is at its highest level). Second, the mediating effect of central bank independence as shown in the interacted term remains highly statistically significant in all three models.

Finally, tables 6.4 and 6.5 run the same model with different definitions of the exchange rate regime as dependent variable. First, table 6.4 uses the same Reinhart and Rogoff's data, but different cut-off points to differentiate between pegs and floats.[20] In all models, the two coefficients testing the validity of the main argument –the interactions between exports and central bank independence and coordination of wage bargaining–, are always positive and statistically significant, except in one case. When the stricter definition of the exchange rate regimes is used (model 1), only the degree of coordination of wage bargaining is associated with a positive link between the level of exports and the adoption of pegs. This might suggest that, even though the mediating effect of central bank independence is generally stronger, only high levels of coordination of wage bargaining can secure a positive association between trade integration and the most rigid type of fixed exchange rate regimes.

The results are somehow more mixed when alternative meas-

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wage settlement that is followed in other sectors); 4=centralized but informal wage-bargaining, 5=centralized bargaining by peak organizations.

[20] See table 6.1 for how these different definitions clasify the fourteen exchange rate regime typologies identified in the Reinhart and Rogoff's original database.

Table 6.3: Dependent variable: *De facto* exchange rate peg (Reinhart and Rogoff). Logit models with duration dependence. Different measures of coordination of wage bargaining

	(1)	(2)	(3)
CWB measure	Iversen	Kenworthy	OECD
Exports	-0.273*	-0.371**	-0.430**
	(0.152)	(0.107)	(0.133)
CWB	-33.869**	-2.111**	-3.208**
	(11.715)	(0.677)	(1.616)
Exports*CWB	0.460*	0.058**	0.124**
	(0.248)	(0.021)	(0.050)
CBI	-8.762	-22.493**	-23.790**
	(12.580)	(5.661)	(5.442)
Exports*CBI	0.707*	1.055**	1.003**
	(0.418)	(0.214)	(0.214)
Foreign Liab.	1.357*	0.749**	1.094*
	(0.823)	(0.379)	(0.615)
Inflation (lagged)	9.276	5.181	3.935
	(11.406)	(9.777)	(10.173)
Raw agr exports	1.216**	0.188*	0.206
	(0.332)	(0.113)	(0.136)
Cap openness	-0.042	-0.051*	-0.028
	(0.037)	(0.030)	(0.029)
ToT Volatility	32.584*	4.227	9.971
	(18.054)	(11.954)	(13.839)
Diffusion	-2.671	4.753	4.678
	(6.074)	(5.267)	(4.593)
Size (Log GDP)	-1.083	0.953	1.129
	(1.142)	(0.635)	(0.771)
Log GDP pc	0.116	-1.572	0.451
	(2.359)	(2.928)	(4.086)
Federalism	-5.802**	-0.785	-0.540
	(2.301)	(0.845)	(0.925)
Multiparty govt.	3.681**	2.163**	2.031**
	(1.129)	(0.740)	(0.728)
N	282	417	392
Pseudo R2	.8638	.8403	.8216

**:sig<.05 *:sig<.10 Constant, years under float and three cubic splines not shown.

Table 6.4: Dependent variable: *De facto* exchange rate peg (Reinhart and Rogoff). Logit models with duration dependence. Different requirements of stability to qualify for pegs

	(1)	(2)	(3)	(4)
Peg definition:	Hardpeg	Crawling peg	Narrow band	Moving band
Exports	-0.174	-0.770**	-0.437**	-0.482**
	(0.110)	(0.290)	(0.188)	(0.156)
CWB	-12.528**	-13.232**	-5.468**	-5.970**
	(4.244)	(3.546)	(2.177)	(2.206)
Exports*CWB	0.304**	0.468**	0.142**	0.194**
	(0.099)	(0.128)	(0.066)	(0.067)
CBI	22.869*	-15.196**	-21.346**	-20.379**
	(13.495)	(5.971)	(7.716)	(6.357)
Exports*CBI	-0.204	1.103**	1.066**	1.029**
	(0.272)	(0.324)	(0.329)	(0.281)
Foreign Liab.	1.387**	1.293*	1.212**	1.008**
	(0.396)	(0.750)	(0.554)	(0.409)
Inflation (lagged)	-8.231	19.057	11.470	4.716
	(35.939)	(16.138)	(9.243)	(8.325)
Raw agr exports	0.421**	0.150	0.969**	0.898**
	(0.204)	(0.182)	(0.259)	(0.229)
Cap openness (Quinn)	0.055	0.021	0.074*	0.061**
	(0.038)	(0.032)	(0.041)	(0.029)
ToT Volatility	32.596*	-33.564	27.347	23.019
	(19.722)	(25.173)	(20.482)	(16.630)
Size (Log GDP)	-1.667	0.325	-0.449	-0.706
	(1.228)	(0.737)	(0.748)	(0.724)
Log GDP pc	-10.085**	-9.809*	-6.577**	-5.345*
	(3.256)	(5.143)	(3.009)	(3.135)
Federalism	-5.538**	-4.268**	-5.177**	-5.203**
	(2.631)	(1.713)	(1.438)	(1.271)
Multiparty govt.	0.343	1.507	3.552**	2.730**
	(1.860)	(1.488)	(0.794)	(0.738)
Diffusion	28.813**	33.210**	-1.706	-0.730
	(9.041)	(15.015)	(1.505)	(1.269)
N	377	377	377	377
Pseudo R2	.8667	.8944	.8598	.8200

**:sig<.05 *:sig<.10 Constant, years under float and three cubic splines not shown.

ures of the exchange rate regime are used (table 6.5).When the Levy-Yeyati and Sturzenegger measures is used, only the interaction of coordination of wage bargaining and exports is statistically significant (and only when a more ample definition of fixing is used). The other *de facto* indicator available, the one developed by Shambaugh (2004), nicely confirms the results found with the Reinhart and Rogoff sample. Lastly, at least for the OECD sample, the model does not do a good job in predicting the de iure exchange rate regime as reported in the IMF classification. Probably, this is the result of unaccounted factors that lead governments to *announce* exchange rate policies, but not to actually stabilize the nominal exchange rate (Alesina and Wagner 2006).

6.4 World Sample

Most of the interesting variation in exchange rate regime choices, however, does not occur within OECD countries. As noted before, the problem of expanding the sample beyond the advanced industrialized world is the lack of good comparable data on the two institutional variables we are interested in. Thanks to recent efforts to ascertain the degree of political independence of monetary authorities in developing countries, this problem is less serious in the case of central bank independence. But data on the degree of coordination of wage bargaining in beyond OECD countries is virtually non-existent.[21] One plausible explanation for this lack of data is that these institutions are specific to advanced industrial countries, and that they simply do not exist in the developing world. Even when they exist, as in some industrializing countries,

[21] Some rather impressionistic attempts have been made for Latin American countries(Marshall 1999, Calvo 2001b). Leaving aside the question of comparability of these indicators across countries and contexts, these measures exist only for a very few number of cases, making it impossible to estimate models as the ones presented before for OECD countries.

Table 6.5: Dependent variable: Exchange rate peg. Different definitions. Logit models with duration dependence

	(1)	(2)	(3)	(4)
Alternative ER definition	LYS (cut-off: fix)	LYS (cut-off: crawling)	Shambaugh	IMF
Exports	-0.160**	-0.143*	-0.119	0.662
	(0.079)	(0.075)	(0.086)	(0.490)
Exports*CWB	0.497	-4.020**	-2.258**	-1.210
	(1.398)	(1.354)	(1.034)	(1.581)
CWB	-0.032	0.135**	0.058*	0.038
	(0.046)	(0.053)	(0.031)	(0.051)
CBI	-1.937	0.893	-3.395	78.062*
	(4.553)	(4.268)	(5.348)	(42.627)
Exports*CBI	0.141	0.067	0.330*	-1.801*
	(0.163)	(0.158)	(0.182)	(1.057)
Foreign Liab.	1.474**	0.801*	0.123	0.671**
	(0.459)	(0.475)	(0.256)	(0.274)
Inflation (lagged)	1.062	15.821*	0.115	-14.850
	(8.121)	(9.291)	(10.204)	(15.691)
Raw agr Eeports	0.182*	0.353**	-0.013	0.980
	(0.102)	(0.099)	(0.090)	(0.648)
Size (LogGDP)	-2.770**	-1.131	-0.818	-1.082
	(0.871)	(0.693)	(0.520)	(0.796)
GDP per capita (log)	-1.638	0.779	-4.443*	21.181**
	(3.030)	(2.227)	(2.296)	(9.734)
Cap openness	0.019	0.030	-0.016	-0.159**
	(0.035)	(0.022)	(0.021)	(0.040)
ToT Volatility	-0.923	9.240	-11.955	-0.972
	(13.667)	(8.052)	(13.527)	(24.780)
Diffusion	23.729**	18.312**	37.585**	41.474**
	(6.315)	(4.082)	(7.102)	(20.991)
Federalism	-5.304**	-3.984**	-1.705**	-4.673
	(1.508)	(0.950)	(0.714)	(2.934)
Multiparty govt.	1.320*	1.545**	0.292	0.611
	(0.753)	(0.575)	(0.536)	(0.983)
N	298	316	377	377
Pseudo R2	.6984	.6433	.7141	.8821

**:sig<.05 *:sig<.10 Constant, years under float and three cubic splines not shown.

their expected impact in wage restraint might be greatly mitigated (or at least altered) by other characteristics of these countries' labor markets, as the large size of the informal sector, or the clustering of these wage bargaining institutions in just a few sectors of the economy.

At any rate, we cannot just infer that the lack of data on these institutions automatically means that wage coordination does not exist in non-OECD countries. It could be that we have just been unable to measure these institutions, or that wage coordination works through other channels (informal negotiations, government's influence over wages,...) that are more difficult to gauged. To indirectly measure the effect of the 'latent' degree of wage coordination, I make use of an almost universal and very robust finding of the industrial relations literature –the strong association between wage coordination and wage equality. Using two recently developed databases on wages across the world, I construct different measures of wage inequality and use them as substitutes for the CWB variable used in the previous sample.

I proceed as follows. In the first part of the section I replicate the analysis done before for OECD countries, using the same BKT estimation method, and with very similar specifications. First I look exclusively at the effect of central bank independence, since this is the only institutional variable available for these countries, and I check whether the results are robust to the use of different indicators of this variable. Next I exploit the data on wage inequality to see whether compression of wages, which could be indicating the presence of some form of wage coordination, mediates the relationship between trade integration and the choice of the exchange rate regime. Finally, I also see to what extent the results hold when alternative classifications of the exchange rate regime are used. In the second part of this world sample analysis, I run Cox event-history models as the ones described above, to study the effect of the main covariates of interest on transitions from pegs to

floats, and vice versa.

