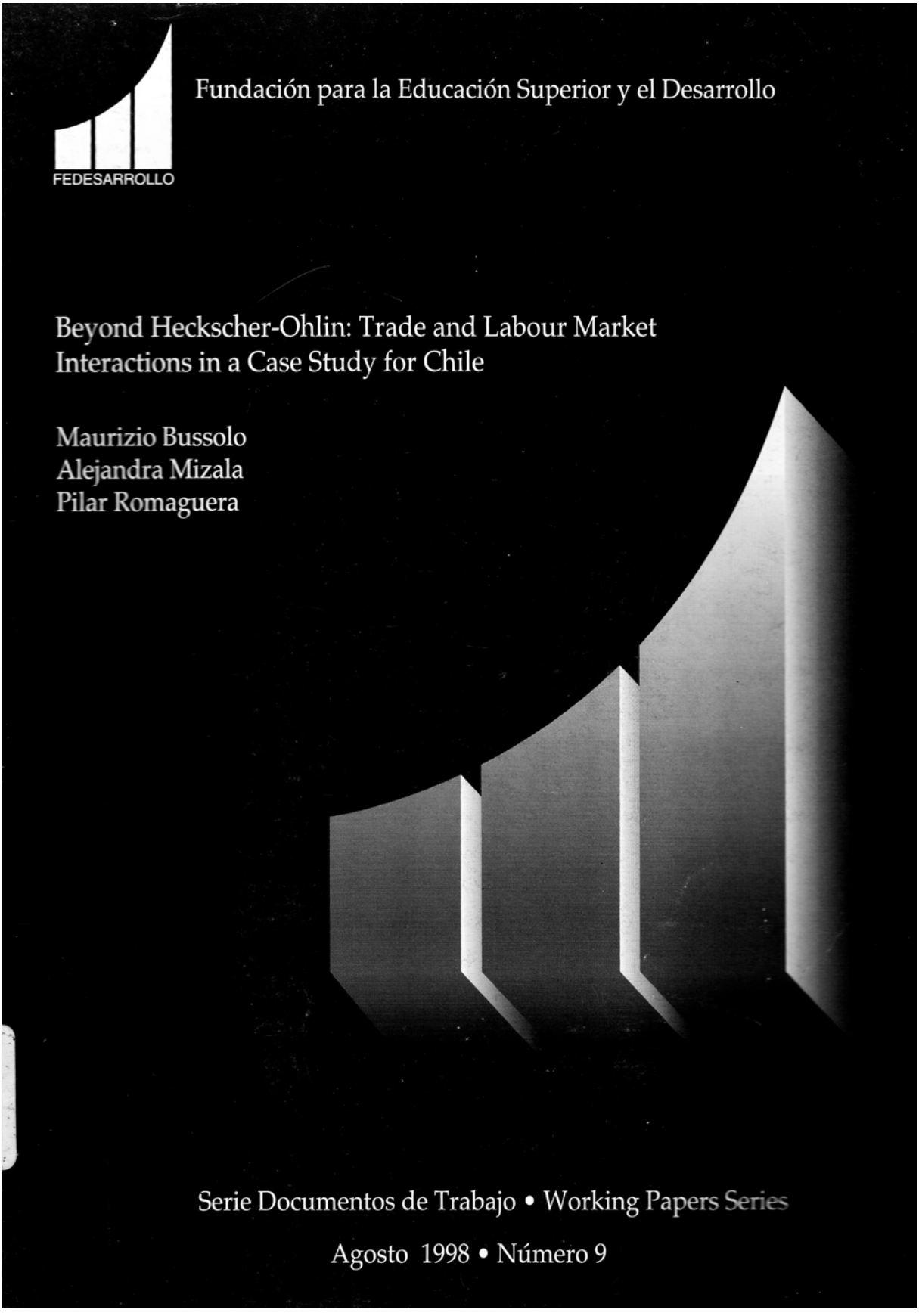

Fundación para la Educación Superior y el Desarrollo

Beyond Heckscher-Ohlin: Trade and Labour Market Interactions in a Case Study for Chile

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Serie Documentos de Trabajo • Working Papers Series

Agosto 1998 • Número 9

04

9-1

Beyond Heckscher-Ohlin: Trade and Labour Market Interactions in a Case Study for Chile*

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ABSTRACT

In an era of globalization, patterns of economic growth and employment will depend critically upon domestic labour market conditions. This paper presents empirical evidence on how labour market regulations might interact with expanded trade. We present computable general equilibrium simulations of recent trade reform proposals for Chile. Firstly we analyse how these reforms affect Chile structural adjustment in a perfectly competitive labour markets framework, then we modify this by introducing various kind of rigidities considered relevant in this country. In this way, we attempt to unify two approaches of previous research efforts in this area. These usually focus separately either on the significance of trade, or on the effect of labour market regulations as possible explanations for variations in the wage gap and labour demand. Our results confirm that interaction between labour market regulations and expanded trade may explain the Chilean observed widening wage gap. Additionally our assessment of the significance of these factor market imperfections can be used to guide future joint trade and labour markets reforms.