Model (1) in table 6.6 presents the results of the basic economic model.[22] In contrast with the results for the OECD sample, most of these economic variables now do exert a significant effect on the probability of adopting a fixed exchange rate regime: high foreign liabilities, past inflation, low proportion of price-sensitive exports, small size of the economy, high levels of capital integration[23] and low terms-of-trade variability appear to be significantly associated with a higher probability of adopting fixed exchange rate regimes. It is noticeable the large effect of the diffusion variable: the proportion of the regional GDP under a fixed exchange rate regime make countries more willing to adopt pegs.[24] One possible explanation for these general results, in contrast with the lack of significant findings in the OECD sample, is perhaps that the advanced industrial countries are just too homogeneous on these economic fundamentals to estimate the individual effects of each covariate. In any case, the coefficient on the level of exports, a variable that according to OCA theory should be associated with a greater probability of adopting pegs, although positive, is again highly insignificant.

Model (2) estimates the same model, but allowing for the effect of exports to vary across different degrees of central bank independence. The level of independence of the central bank is measured as the mean of the governor's turnover rate, measured in 5-year

[22] Capital account openness is measured now by the Ito and Chinn (2002) indicator, because Quinn's measure in not available on a yearly basis for non-OECD countries. The difference in the operationalization is neglible, since the two measures come from the same source (the IMF report on restrictions to the capital account), and are highly correlated.

[23] Although it was argued before that capital account openness could make fixing more costly in terms of loss of monetary autonomy, this result suggests that this effect is outweighted by "fear of floating" considerations: as the macreoeconomic costs of currency volatility increase with financial integration, countries with open capital accounts tend to prefer more stable currency regimes.

[24] See Simmons and Heinmuller (2005).

Table 6.6: Dependent variable: Exchange rate *de facto* peg (Rogoff and Reinhart). Logit model with duration dependence. Global sample

	(1)	(2)	(3)	(4)
Exports	-0.012	-0.206**	-0.237**	-0.234**
	(0.008)	(0.055)	(0.063)	(0.066)
CBI		-1.953	-2.211*	-3.951**
		(1.227)	(1.313)	(1.648)
Exports*CBI		0.154**	0.177**	0.178**
		(0.046)	(0.052)	(0.054)
Foreign Liab.	0.468**	0.380**	0.351*	0.187
	(0.193)	(0.192)	(0.190)	(0.188)
Inflation (lagged)	1.686**	2.119**	1.894**	2.173**
	(0.649)	(0.688)	(0.715)	(0.695)
Raw agr exports	-0.028*	-0.057**	-0.058**	-0.073**
	(0.015)	(0.017)	(0.018)	(0.021)
Diffusion	2.462**	2.888**	3.473**	2.145**
	(0.464)	(0.525)	(0.593)	(0.687)
Union dens.			-0.016*	-0.016*
			(0.008)	(0.009)
Democracy (polity2)			0.002	-0.001
			(0.025)	(0.030)
Log GDP pc	0.114	0.127	0.411*	0.460
	(0.151)	(0.175)	(0.242)	(0.350)
Size (Log GDP)	-0.315**	-0.497**	-0.680**	-0.809**
	(0.077)	(0.112)	(0.128)	(0.160)
Cap openness (Ito)	0.411**	0.433**	0.419**	0.495**
	(0.088)	(0.093)	(0.098)	(0.107)
ToT Volatility	-1.563**	-1.898**	-1.716*	-1.742*
	(0.762)	(0.789)	(0.935)	(1.021)
Autonomy			1.221**	1.546**
			(0.510)	(0.553)
Checks			0.155*	0.165*
			(0.088)	(0.092)
Region dummies (not shown)	No	No	No	Yes
N	1576	1429	1285	1285
Pseudo R2	.6578	.6613	.6618	.6708

**:sig<.05 *:sig<.10 Constant, years under float and three cubic splines not shown.

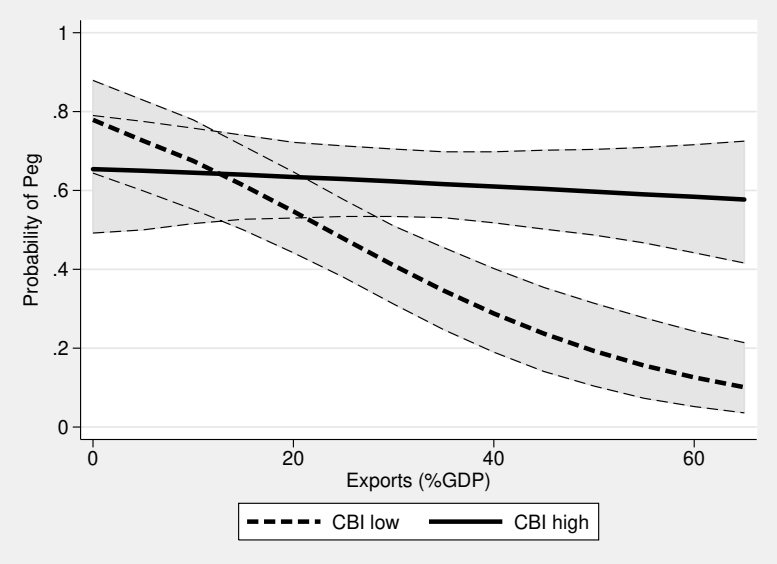
intervals.[25] In this interactive model, two results are worth noting: first, the raw coefficient of exports (i.e. the effect of exports when central bank independence equals zero) becomes negative and statistically significant, as expected. Second, the coefficient on the interaction, as expected, is positive and statistically significant, meaning that this negative effect is reduced as the level of central bank independence increases. To see how these coefficients translate into quantities of interest, figure 6.7 uses the estimates from this regression[26] to plot the predicted probability (with 90% confidence intervals) of observing a peg for different levels of exports when central bank independence is one standard deviation above (CBI high) and below its sample mean (CBI low), keeping the remaining covariates fixed at their respective means.

As in the OECD subsample, at low levels of export intensity, the institutional environment does not seem to matter for exchange rate regime choice –the confidence intervals for the two predicted probabilities overlap. But as trade integration increases, whether a country has an independent central bank or not greatly conditions the likelihood that it will adopt a peg or a float. Whereas the probability of adopting a fixed exchange rate regime decreases significantly as trade expands in countries with politically dependent monetary authorities, this effect vanishes when central bank

[25] The data is from Ghosh et al. (2002), and it has been transformed so that higher values mean higher independence, to ease interpretation. See the data appendix to this chapter for details. Cukierman et al (1992) find that the legal-independence index is correlated with price stability in developed countries, but not in the developing world. They show that in these countries, a de facto measure as the turnover rate of the bank governor is a better proxy for actual central bank independence than the legal index. Since the legal index is not available for all countries, the use of the legal index reduces dramatically the sample size. Just as in the Cukierman et al's case, the results (not shown) are not significant.

[26] Since the magnitude of the coefficients and the standrard deviation are very stable across specifications, estimates from models (3) and (4) would produce virtually the same graph.

Figure 6.7: Export intensity and probability of exchange rate peg under low and high levels of *de facto* central bank independence (global sample)



independence is high.

Models (3) and (4) include additional political controls to the specification. Broz (2003) has argued that democracies are less likely to adopt pegs because the higher level of transparency in these regimes allow for more efficient ways of combatting inflation, such as credible delegation to central banks. However, the POLITY measure of democracy is not related to a particular exchange rate regime in any significant way.[27] Model (3) also includes the union-

[27]It could be that the inclusion of central bank independence in the specification is already capturing this effect. Note however that, in spite of the negative (and sometimes significant) raw coefficient on CBI, these results do

ization rate in the specification. Since the trade-off between nominal exchange rate stability and real wages described in chapter 3 only emerges when workers enjoy some bargaining power and can affect wages, we should expect lower levels of labor power to be linked to fixed regimes. This is in fact the case, although the effect of this variable is very weak. Finally, to see whether the arguments about the domestic division of power affect exchange rate regime choices, this model also includes measures for executive constraints (checks), and a dummy variable indicating the presence of subnational units with fiscal autonomy.[28] Both variables are positively associated with the probability of adopting the peg,[29] but these effects are not robust to the exclusion of developed countries from the sample (see below). Note that the effects of CBI , exports, and its interaction are in fact reinforced after the inclusion of all these controls. Model (4) adds a set of regional dummies (not shown) to control for potential differences in the underlying propensity to adopt pegs across world regions. Although some of these dummies are in fact significant, the effects of the variables of interest remain unchanged.

Table 6.7 uses yearly data for the turnover rate, but only for developing countries (de Haan and Kooij 2000). I estimate two

not support the claim that countries with more independent central banks are unconditionally more likely to adopt floats. In an interacted model, the effect of an interacted variable changes as the value of the variable which is interacted with changes. While CBI is slightly associated with floats when the level of exports is very low (this is in fact what the raw coefficient shows), it is associated with *pegs* when exports are sufficiently high, just as shown in figure 6.7.

[28] This variables are taken from the Database of Political Institutions from the World Bank.

[29] The result for autonomy corroborates the theoretical expectation, but the effect of checks on the executive is the opposite. Probably, instead of capturing the existence of a unitary government who is willing to control monetary policy as in Hellerberg's argument, this variable is measuring the overall quality of the institutional environment, which might be a necessary requirement to maintain a peg (Ghosh et al 2002).

models, one with regional dummies and one without, for two different operationalizations of this time-varying variable: the number of changes of central bank governor in a given year (models (1) and (2)), and the 5-year moving average of the same variable (models (3) and (4)).[30] Since this data is only available for developing countries, the fact that the main conclusions are validated in these models indicate that the results are not exclusively driven by differences between OECD and non-OECD countries. Even *within the developing world*, differences in domestic institutions also seem to mediate the impact of trade integration on exchange rate regime choice.

In the absence of comparable data on wage coordinating institutions for non-OECD countries, I take data on wage inequality as a proxy for the existence of wage coordinating mechanisms in the economy. If wage centralization or coordination produces wage compression,[31] more egalitarian wage distributions should correspond to political economies more likely to have wage coordinating mechanisms. I rely on two different datasets on wages to obtain proxies for the coordination of wage bargaining.[32] The first is data on inter-industry wages from the United Nations Industrial Development Organization (UNIDO) industrial statistics. The University of Texas Inequality Project uses this data to calculate the theil index (a measure of inequality) for every country-year for

[30] Although the first of these two variables offers more variation, the use of this variable might be problematic, in that it interprets as more independence the lack of change of governor in a given year (while government influence is probably better detected over longer time periods). This is why the 5-year window seems to be a more reasonable measure of the existing *de facto* independence in a given year.

[31] The evidence on this association is vast: See for instance Freeman and Katz (1994), Gottschalk and Smeeding (1997), Flanagan (1999), Iversen (1999), Wallerstein (1999), Rueda and Pontusson (2000).

[32] See Milanovic and Squire (2005) for a recent application of these two datasets.

Table 6.7: Dependent variable: De facto exchange rate peg (Rogoff and Reinhart). Logit models with duration dependence. Different operationalizations of CBI

	(1)	(2)	(3)	(4)
CBI Indicator:	Number of governor turnovers		Turnover rate 5-year moving average	
Exports	-0.211**	-0.219**	-0.185**	-0.181**
	(0.061)	(0.063)	(0.052)	(0.053)
CBI	-0.884*	-1.014*	-1.789*	-2.096**
	(0.490)	(0.518)	(0.937)	(0.982)
Exports*CBI	0.050**	0.049**	0.113**	0.100**
	(0.017)	(0.018)	(0.039)	(0.040)
Foreign Liab.	-0.787**	-1.449**	-0.706*	-1.439**
	(0.379)	(0.481)	(0.386)	(0.498)
Inflation (lagged)	0.524	1.064	0.689	1.160
	(0.908)	(0.913)	(0.877)	(0.870)
Raw agr exports	-0.053**	-0.059**	-0.059**	-0.065**
	(0.017)	(0.020)	(0.018)	(0.020)
Diffusion	4.685**	3.074**	4.633**	3.162**
	(0.699)	(0.843)	(0.705)	(0.859)
Union dens.	-0.032**	-0.024	-0.037**	-0.026
	(0.015)	(0.018)	(0.015)	(0.018)
Democracy (polity2)	0.003	0.015	0.007	0.019
	(0.027)	(0.036)	(0.028)	(0.036)
Autonomy	-0.546	-0.363	-0.605	-0.329
	(0.697)	(0.714)	(0.726)	(0.749)
Checks	0.025	0.065	0.025	0.059
	(0.116)	(0.128)	(0.115)	(0.126)
Log GDP pc	1.107**	1.603**	1.069**	1.591**
	(0.317)	(0.433)	(0.318)	(0.437)
Size (Log GDP)	-0.450**	-0.658**	-0.517**	-0.745**
	(0.136)	(0.178)	(0.138)	(0.182)
Cap openness (Ito)	0.517**	0.599**	0.541**	0.625**
	(0.133)	(0.139)	(0.134)	(0.140)
ToT Volatility	-3.222**	-3.026**	-2.846**	-2.746**
	(1.078)	(1.158)	(1.041)	(1.122)
Region dummies (not shown)	No	Yes	No	Yes
N	818	793	818	793
Pseudo R2	.6407	.6458	.6393	.6439

**:sig<.05 *:sig<.10 Constant, years under float and three cubic splines not shown.

which there is data from 1963 to 1999.[33] To correct for the possibility that wage equality could be the result of inflation in the presence of wage indexation schemes,[34] I also use a "modified theil index", which is simply the residual after regressing the domestic level of inflation on the original theil index, for those countries in which there is 15 or more observations. The second database I use to obtain wage inequality estimates is the Occupational Wages Around the World database developed by Freeman and Oostendorp (2000).[35] They standardize wages by occupation using the International Labor Organization LABORSTA database. I then calculated Gini indexes and the ratio of the 50th to the 10th percentile occupational wage[36] for every country and year.[37] The results (table 6.8) show no mediating role of any of these measures of wage inequality on the relationship between trade integration on the choice of the exchange rate regime. None of the coefficients on the wage inequality indicators (either in raw or in interactive form) is statistically different from zero. It is important to note, however, that after the inclusion of these new variables, the other institutional effect, that of the independence of the central bank, remains highly significant.

I now examine whether the results change when a more or less rigid definition of an exchange rate peg is used. Table 6.9 presents the estimates of four models in which the specification is the same

[33] The dataset and the documentation can be found in http://utip.gov.utexas.edu/data.html.

[34] This inflation-driven wage compression would have the opposite effect on wage restraint that the salutary effects of centralization hypothesized before.

[35] The dataset, and details about the standarization procedure can be found in available in http://www.nber.org/oww.

[36] Other measures of inequality (90/10 ratios, coefficient of variation, theil indexes) yield the same (insignificant) results.

[37] The lack of sufficient number of observations per country in this dataset (the OWW dataset starts in 1983, and do not cover all years for every country after that date) makes it impossible to implement the correction for inflation-driven wage compression.

Table 6.8: Dependent variable: *De facto* exchange rate peg (Reinhart and Rogoff). Logit models with duration dependence. Different measures of wage inequality as potential proxies for CWB

	(1)	(2)	(3)	(4)
Wage data	Industry (UNIDO)		Occupation (ILO)	
Inequality measure	Theil Index	Modified Theil Index (see text)	Ratio 50/10	Gini
Exports	-0.210**	-0.217**	-0.286**	-0.321**
	(0.069)	(0.086)	(0.098)	(0.108)
CBI	-1.739	-1.537	-4.189**	-4.067**
	(1.407)	(1.804)	(1.962)	(2.044)
Exports*CBI	0.162**	0.164**	0.240**	0.257**
	(0.054)	(0.070)	(0.075)	(0.079)
Wage inequality	9.216	11.242	0.000	0.592
	(10.557)	(15.483)	(0.368)	(4.832)
Exports*Wage Inequality	-0.188	-0.111	0.001	0.099
	(0.225)	(0.420)	(0.013)	(0.155)
Union dens.	-0.016*	-0.017*	-0.008	-0.005
	(0.008)	(0.009)	(0.013)	(0.013)
Foreign Liab.	0.341*	0.579**	0.226	0.241
	(0.192)	(0.248)	(0.232)	(0.233)
Inflation (lagged)	1.977**	2.437**	2.151**	2.273**
	(0.721)	(0.829)	(0.774)	(0.784)
Raw agr exports	-0.056**	-0.035	-0.033	-0.036
	(0.019)	(0.023)	(0.029)	(0.030)
Diffusion	3.529**	3.555**	3.494**	3.630**
	(0.602)	(0.697)	(0.736)	(0.750)
Democracy (polity2)	0.002	-0.008	0.025	0.017
	(0.025)	(0.030)	(0.032)	(0.033)
Log GDP pc	0.529*	0.337	0.224	0.331
	(0.286)	(0.292)	(0.344)	(0.349)
Size (Log GDP)	-0.669**	-0.596**	-0.613**	-0.574**
	(0.130)	(0.151)	(0.174)	(0.175)
Cap openness (Ito)	0.412**	0.343**	0.365**	0.359**
	(0.099)	(0.111)	(0.131)	(0.130)
ToT Volatility	-1.600*	-1.657	-1.338	-1.358
	(0.950)	(1.010)	(1.093)	(1.092)
Autonomy	1.220**	1.059*	1.526**	1.480**
	(0.508)	(0.557)	(0.636)	(0.638)
Checks	0.150*	0.113	0.183*	0.182*
	(0.088)	(0.099)	(0.107)	(0.109)
N	1281	1070	862	862
Pseudo R2	.6616	.6819	.6777	.6791

**:sig<.05 *:sig<.10 Constant, years under float and three cubic splines not shown.

as in model 3 in table 6.6 with the addition of wage inequality operationalized as the corrected theil index from the UNIDO database, for the same four definition of pegs discussed before. Just as in the OECD sample, the interaction of central bank independence and the level of exports is positive in significant for all definitions of exchange rate regime choice but the more strict category -hard pegs. Interestingly enough, the wage inequality variable and its interaction are significant in this case: the level of exports is negatively associated with the adoption of hard pegs when inter-industry wage inequality is high. This could suggest that, in line of the finding for OECD countries, some form of wage coordinating mechanism might be required for the most form of fixed exchange rate regimes to be sustainable in highly internationalized economies.

As a further robustness check, Table 6.10 runs similar models, but using alternative classifications of the exchange rate regime: the *de facto* measures of Levy-Yeyati and Sturzenegger and Shambaugh, along with the de iure IMF classification, and operationalizing central bank independence in two different ways discussed before: the mean of the 5-year turnover rate from Ghosh et al. (2002), which covers developed and developing countries, and the 5-year moving average turnover rate from de Haan and Kooij (2000), which is only available for the latter. When this second indicator of is used, the interactive term between CBI and exports is positive and significant in regardless the exchange rate classification used. When the mean turnover rate measured in 5-years intervals is used, the interaction is highly significant if when the de iure definition is the dependent variable is used, and almost significant when the Shambaugh's method is used to classify pegs and floats. Wage inequality, on the other hand, does not seem to mediate the relationship between trade integration and the choice of the exchange rate regime –in one of the six regression is significant, but the sign has the opposite sign: export intensity is associated with pegs (as defined by Levi-Yeyati and Sturzenegger's) under

Table 6.9: Dependent variable: *De facto* exchange rate peg (Reinhart and Rogoff). Different cut-off points to qualify as peg. Logit models with duration dependence

	(1)	(2)	(3)	(4)
Peg definition (cut-off point)	Hard peg	Crawling peg	Narrow band	Moving band
Exports	-0.025	-0.188**	-0.210**	-0.130**
	(0.096)	(0.083)	(0.069)	(0.065)
CBI	-0.916	-2.911*	-1.739	0.026
	(1.861)	(1.620)	(1.407)	(1.389)
Exports*CBI	0.031	0.135**	0.162**	0.097*
	(0.071)	(0.062)	(0.054)	(0.050)
Wage inequality	22.340*	2.614	9.216	9.858
	(13.487)	(11.344)	(10.557)	(10.367)
Exports*Wage Inequality	-0.642**	-0.002	-0.188	-0.227
	(0.307)	(0.246)	(0.225)	(0.214)
Union dens.	-0.009	0.000	-0.016*	0.003
	(0.012)	(0.010)	(0.008)	(0.008)
Foreign Liab.	0.505**	0.362**	0.341*	0.417**
	(0.211)	(0.177)	(0.192)	(0.208)
Inflation (lagged)	1.102	0.377	1.977**	1.468*
	(1.124)	(0.832)	(0.721)	(0.771)
Raw agr exports	-0.040*	-0.050**	-0.056**	-0.035
	(0.022)	(0.020)	(0.019)	(0.022)
Diffusion	3.652**	2.957**	3.529**	4.385**
	(0.887)	(0.688)	(0.602)	(0.674)
Democracy (polity2)	-0.057*	-0.071**	0.002	0.004
	(0.031)	(0.028)	(0.025)	(0.027)
Log GDP pc	0.542*	0.234	0.529*	0.472
	(0.326)	(0.285)	(0.286)	(0.305)
Size (Log GDP)	-0.300**	-0.335**	-0.669**	-0.660**
	(0.145)	(0.130)	(0.130)	(0.139)
Cap openness (Ito)	0.396**	0.460**	0.412**	0.165*
	(0.137)	(0.113)	(0.099)	(0.100)
ToT Volatility	-1.823	-2.120*	-1.600*	-1.473
	(1.490)	(1.243)	(0.950)	(1.033)
Autonomy	0.574	1.004*	1.220**	1.070**
	(0.578)	(0.529)	(0.508)	(0.505)
Checks	0.190**	0.173*	0.150*	0.051
	(0.089)	(0.095)	(0.088)	(0.082)
N	1281	1281	1281	1281
Pseudo R2	.7159	.6878	.6616	.6549

**:sig<.05 *:sig<.10 Constant, years under float and three cubic splines not shown.

high levels of wage inequality.

To recap, there seems to be relatively robust evidence indicating that the degree of central bank independence, as measured by the turnover rate of central governors, mediates the relationship between trade integration and the adoption of fixed exchange rate regimes, in line with the expectations from our theory. This mediating role of CBI is not restricted to OECD countries: even within developing countries, higher levels of export intensity appear to be associated with greater preferences for floats when the degree of independence of the monetary authorities is low, but this negative relationship disappears as central bankers become more political independent from their governments. Wage coordinating institutions could be playing a mediating role too –it could be that it seems that higher levels of exports are associated with rigid fixed exchange rate regimes only under the presence of wage coordination–, but the indirect nature of the data we use and the lack of robust results does not warrant any strong conclusions about the role of wage bargaining institutions beyond OECD countries.

6.4.1 Event-history Models

In this section I use the event-history techniques discussed before to study how duration of floating and fixed exchange rate regimes is affected by the presence of these institutional settings that are conditioning exporters' preferences toward exchange rate regimes. By examining the two processes separately, we will be able to identify the channel(s) through which these institutional effects operate: is it that pegs with central bank independence are more durable as trade integration expands? or is that fixing becomes a more attractive option for internationally-oriented floating regimes when the monetary authorities are politically independent? or is it both?

Table 6.11 present the estimates of a Cox model of the duration of commitments to fixed exchange rate regimes, using different

Table 6.10: Dependent variable: Exchange rate peg (different definitions), with different operationalizations of CBI. Logit models with duration dependence

	(1)	(2)	(3)	(4)	(5)	(6)
Alternative ER regime definition	LYS		Shambaugh		IMF	
CBI measure	Mean TR	5-year TR mov av	Mean TR	5-year TR mov av	Mean TR	5-year TR mov av
Exports	-0.072	-0.188**	-0.109*	-0.173**	-0.199**	-0.326**
	(0.058)	(0.057)	(0.065)	(0.060)	(0.071)	(0.080)
CBI	-1.177	-1.595*	-2.333*	-2.243**	-4.044**	-3.883**
	(1.145)	(0.848)	(1.368)	(1.053)	(1.537)	(1.272)
Exports*CBI	0.045	0.080**	0.080	0.096**	0.141**	0.195**
	(0.044)	(0.037)	(0.051)	(0.042)	(0.055)	(0.053)
Wage inequality	-1.680	-20.718**	1.095	-3.931	-10.547	-15.419
	(7.241)	(8.141)	(7.559)	(8.368)	(9.912)	(11.729)
Exports*Wage Inequality	-0.055	0.488**	-0.150	0.043	0.313	0.424
	(0.164)	(0.214)	(0.144)	(0.178)	(0.241)	(0.318)
Union dens.	0.013**	0.013	-0.001	-0.007	0.014	-0.004
	(0.006)	(0.013)	(0.008)	(0.014)	(0.009)	(0.017)
Foreign Liab.	0.616**	0.618*	0.431**	0.023	0.303**	0.819
	(0.183)	(0.367)	(0.134)	(0.429)	(0.141)	(0.554)
Inflation (lagged)	-0.626	-0.182	-1.060	-0.225	-1.929**	-2.782**
	(0.594)	(0.622)	(0.876)	(0.867)	(0.689)	(0.909)
Raw agr exports	-0.014	-0.027**	-0.004	0.007	0.002	0.000
	(0.014)	(0.012)	(0.015)	(0.014)	(0.018)	(0.018)
Diffusion	2.349**	1.837**	1.939**	2.216**	2.984**	2.789**
	(0.473)	(0.499)	(0.535)	(0.628)	(0.662)	(0.742)
Democracy (polity2)	-0.066**	-0.041*	-0.034	0.006	-0.013	-0.021
	(0.020)	(0.023)	(0.024)	(0.029)	(0.029)	(0.034)
Log GDP pc	0.428**	-0.098	0.030	-0.099	0.274	0.356
	(0.191)	(0.216)	(0.214)	(0.256)	(0.267)	(0.331)
Size (Log GDP)	-0.512**	-0.527**	-0.397**	-0.336**	-0.457**	-0.633**
	(0.093)	(0.104)	(0.109)	(0.122)	(0.134)	(0.164)
Cap openness (Ito)	0.233**	0.461**	0.336**	0.349**	0.054	0.339**
	(0.073)	(0.099)	(0.093)	(0.117)	(0.128)	(0.170)
ToT Volatility	0.347	0.073	0.631	0.391	-0.317	0.279
	(0.757)	(0.790)	(0.815)	(0.882)	(0.933)	(1.107)
Autonomy	0.450	1.207**	1.023**	-0.280	-0.283	-1.628*
	(0.382)	(0.531)	(0.515)	(0.912)	(0.620)	(0.912)
Checks	0.062	-0.038	0.100	-0.055	-0.104	0.042
	(0.062)	(0.097)	(0.066)	(0.105)	(0.099)	(0.132)
N	1116	719	1284	820	1275	811
Pseudo R2	.4380	.3882	.5689	.5431	.7003	.7068

**:sig<.05 *:sig<.10 Constant, years under float and three cubic splines not shown.

Table 6.11: Event-history models. Cox proportional hazards models. Failure: Transition to float

	(1)	(2)	(3)	(4)	(5)	(6)
Def of peg	Narrow band		Crawling peg		Moving band	
Exports	0.021**	0.063*	0.036**	0.158**	0.014	0.012
	(0.007)	(0.035)	(0.013)	(0.048)	(0.010)	(0.043)
CBI		-1.275**		0.207		-2.330**
		(0.627)		(1.021)		(0.584)
Exports*CBI		-0.027		-0.092**		0.009
		(0.026)		(0.041)		(0.030)
Foreign Liab.	-0.384	-0.382	-0.625*	-0.807*	-0.689**	-0.748**
	(0.259)	(0.260)	(0.360)	(0.426)	(0.349)	(0.354)
Inflation (lagged)	-0.844	-0.925	0.785	0.629	0.118	-0.542
	(1.520)	(1.234)	(0.645)	(0.693)	(1.189)	(1.147)
Raw agr exports	0.045	0.047	0.053**	0.068**	-0.013	-0.008
	(0.029)	(0.029)	(0.021)	(0.021)	(0.035)	(0.034)
Diffusion	3.677**	3.168**	3.093**	3.165**	2.950**	2.710**
	(1.032)	(1.012)	(1.308)	(1.367)	(0.807)	(0.870)
Cap openness (Ito)	-0.583**	-0.523**	-0.751**	-0.692**	-0.382**	-0.337**
	(0.175)	(0.172)	(0.190)	(0.184)	(0.153)	(0.137)
Size (Log GDP)	0.412**	0.431**	0.370**	0.457**	0.316**	0.338**
	(0.131)	(0.138)	(0.132)	(0.155)	(0.147)	(0.152)
ToT Volatility	2.499	1.557	1.730	1.789	0.941	0.225
	(1.580)	(1.229)	(1.602)	(2.011)	(1.422)	(1.037)
Log GDP pc	-0.520**	-0.483**	-0.203	-0.243	-0.154	-0.084
	(0.222)	(0.236)	(0.258)	(0.294)	(0.225)	(0.264)
N	920	920	558	558	1128	1128
No of countries	71	71	57	57	83	83
No of transitions	41	41	34	34	44	44

Standard errors clustered by country in parentheses. **:sig<.05 *:sig<.10

definitions of a exchange rate peg.[38] For each definition, I estimate two models: a simple 'economic' model first, and then an interactive one in which central bank independence is allowed to affect the hazard, both on its own and interactively with the level of trade integration.[39]

Regardless of the cut-off point used to differentiate pegs from

[38] Note that the number of countries under observations changes for each definition of regime, since only countries with fixed exchange rate commitments enter in the event-history dataset. The less rigid the definition, the more countries there are in the estimation. The number of countries under hard pegs is too small to allow for the estimation of the Cox model.

[39] To maximize the number of transitions in the event-history models, only variables for which there is virtually no missing data are included in the estimations.

floats, a large proportion of regional GDP under a peg,[40] a more open capital account, and a smaller size of the economy are significantly associated with a lower probability of 'failure' –i.e. with a larger duration of fixed exchange rate regimes. The level of exports is associated with a higher hazard, indicating that pegs adopted by closed economies tend to be more durable.[41] Once institutional effects are allowed for, the effects of trade integration on the sustainability of pegs are a bit more complicated: central bank independence either reduces the hazard independently of the level of exports (models (2) and (6)),[42] or reduces the hazard as export intensity increases (if a more narrow definition of a peg is used, as in model (4)) In all cases, when central bank independence is at its minimum (i.e. when the governor turnover rate is at its maximum), the effect of trade integration in increasing the likelihood of abandoning the exchange rate commitment is amplified, as indicated by the larger raw coefficient on the export variable.

An easy way to interpret event-history models is by plotting the predicted survival function $S(t)$, which reflects the estimated probability of surviving beyond time t for different values of the independent variables. The survival function is easily derived from the estimated hazard rate $h(t)$:

$$S(t) = e^{-H(t)}$$

where $H(t)$ is the cumulative hazard (i.e. the accumulation of hazards from time 0 to until time t):

[40] The diffusion variable in all duration models is measured the proportion of regional GDP under a peg regime, defined in the same way as the 'failure' category for each model.

[41] A similar result is obtained by Brock-Blomberg et al (2005) using similar event-history techniques in a sample of Latin American countries.

[42] Since it cannot be ruled out that the interacted variable in these models is zero, the effect os this variable when the level of exports is zero (which is given by the raw coefficient on CBI) also applies to all the value range of the export intensity variable.

$$H(t) = \int_0^t h(t)dt$$

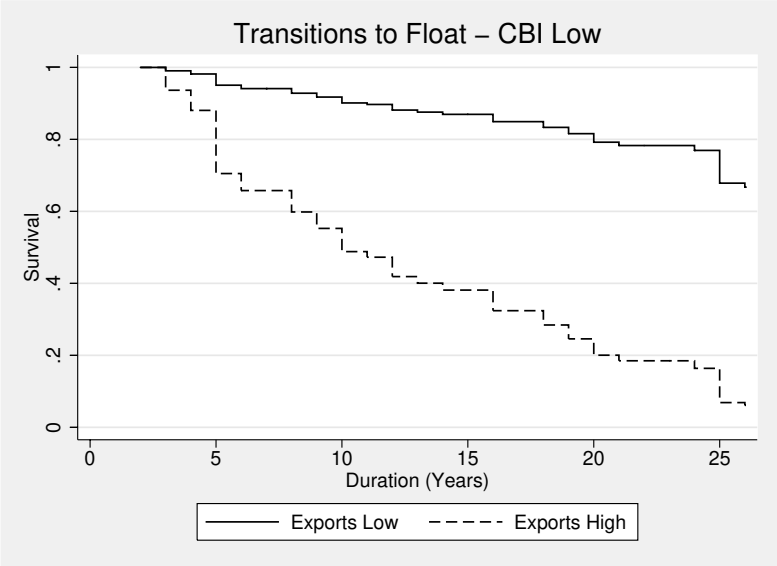
The survival function is easily interpretable: the steeper it gets, the higher the hazard, and the more likely it is that after a given period of time the regime will have *failed* (i.e. a regime change will have occurred). Figures 6.8 and 6.9 use the estimates from model (2) in table 6.11 to estimate the effect of export intensity on the survival rate, when central bank independence is low and high, respectively.[43] When central bank are not politically independent (figure 6.8), a greater level of exports dramatically reduces the survival rate of exchange rate commitments: while nearly 80% of 'closed-economy' pegs are expected to still be in place after two decades, in internationally-oriented economies, only one in every five fixed exchange rate regimes is expected to last that long.

When the central bank is independent (figure 6.9), the picture changes completely. A higher level of exports is still associated with a shorter duration of the peg, but the effect is now muted by the strong negative effect of the CBI variable on the hazard rate. In line with our theoretical expectations, a higher degree of central bank independence makes fixed exchange rate regimes more sustainable in the face of higher levels of trade integration.

Analyzing the persistence of *floats* in an event-history framework is not common in the exchange rate literature. Duration models tend to focus on the persistence of pegs, under the assumption that the exchange rate commitment is inherently exposed to exogenous risks, and that the role of the covariates in the model is to affect the robustness of the regime to these pressures. Under this framework, it would make little sense to study the duration of floats, since there is no government commitment that could be potentially 'put into question' as a result of exogenous forces. How-

[43] Low and high are defined as one standard deviation below and above the sample mean of the CBI variable, respectively.

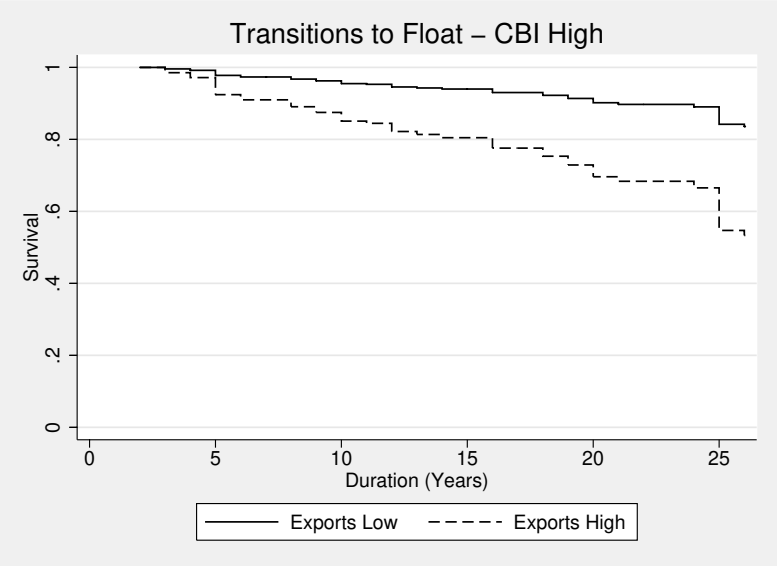
Figure 6.8: Estimated survival functions of fixed exchange rate regimes with low levels of CBI under different degrees of export intensity



ever, this is not the only way to interpret duration models. An event-history model can be simply understood as a way to model the likelihood of occurrence of an event (such as the adoption of a peg regime) *that could potentially happen to all units that are being observed*, and that is time-dependent (i.e. the period of time that had elapsed before time t affects the probability of observing the event in time t).[44] Just as international relations scholars have

[44]Note that the string case for using event-history models to analyze the duration of exchange rate regime commitments –that the effect of the covariates on the hazard is conditional on the time the country has been under a peg– is easily extensible to ths study of the adoption of pegs by floating exchange rate

Figure 6.9: Estimated survival functions of fixed exchange rate regimes with high levels of CBI under different degrees of export intensity



used event-history methods to analyze the causes of the outbreak of war (Beck *et al* 2002) under the assumption that every year there is some positive probability of an inter-state violent conflict to occur, it is possible to apply the same methods to the study of the emergence of fixed exchange rate regimes: we simply assume that floating countries have some probability of adopting a peg every year, and that this probability is affected by the number of years it has lived under a float, and a series of covariates that we

regimes. The response of a long-lasting floating regime to an exogenous event that make a peg more attractive might well be different that that of country that has only been living under a float for a short period of time.

Table 6.12: Event-history models. Cox proportional hazards models. Failure: Transition to peg

	(1)	(2)	(3)	(4)	(5)	(6)
Def of peg	Narrow band		Crawling peg		Hard peg	
Exports	0.008	-0.106*	0.003	-0.126*	0.004	-0.091
	(0.011)	(0.055)	(0.006)	(0.072)	(0.010)	(0.060)
CBI		-1.303		-1.268		-1.801
		(0.838)		(1.015)		(1.131)
Exports*CBI		0.086**		0.095*		0.072*
		(0.037)		(0.051)		(0.042)
Foreign Liab.	-0.134	-0.062	0.310*	0.320*	0.599**	0.611**
	(0.250)	(0.265)	(0.180)	(0.181)	(0.177)	(0.175)
Inflation (lagged)	2.220**	2.104**	1.550**	1.486**	0.972	0.753
	(0.659)	(0.742)	(0.579)	(0.658)	(0.708)	(0.504)
Raw agr exports	-0.002	-0.012	-0.020	-0.030	-0.085**	-0.091**
	(0.019)	(0.019)	(0.024)	(0.025)	(0.042)	(0.043)
Diffusion	3.903**	4.065**	2.699**	2.740**	2.742**	2.926**
	(0.832)	(0.862)	(0.725)	(0.728)	(1.025)	(1.059)
Cap openness (Ito)	0.117	0.107	0.174	0.149	0.093	0.083
	(0.144)	(0.145)	(0.131)	(0.128)	(0.149)	(0.151)
Size (Log GDP)	-0.044	-0.125	0.068	-0.020	0.120	0.065
	(0.107)	(0.114)	(0.094)	(0.090)	(0.109)	(0.098)
ToT Volatility	-2.044	-2.312	-2.954	-2.928	-3.453*	-3.671*
	(1.955)	(1.942)	(2.105)	(2.028)	(2.059)	(2.058)
Log GDP pc	0.060	0.121	-0.187	-0.081	-0.192	-0.103
	(0.239)	(0.246)	(0.229)	(0.225)	(0.253)	(0.267)
N	707	707	1064	1064	1230	1230
No of countries	62	62	78	78	81	81
No of transitions	38	38	40	40	28	28

Standard errors clustered by country in parentheses. **:sig<.05 *:sig<.10

are interested in.

Table 6.12 presents the results for this second set of event-history models. As before, the table presents two estimations for three possible definitions of the exchange rate regime (from less (models (1) and (2)) to more rigid (models (5) and (6)) cut-off points to qualify as a fixed exchange rate regime).[45]

Two economic covariates appear to be clearly associated with 'failure' (i.e. a higher probability of adopting a fixed exchange rate regime: diffusion (the greater the number of countries living under exchange rate pegs, the higher the odds of adopting a peg), and

[45] Now, it is the small number of countries moving away from more flexible regimes than moving floats which prevents the estimation of Cox models for the less rigid definition of pegs.

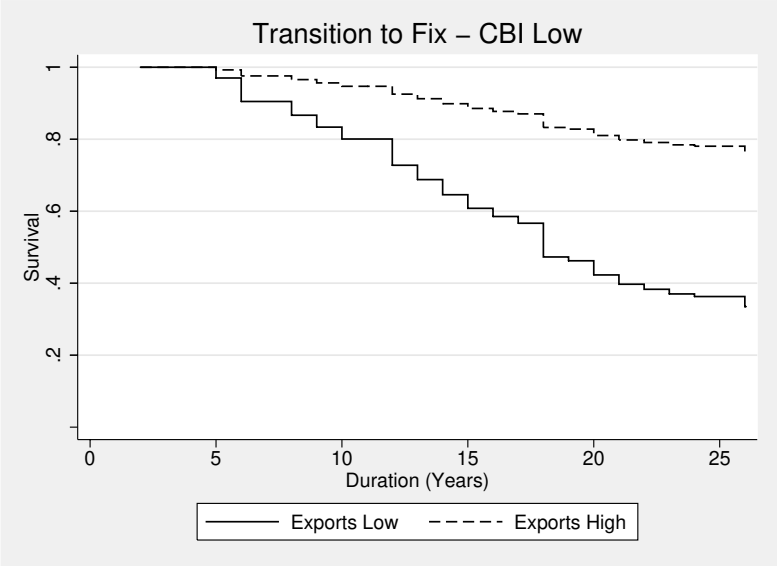
inflation (past inflation also increases the probability of moving to a peg regime).[46] The effect of exports, when modeled in unconditional form, is, again, not significant: according to models (1), (3) and (5), the level of exports is not related significantly with either a higher or lower probability of adopting a peg. However, when we let the effect of exports to be conditional on the degree of independence of the central bank, significant differences emerge: under low levels of CBI, export intensity significantly decreases the likelihood of adopting a peg (i.e. floats do not *fail*). As CBI increases, however, the effect of exports becomes less negative (or more positive). Note that this result holds for all three different definitions of the exchange rate regime.

As before, figures 6.10 and 6.11 plot the survival functions for different values of central bank independence and trade integration, using now the estimates from model 2 in table 6.12.

When central banks are politically dependent, the model predicts a long persistence of floating exchange rate regimes (i.e. a low likelihood of adopting a peg) if export intensity is high. Again, this is consistent with our expectations: in those countries, the politically powerful exporting sector will try to prevent the adoption of pegs, anticipating the consequences that such a monetary regime will have under such institutional environment. As central banks become more independent (figure 6.11), the opposition of exporters to fixed exchange rate regime abates. Although the differences are not huge, the presence of politically independent monetary authorities makes internationally-oriented countries now *more likely* to adopt pegs than closed economies: according to these estimates, one out of every two closed economies will still be a floating regime after seventeen years, whereas after only twelve years one out of

[46] It is interesting to note that, except for diffusion and our interactive institutional effect, the variables that are significantly associated with the maintenance of a peg are not the same ones as the ones that explain the persistence of it, indicating that these are in fact different processes, not necessarily driven by the same forces.

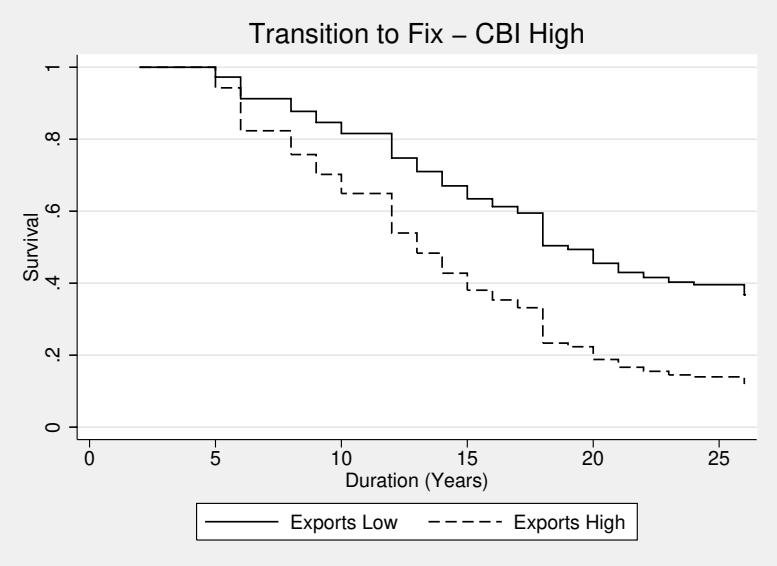
Figure 6.10: Estimated survival functions of floating regimes with low levels of CBI under different degrees of export intensity



every two high-trading floats will have adopted a narrow band (or a more rigid regime).

To summarize, the event-history analysis of transitions in and out fixed exchange rate regimes indicate that, according to our theoretical expectations, the institutional configuration of a country's political economy (and more specifically, the degree of independence of the central bank) is key to understand the effect of trade integration both on the duration of exchange rate commitments and in the likelihood of adopting pegs by floating regimes. Fixed exchange rate regimes last longer when they are not highly integrated in the international economy, but this effect is much stronger when the central bank is not independent. Among floats, the ef-

Figure 6.11: Estimated survival functions of floating regimes with high levels of CBI under different degrees of export intensity



fect of trade integration also varies by the level of central bank independence: a higher level of exports makes transitions to pegs significantly less likely when central bank independence is low, but more so when central bank independence is high.

6.5 Conclusions: The Conditional Effects of Trade Integration on Exchange Rate Regime Choice

This chapter has attempted to show one fundamental implication of the political-economy theory of exchange rate regime prefer-

ences developed in chapter 3. In that chapter I argued that, because of the multidimensional and institutionally-mediated effects of exchange rate regimes, the regime preferences of the exporting sector should vary according to some institutional characteristics of the political economy, namely, the degree of central bank independence, and the level of coordination of wage bargaining. Because these institutions make the internationally-oriented sectors of the economy more or less favorable to fixed exchange rate commitments, the increasing political leverage of these groups that economic internationalization brings about leads to different government exchange rate regime strategies in different institutional environments: when central bank independence and coordinated wage bargaining are high (low), pegs become more (less) politically attractive.

The evidence presented in this chapter strongly supports this conjecture. In OECD countries, where good and comparable data on the existence of these two institutions is available, the presence of politically independent central banks and centralized wage bargaining is clearly associated with a higher probability of adopting fixed exchange rate regimes as the economy becomes more internationalized. But in the absence of these two institutions, the evidence indicates that trade integration has the opposite effect –it increases the probability of adopting floats. In non-OECD countries, the lack of good comparable on wage bargaining institutions forces us to focus on the effect of the degree of independence of the monetary authorities. The central bank governor's turnover rate, a *de facto* measure of central bank independence, mediates the effect that the level of exports has on the choice of the exchange rate regime: while trade integration is associated with adoption of floats in countries with politically dependent central banks, this relationship vanishes as the monetary authorities becomes more independent.

Finally, the event history analyses of the duration of pegs and

floats indicate that this institutional effects are significant in both type of regimes: central bank independence strongly increases the duration of fixed exchange rate commitments, almost cancelling the negative effect of trade integration; and among floats, the effect of openness in the duration of floating regimes is heavily influenced by the degree of central bank independence: high-trading floats are very unlikely to experience transitions to pegs when the monetary authority is politically dependent, but the effect is reversed as the degree of independence of the central bank increases.

This project started off with a puzzle: although there are powerful theoretical reasons to expect that the degree of trade integration should be a clear determinant of the propensity of countries to adopt fixed or floating exchange rate regimes, the empirical evidence on the relationship between these two variables is highly inconclusive. To better understand that relationship, I developed a model of the exchange rate regime *preferences* of the internationally-oriented sector of the economy, which is expected to be politically more determinant as the economy opens up. After showing in chapters 4 and 5 that this model does indeed go a long way in explaining variation in preferences for exchange rate regimes in different contexts, this chapter has shown that the model can help solve the initial puzzle too. Because the regime's effects on the international sector are conditional to the domestic institutions in place, the empowering of this groups caused by economic integration is associated with different dominant exchange rate strategies across countries. The evidence analyzed here shows that trade integration does matter for exchange rate regime choice, but in a slightly more complicated way that the standard approaches predict, suggesting that the effects of internationalization are not only economic (i.e. it influences what the optimal policy rule is) but also, and perhaps more importantly, political (i.e. it changes the domestic distribution of power).

6.6 Appendix A. Data

Tables 6.13 and 6.14 present the descriptive statistics and the data sources of all the variables in chapter 6. for the OECD and for the world sample, respectively.

Table 6.13: Descriptive statistics and sata sources, small (OECD) sample

Variable	*Mean*	*SD*	*Min*	*Max*	*Sources*
Exchange rate regime indicators					
Hard Peg	0.27	0.45	0	1	Reinhart and Rogoff (2003)
Crawling Peg	0.35	0.48	0	1	Reinhart and Rogoff (2003)
Narrow Band	0.66	0.47	0	1	Reinhart and Rogoff (2003)
Moving Band	0.72	0.45	0	1	Reinhart and Rogoff (2003)
Levy-Yeyati & Sturzenegger (Peg)	2.01	0.91	1	3	Levy-Yeyati and Sturzenegger (2003)
Shambaugh (Peg)	0.32	0.47	0	1	Shambaugh (2004)
Peg (IMF classification)	0.22	0.42	0	1	Ghosh et al (2002)
Independent variables					
Exports as % GDP	34.25	21.02	7.21	151.89	WB, *World Development Indicators*
Trade as % GDP	69.01	40.27	15.99	282.89	WB, *World Development Indicators*
Raw agricultural Exports as % total exports	4.61	5.08	0.42	30.61	WB, *World Development Indicators*
Lagged Inflation	0.09	0.11	-0.01	1.40	Penn World Tables
Volatility Terms of Trade	.116	.468	.00003	3.77	IMF *International Financial Statistics*
Foreign Liabilites to Money	5.23	21.54	0.00	165.08	IMF *International Financial Statistics*
Size (Log GDP)	12.37	1.64	8.24	16.01	Penn World Tables
GDP per capita (US constant dollars)	19264	5265	8228	48217	Penn World Tables
Capital Openness (Quinn)	76.37	22.09	12.50	100	Quinn (1997)
Federalism	0.30	0.46	0	1	Hallerberg (2003)
Multipartism	0.59	0.49	0	1	Hallerberg (2003)
Level of coordination of wage bargaining	3.15	1.31	1	5	Golden and Wallerstein (2006)
Centralization	0.31	0.17	0.07	0.65	Iversen (1999)
Coordination (Kenworthy)	3.34	1.45	1	5	Kenworthy (2001)
Coordination (OECD)	2.12	0.68	1	3	OECD (1997)
Cukierman's Legal Index of Central Bank Independence	0.42	0.19	0.17	0.92	Guillen and Polillo (2005)

Table 6.14: Descriptives statistics and data sources, large (world) sample

Variable	*Mean*	*SD*	*Min*	*Max*	*Sources*
Exchange rate regime indicators					
Hard Peg	0.36	0.48	0	1	Reinhart and Rogoff (2003)
Crawling Peg	0.44	0.50	0	1	Reinhart and Rogoff (2003)
Narrow Band	0.62	0.49	0	1	Reinhart and Rogoff (2003)
Moving Band	0.72	0.45	0	1	Reinhart and Rogoff (2003)
Levy-Yeyati & Sturzenegger (Peg)	2.44	0.81	1	3	Levy-Yeyati and Sturzenegger (2003)
Shambaugh (Peg)	0.49	0.50	0	1	Shambaugh (2004)
Peg (IMF classification)	0.61	0.49	0	1	Ghosh et al (2002)
Independent variables					
Exports as % GDP	34.61	22.37	0.42	151.89	WB, *World Development Indicators*
Trade as % GDP	76.47	43.83	1.53	290.85	WB, *World Development Indicators*
Raw agricultural Exports as % total exports	6.50	10.70	0	92.07	WB, *World Development Indicators*
Lagged Inflation	0.14	0.19	-3.87	1.49	Penn World Tables
Volatility Terms of Trade	.174	1.609	0	28.824	IMF *International Financial Statistics*
Foreign Liabilites to Money	2.33	15.05	0	237.83	IMF *International Financial Statistics*
Size (Log GDP)	9.13	2.45	3.56	16.01	Penn World Tables
GDP per capita (US constant dollars)	7616	8311	170	84408	Penn World Tables
Capital Openness (Ito and Chinn)	-0.05	1.49	-1.75	2.62	Ito and Chinn (2002)
Democracy (polity II indicator)	1.13	7.59	-10	10	Polity IV database
Checks	2.42	1.74	1	18	World Bank, *Database on Political Instituions*
Autonomous subnational units	0.07	0.26	0	2	World Bank, *Database on Political Institutions*
Union density	27.12	24.11	0	100	Rama and Artecona (2002)
Inter-Industry Inequality, theil index	0.05	0.06	0.00	1.03	UTIP database
Occupational Wages Ratio P50/P10	1.60	0.48	1.01	4.70	OWW database
Occupational Wages, Gini coefficient	0.24	0.11	0.01	0.57	OWW database
CBI Turnover rate 5-year Mean	0.24	0.26	0.00	1.40	Ghosh et al (2002)
CBI Turnover rate 5-year Moving Average	0.25	0.24	0.00	1.60	De Haan and Kooij (2000)

6.7 Appendix B. Classifying *de facto* Exchange Rate Regimes

This appendix describes briefly the different methodologies employed by the three sources used to classify *de facto* exchange rate regimes, and shows how these measures are correlated with one another.

6.7.1 Reinhart and Rogoff

Reinhart and Rogoff (2004) use what they call a 'natural algorithm' to classify exchange rate regimes. The basic difference with the other methods is that Reinhart and Rogoff use *actual market-determined* exchange rates (as opposed to official ones) to classify regimes, which makes it the most appropriate classification is we are interested in the *de facto* stability of the nominal exchange rate. Their classification algorithm is rather complex (see Reinhart and Rogoff 2004 for details). First, they divide the sample between countries depending on whether there is a unified exchange rate or parallel market exchange rates exist. In the former case, they check whether there was a formal exchange rate commitment and check whether this announcement corresponds to the actual behavior of the exchange rate. If the announcement is confirmed, the regime is classified accordingly. When parallel exchange rates exist, or when the announcement cannot be confirmed (the vast majority of cases), a *de facto* classification is provided based on the following procedure: if the annual inflation exceeds 40%, the regime is classified as a 'free falling', on the grounds that these hyperinflationary cases in which monetary policy is out of control, if classified as floating regimes, would make low inflation floats look like *de facto* pegs (Reinhart and Rogoff 2004: 16). For the remaining cases, detailed chronologies of actual exchange rate behavior are used to classify the regime as a peg, a band, a crawling

Table 6.15: Levy-Yeyati and Sturzenegger's classification of regimes according to the cluster analysis

ER volatility	Vol. ER changes	Vol. Reserves	Classification
Low	Low	Low	Inconclusive
High	High	Low	Flexible
High	High	High	Dirty float
High	Low	High	Crawling peg
Low	Low	High	Fixed

peg, crawling band, moving band, managed float, or freely floating, yielding the classification provided in table 6.1 above.

6.7.2 Levy-Yeyati and Sturzenegger

Levy-Yeyati and Sturzenegger's (2003) method is to use cluster analysis to group countries in their exchange rate-related policies, using three variables to characterize these 'regimes': the degree of exchange rate volatility (the average of the absolute monthly percentage changes in the nominal exchange rate in one year), the volatility of exchange rate changes (the standard deviation of the monthly percentage changes in the exchange rate), both against the currency of reference for each country, and the volatility of reserves (under the assumption that countries under peg regimes must intervene in the foreign exchange market to keep the value of the currency stable). As shown in table 6.15, these cluster analysis creates five groups of countries, characterized by these different values of the three underlying indicators.

The use of reserves as an indicator of the exchange rate regime has been criticized (Shambaugh 2004: 35-36) on the grounds that lack of intervention do not necessarily imply the presence of a float (monetary authorities in fixed exchange rate regimes might

not need to intervene, or they might do so by directly affecting the money supply) and the existence of it does not directly imply the presence of a peg (countries might alter their level of reserves for other motives than exchange rate stabilization).

6.7.3 Shambaugh

Shambaugh's (2004) *de facto* classification is probably the most straightforward method. He classifies as pegs those countries that have maintained the bilateral exchange rate with their country of reference within a +/- 2% band in a given year, or if the country has maintained a monthly zero percent change in that bilateral exchange in 11 months per year (assuming that the one-month change simply reflects a realignment within the peg). This exception is problematic for our purposes, since a country that permanently devalue (or revalue) the value of its currency (and therefore does not maintain nominal stability over long horizons) is classified as a peg, whereas for our purposes this would be better classified as a floating regime.

Shambaugh's method can be seen as a compromise between Reinhart and Rogoff's and Levy-Yeyati and Sturzenegger's (see contingency tables below) [47]. Like the latter, but unlike the former, Shambaugh uses only official exchange rates rather than market-determined ones. On the other hand, like Reinhart and Rogoff but unlike Levy-Yeyati and Sturzenegger, Shambaugh's *de facto* measure exclusively looks at the behavior of the exchange rate to classify regimes, and pays no attention to other indicators to infer the currency regime in place.

Reinhart and Rogoff and the alternative classification methods

[47] This could explain why the results presented before differ by the classfication method used: they work well with the Reinhart and Rogoff's classification, reasonably well with Shambaugh's, and less so when Levy-Yeyati and Sturzenegger's classification is used.

Table 6.16: Reinhart and Rogoff measure vs. Levy-Yeyati and Sturzenegger's classification (row percentages in parentheses)

RR measure	Flexible	Dirty Float	Crawling	Fix
Craw. peg=0	439 (39.76)	112 (10.14)	104 (9.42)	449 (40.67)
Craw. peg=1	81 (5.90)	53 (3.86)	95 (6.91)	1,145 (83.33)

Table 6.17: Reinhart and Rogoff measure vs. Shambaugh's classification (row percentages in parentheses)

RR measure	Float	Fix
Crawling peg=0	1,144 (79.22)	300 (20.78)
Crawling peg=1	333 (23.13)	1,440 (76.88)

Tables 6.16 through 6.18 present contingency tables reporting the association between the Rogoff and Reinhart's preferred classification and the alternative methods also used in the chapter.

Table 6.18: Reinhart and Rogoff measure vs. IMF *de iure* classification (row percentages in parentheses)

RR measure	Float	Fix
Crawling peg=0	701 (51.73)	654 (48.27)
Crawling peg=1	373 (29.39)	896 (70.61)

6.8 Appendix C. Trade Openness and Export Intensity

Tables 6.19 and 6.20 replicate the main BKT models for the OECD and the world sample using, instead of the export intensity variable, the most common indicator of trade openness –exports plus imports as percentage of GDP. Given the high correlation between this and the previous variable, it is hardly surprising that the substantive results obtained before remain virtually unchanged.

Table 6.19: Replication of results for the OECD sample using trade openness instead of level of exports

	(1)	(2)	(3)
Trade	-0.001	-0.146**	-0.213**
	(0.024)	(0.062)	(0.096)
CWB		-2.252*	-5.551**
		(1.324)	(2.316)
Trade*CWB		0.039*	0.069**
		(0.023)	(0.035)
CBI		-20.730**	-22.922**
		(7.152)	(7.764)
Trade*CBI		0.464**	0.561**
		(0.145)	(0.169)
Foreign Liab.	1.894**	1.368**	1.083**
	(0.752)	(0.663)	(0.497)
Inflation (lagged)	0.063	3.446	10.464
	(9.644)	(10.996)	(11.382)
Raw agr exports	0.148*	0.373**	0.994**
	(0.086)	(0.149)	(0.261)
Cap openness	0.029	0.037	0.068*
	(0.021)	(0.027)	(0.041)
ToT Volatility	2.125	0.864	23.364
	(12.717)	(12.510)	(20.304)
Diffusion	5.590	6.166	4.389
	(5.818)	(5.497)	(6.135)
Size (Log GDP)	-0.429	0.192	-0.311
	(0.400)	(0.669)	(0.690)
Log GDP pc	-1.148	-2.677	-5.322*
	(2.262)	(2.558)	(3.013)
Federalism			-5.367**
			(1.278)
Multiparty govt.			3.707**
			(0.796)
N	377	377	377
Pseudo R2	.7950	.8184	.8611

**:sig<.05 *:sig<.10 Constant, years under float and three cubic splines not shown.

Table 6.20: Replication of results for global sample using trade openness instead of level of exports

	(1)	(2)	(3)	(4)
Trade	-0.004	-0.092**	-0.101**	-0.094**
	(0.004)	(0.027)	(0.031)	(0.033)
CBI		-1.684	-1.902	-3.738**
		(1.252)	(1.342)	(1.661)
Trade*CBI		0.068**	0.076**	0.073**
		(0.023)	(0.026)	(0.027)
Foreign Liab.	0.453**	0.359*	0.311*	0.149
	(0.194)	(0.190)	(0.188)	(0.183)
Inflation (lagged)	1.716**	2.078**	1.834**	2.144**
	(0.650)	(0.691)	(0.715)	(0.694)
Raw agr exports	-0.028*	-0.055**	-0.053**	-0.068**
	(0.015)	(0.018)	(0.019)	(0.021)
Diffusion	2.433**	2.895**	3.412**	2.146**
	(0.465)	(0.530)	(0.595)	(0.690)
Union dens.			-0.014*	-0.015
			(0.008)	(0.009)
Democracy (polity2)			-0.000	-0.007
			(0.025)	(0.030)
Log GDP pc	0.094	0.111	0.366	0.338
	(0.151)	(0.175)	(0.240)	(0.337)
Size (Log GDP)	-0.303**	-0.494**	-0.642**	-0.742**
	(0.082)	(0.119)	(0.132)	(0.164)
Cap openness (Ito)	0.403**	0.428**	0.405**	0.487**
	(0.087)	(0.093)	(0.097)	(0.106)
ToT Volatility	-1.577**	-1.974**	-1.780*	-1.866*
	(0.764)	(0.798)	(0.940)	(1.019)
Autonomy			1.150**	1.449**
			(0.504)	(0.546)
Checks			0.151*	0.159*
			(0.087)	(0.091)
N	1576	1429	1285	1285
Pseudo R2	.6573	.6595	.6586	.6679

**:sig<.05 *:sig<.10 Constant, years under float and three cubic splines not shown.

Chapter 7

Conclusions: The Institutional Determinants of Exchange Rate Politics in the Open Economy

This dissertation originated from a simple question –how are trade and monetary integration related– and an intriguing puzzle –why economic internationalization prompted opposite exchange rate policies in different contexts. The argument to answer that question and to solve that puzzle is political, economic, and institutional. It is political in the sense that I argue that the fundamental effect that trade integration has on exchange rate policy is by expanding the exposed sector of the economy, and its domestic political leverage. It is economic in that I argue that the choice of the exchange rate regime has two contradictory effects on this sector's economic wellbeing: a fixed exchange rate regime is at-

tractive because it guarantees nominal stability; while a flexible regime is attractive because it offers protection against the effects of wage militancy in nontradables. Finally, it is also institutional because the relative weight of these two economic effects –which will determine the policy that the international sector will lobby for– is conditional on the presence of certain domestic institutions, namely the degree of coordination of wage bargaining and central bank conservatism. In the remainder of this concluding chapter I summarize the evidence that has been presented in the previous chapters, discuss a potential problem of endogeneity, and suggesting avenues for further research.

7.1 Institutions, Exchange Rate Preferences and Regime Choices. Summarizing the Results and Putting the Pieces Together

The institutional model of exchange rate preferences derived in chapter 3 had two observable implications, one direct –that the attitude of the exporting sector towards fixing the nominal exchange rate varies across institutional environments– and one indirect – that the association between the degree of internationalization of the economy and the adoption of more rigid stable exchange rate regimes also depends on domestic institutions. When wage bargaining is coordinated at higher levels, and when the monetary authorities prioritize the fight against inflation, exporters are more likely to embrace fixed exchange rate regime, and economic integrations should be associated with a higher propensity to adopt this type of currency regimes. When wage bargaining takes place instead at lower levels, and when the monetary authorities are accommodating, exporters will be more likely to prefer floating regimes and trade integration will be associated with floating exchange rate regimes.

The evidence presented in the previous chapters gives support to these two hypotheses. In chapters 4 and 5 I examined whether the variation in preferences towards exchange rate regimes could be accounted for by differences in the macroeconomic institutional setting, as suggested by the theory The analysis of Mexican public opinion data in the 90s suggested that the erosion of coordinated wage bargaining with which the peg regime was inaugurated in the late 80s was indeed associated with mounting skepticism towards the fixed exchange rate regime, especially among those sectors of the population more liklely to represent the interests of the internationally-oriented producers. In the eve of the 1994 devaluation, export-representative respondents were significantly more likely to be in favor of the abandonment of the peg regime than the rest of the public. This results contrasts sharply with the results obtained at the beginning of the decade, in the heyday of the peg period, when exporters were highly supportive of the very same currency regime.

Chapter 5 presented a different test of that theory. I analyze to what extent preferences toward the creation of a common currency in Europe (a process that can be understood as equivalent to the adoption of a common fixed exchange rate regime by all EMU-participating members) differ by the economic and institutional characteristics of the country. Specifically, I analyze whether the size of the international sector interacts with the level of coordination of wage bargaining in the way expected by the theory. The analysis of survey data from a series of Eurobarometers clearly indicates that it does: the political clout of exporters measured as the degree of economic openness of the country is robustly associated with the degree of support for the common currency only if wage bargaining is relatively centralized, and the more centralized it is, the steeper the association it becomes.

After showing that variation in preferences toward exchange rate regimes in different contexts could be explained by our model,

chapter 6 looked at an indirect but perhaps more interesting observable implication that follows from the theory: if the preferences of the international sector are context-dependent, the relationship between trade integration and exchange rate regime *choice* should be also contingent on the presence of coordinating wage bargaining institutions and monetary authorities with strong anti-inflationary preferences. Using a variety of indicators of exchange rate regime choice, degree of coordination of wage bargaining, and independence (conservatism) of the monetary authorities, I show that this simpe conjecture is strongly borne out by the data: in OECD countries, in the presence of both politically independent central banks and centralized systems of wage bargaining, the relationship between trade integration and pegged regimes is clearly positive –and clearly negative when these institutions are absent. The empirical support for this contention does not come from OECD countries. Outside the developed world, *de facto* measures of central bank independence similarly mediate the relationship between openness and currency choices: greater levels of economic internationalization are associated with stronger propensity to adopt floating exchange rate regimes when the monetary authorities are not politically independent.

Interestingly, the results show that while the OECD data indicates that the relationship between trade and monetary integration can be either negative or positive depending on the institutional mix, the non-OECD results show that in the less-developed world, macroeconomic institutions can, at best, prevent the relationship between trade and fixed exchange rate regimes from being negative.[1] Although this could only reflect the lack of good institutional data for non-OECD countries, these results suggests the

[1] Compare for instance figure 6.6 with 6.7. While in OECD countries trade integration can lead to a higher probability of adopting exchange rate pegs (under the appropriate institutional environment), in the global sample economic integration is associated either with a lower probability of adopting pegs or with no different probability of adopting a particular regime.

possibility that the institutional environment necessary to guarantee a positive association between trade and monetary integration only obtains in the developed world.

Finally, and in line with these findings, the event-history analysis of pegs and floats reveals that the duration of exchange rate regimes is also a function of the interplay between openness and domestic institutions: trade integration reduces the duration of pegs dramatically when central banks do not enjoy political autonomy (but only marginally so when they do), and increases the duration of floats when the central bank is not politically independent (but the effect reverses when it is). In short, trade openness seems to make exchange rate pegs more politically unsustainable when there are no institutional guarantees for wage restraint, exactly as the model would predict.

Taken as a whole, this set of results nicely complement each other: domestic macroeconomic institutions condition exchange rate preferences, and these (institutionally-conditioned) preferences are associated with different exchange rate regime choices. Precisely because exchange rate preferences are context-dependent, the growing political leverage that the international sector enjoys as the economy opens up results in opposite government's exchange rate policies in different contexts: a greater tendency to adopt pegs if institutions foster wage restraint, but a preference for letting the currency float if these institutions are lacking. The dissertation thus solves two recurring puzzles of the exchange rate literature: why exchange rate politics look so different across countries (with the same economic group lobbying for pegs sometimes, and for floats some others; and why trade integration appears to be so erratically associated with fixed exchange rate regimes. Because the consequences of exchange rate regimes are multi-dimensional, and the weights of these dimensions are somehow given by the domestic institutions, exchange rate politics and policies vary across countries and time.

A question that remains open is which of the two institutional dimensions highlighted by the theory and analyzed in the empirical chapters is more important, and under what circumstances. In other words, is central bank conservatism more, less, or just as effective as centralized wage bargaining in fostering wage moderation in the nontradable sector, indirectly making exporters more likely to prefer exchange rate pegs? Given the problems of data comparability that we have been dealing with in the empirical analysis, it is impossible to provide a definitive answer to these questions. Yet a detailed look at the evidence presented in the empirical analysis allows us to speculate about the differential effects of these two institutions. First, when the effects of both two institutions can be properly measured and compared (in the OECD sample analyzed in chapter 6), the results suggest that central bank independence, which proxies for the non-accommodating stance of the monetary authority, seems to play a more important role than centralized wage bargaining in mediating the impact of export intensity on exchange rate regime choices.[2] Furthermore, in the global sample, different indicators of central bank independence continue to exert a significative effect, while no mediating role of the (arguably poor) proxies for wage coordination could be detected outside the OECD.

While this suggests that the effect of central banks tends to be generally more robust than that of wage bargaining institutions, it is worth noting an important exception to this result. For the strictest forms of fixed exchange rate regimes, it seems that coordination of wage bargaining is more important. Indeed, a review of the results presented in chapter 6 indicates that, when the narrowest definition of the peg is used, it is the degree of coordination of wage bargaining the key variable mediating the impact of trade

[2] See figure 6.5, which shows the effect of export intensity on the probability of observing a fixed exchange rate regime for different values of the two institutional dimensions considered.

integration on exchange rate regime choice. Strinkingly, this is true for bith the OECD and the world sample.[3] We can only speculate here, but this regularity in the findings might suggest that for the more ambitious forms of monetary integration, the international sector cnn only be persuaded to prefer a fixed exchange rate regime if bargaining is centralized (perhaps because this institution is perceived as more 'credible' or 'rigid' than delegation of monetary policy to an anti-inflationary central bank. This would also explain why wage bargaining institutions appear to mediate so strongly the attitudes of Europeans towards the project of a common currency –an extreme case of a fixed exchange rate regime–, and why the development of EMU broght about pressures to centralize wage bargaining in several European countries, as disccussed at length in chapter 5.

7.2 The Question of Endogeneity

An implicit assumption of the main argument of the dissertation is that the domestic institutions which condition the preferences of the exporting sector are exogenously given. In principle, this is not a far-fetched assumption. Whereas the decisions over the exchange rate can be clearly depicted as clear 'choices' the governments make, the institutional setting these government operate under are more or less imposed and are much more rigid and stable. With respect to the short-term governments' decisions over the exchange rate, the degree of coordination of wage bargaining and, to a lesser extent, the anti-inflationary stance of the monetary au-

[3] For the reasons outlined before, one should be reluctant to draw strong conclusions from the results obtained when measures of wage-inequality are used as proxies for wage bargaining coordination. Yet it is remarkable that the only significant result obtained with these measures is when the dependent variable –the adoption of a fixed exchange rate regime– is defined narrowly as a 'hard peg' (see model 1 in table 6.9) –a result analogous to the finding for OECD countries (see model 1 in 6.4).

thorities can be be assumed as given. These institutions, often the result of complex historical processes and domestic political equilibria,[4] are as a consequence extremely difficult to change in the short run –hence justifying the assumption of exogeneity.

However, the argument made in chapter 5 relating the institutional changes experienced in some European political economies to the process of monetary unification clearly contradicts this notion of institutions as exogenous. In the run-up to monetary unification, so the chapter argued, domestic institutions did change in many countries, and these institutional transformartions were indeed related to changes in our "endogenous" variable: the exchange rate regime. How can we reconcile this with the general theoretical framework that takes institutions as given?

First, the European case was exceptional in two ways. First, the adoption of a common currency in Europe occurred (with some exceptions) simultanously in all EU member countries. This implied that, from the standpoint of each individual government, the typical benefits of adopting a peg were in this case multiplied by the fact that most of the main trade partners would adopt the same monetary standard at the same time. The exceptional gains from adopting a fixed exchange rate regime in the European case might have made worthwhile in this case to investing in (otherwise too costly) domestic institutional transformations in would-be EMU participating countries.[5]

[4]For instance, the corporatist literature has long argued that the emergence of coordination of wage bargaining could only be understood as part of a broader political and economic institutional framework aimed at securing wage restraint and full employment (Cameron 1984, Katzenstein 1985, Lange and Garrett 1985, Hicks 1988).

[5]Similarly, chaper 4 shows how the intensification of trade links with the United States and the adoption of a fixed exchange rate regime in the 80s were coupled with an attempt by the Mexican government to re-establish centralized social concertation with unions and employers.

Another historical analogy can be found in the period of the expansion of the gold standard in the end of the 19th century. The gold standard, which ef-

While the extraordinary gains from nominal stability could have made domestic institutions *endogenous*, the fact that the creation of a common currency was embedded into a wider project of economic and political integration allows us to consider the existence of a monetary union somehow *exogenous* to the individual decisions of at least some governments. For countries traditionally committed to the process of integration, participation in the monetary union was seen as a means to reinforce the European and international position of the country –a political 'must', given their long-standing foreign policy positions.[6] Since these individual countries cannot be said to be in control the integration agenda, the project of EMU (and its implicit participation) makes it reasonable in this case to be considered as exogenously given.

All in all, albeit it is sensible to think in most cases of institutions as constraints on government's decisions over the exchange rate –and that is how the theory has been presented–, it is worth emphasizing that the validity of the main argument does not hinges on a particular direction of the causal chain: the international sector will welcome fixed exchange rate regimes only under

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fectively implied the adoption of a common fixed exchange rate by all countries who decided to back theire currencies by gold, could have been responsible for the institutional changes that took place in some export-dependent countries with powerful labor movements that were able to affect wage developments in nontradables. Peter Swensons' (1991) interpretation of the birth of centralized labor relations in Scandinavia at the turn of the century fits perfectly well with the theoretical framework offere here.

[6]Sectoral differences notwithstanding, the evidence presented in chapter 5 shows indeed that general attitudes towards the process of European integration were strongly correlated with public opinion support for EMU.

In pro-integration countries, participation in the common currency was typically interpreted as a consequence of the general foreign policy orientation of the government. This view is well reflected in an *El Pais* op-ed by diplomat Carlos Alonso Zaldivar analyzing the country's mood towards the common currency: "The Spanish do not expect any miracles from the euro, but they understand that participating in the single currency will stregthen their position in Europe and the world". El Pais, July 1st, 1997.

institutional guarantees for wage restraint when the exchange rate regime is analyzed as the choice variable, but it can also be argued that fixed exchange rate regimes will likely prompt domestic institutional change if they are to be favored by the international sector of the economy.

A second problem of endogeneity refers to the possibility that the size of the exporting sector might be also endogenous to the exchange rate regime in place. Fixed exchange rate regimes, so it has been argued, may foster cross-border exchanges, increasing the size of the exporting sector.[7] However, the consensus of the empirical literature is that the trade-increasing effects of fixed exchange rate regimes are very weak (Cote 1994, Bacchetta and van Wincoop 2000, Clarke et al 2004) –with the exception perhaps of the more extreme case of pegs, monetary unions (Rose 2000). More importantly, the evidence presented here suggests that if trade intensity is endogenous to the adoption of fixed exchange rate regimes, it is so in a very strange way: a fixed exchange rate would increase exports in countries endowed with some domestic institutions, but would reduce it otherwise –a result completely at odds with the theoretically expected effects of monetary regimes on the degree of trade integration.

7.3 Further Research

To borrow the famous John Ruggie's expression, this dissertation has shown why and how monetary integration needs to be institutionally 'embedded' to be politically sustainable in open economies. A key implication of the the theory and the evidence is that, without certain domestic institutions, greater economic internationalization is likely to lead to greater, not lesser, degrees of mon-

[7] Note however that the previous assumption that nominal stability benefits exporters does not necessarily imply an increase in the *magnitude* of trade exchanges must follow from greater stability of the nominal exchange rate.

etary *disintegration*. Several questions now arise: In what contexts and under what circumstances will this institutional framework be more likely to emerge? Does economic internationalization reinforce these institutions, or does it put in peril? These are still open questions for which more research is necessary. Given what we have learned in this project, on the answers to these questions lies the future of the international monetary realtions in an economically integrated world.

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