* The authors acknowledge financial support from FONDECYT project N° 1960705

1 Introduction

Among the effects of globalisation on the wealth and poverty of nations, that on jobs and wages has been, by large, the most politically sensitive. From their point of view, economists have contributed to the debate focusing mainly on two issues: the effect of trade reform on wages and employment, and the effect of labour market regulations on labour demand.

In the simplest international trade model of comparative advantage, a standard prediction is that increased trade causes resources reallocation and production specialisation in those sectors that use intensively the country most abundant factor. When dealing with developing countries, which presumably are endowed with a relative abundance of low-skilled labour, the described model concludes that increased trade should shift output towards low-skill-labour intensive goods, increase demand for unskilled workers and raise their wage relative to the other factors' rewards. In a global context this means that developed countries should record a specialisation in sectors intensive in high-skilled labour and a widening gap between unskilled and skilled relative wages.

Contrasting with the above clear prediction, some authors[1] have observed an increase for skilled labour relative wage in developing countries, and others[2] have attributed just a very small role to trade in explaining the widening wage gap in industrial nations. Most of these new studies original contributions have consisted of refinements of the comparative advantage theory. They incorporate new elements such as capital and labour mobility, technology improvements, and product and labour markets imperfections, including standards and regulations.

This paper contributes to this debate by studying the linkages between trade and labour markets in Chile. Our objective is to show that by introducing labour market regulations in a simple general equilibrium model, the described standard prediction breaks down, and some puzzling empirical observations, such as the mentioned widening earning gap, can be

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[1] Slaughter and Swagel (1997) cite evidence for Mexico, Meller and Tokman (1996) study the Chilean case, and Sanchez and Nuñez (1998) examine the Colombian case.

[2] See in particular Cline (1997).

accommodated. In particular we develop a computable general equilibrium model[3] and we start by simulating trade opening with perfectly competitive labour markets. In this purely neoclassical framework we register the predictions of the standard theory: Chile specialises in low-skill-labour and natural resources intensive sectors, recording an increase in the remuneration of these factors. Then we extend the model and include some labour market imperfections relevant for the Chilean case. We run again the same simulations and verify that the links between trade and labour markets are now more complicated and counter-intuitive results emerge. For instance when minimum wage restrictions or the imperfect bargaining process between unions and employers are taken into account, trade liberalisation induces skilled workers wage increases rather than unskilled labour wage improvement as in the standard case.

In order to identify the main restrictions on the functioning of the Chilean labour market, the paper includes empirical evidence from econometrics studies undertaken by the authors and other economists. An additional objective of the paper, beyond quantifying the economic effect of the regulations present in the labour market in Chile, may be ascribable to the effort of providing a set of new elements to be taken into account when further (trade or labour) reforms will be undertaken. Focusing the analysis on the structure and conduct in domestic labour markets rather than just considering initial labour endowments provides a fresh view of the interaction between trade and domestic policies and may suggest new ways of taking advantage of increased international integration.

The paper is organised as follows: the first section we discuss the main features of the Chilean labour market, in particular we analyse to what extent the labour market is competitive and/or segmented. We also present a brief description of the main structural features of the Chilean economy, and the results for several experiments of trade reform with perfectly competitive markets are illustrated. In the second section we analyse two important labour market regulations in Chile: minimum wages and union bargaining. For each of these cases, we will first present empirical evidence of their significance for the country and then quantify it more precisely with model simulations. Finally, the third

[3] A complete description of the CGE model built for Chile can be found in Bussolo, Mizala and Romaguera (1998).

section summarises the main conclusions of this study.

2 The base case: trade reform in liberal labour markets

In this section we present results for several experiments of trade reform employing a CGE model for the Chilean economy and assuming perfectly competitive good and factor markets. But before examining the simulations' results, we discuss some of the main characteristics of the Chilean labour markets. We try to ascertain to what extent this market is really competitive, and how significant is its segmentation into a formal and an informal part. A brief description of the main structural features of the Chilean economy is also added to facilitate the interpretation of the simulation results.

2.1 The workings of the Chilean labour market

In theoretical models the assumption of a competitively operating labour market is based on equivalence between the wage and the value of marginal product. In time-series studies, a competitive market is related to the fact that wages respond to market conditions, or, to be more precise, to unemployment levels. Conversely cross-section analyses associate a competitive wage-setting process with the fact that observed wage differentials correspond to differences in workers' qualifications or human capital.

The relation between unemployment levels and wages has generally been tested in aggregate Phillips curve-type equations. Attempts have also been made to establish relations between regional and sectoral differences. For example, Blanchflower and Oswald (1994) present empirical evidence of a negative relation between wage levels and local levels of unemployment among workers of a certain region, both for the USA and for Great Britain.

As regards estimations of Phillips curves for Chile, Uthoff and Riveros (1984), inspired by the weak relation found between wage inflation and the level of unemployment in previous studies, estimate a two-sector (formal-informal) model, analysing sectoral interaction in the face of changes in relative wages.

Our own Phillips Curve-type estimations, using aggregate data for the Chilean economy, confirm the hypothesis of greater flexibility of wages in response to market conditions after 1982, although the economy was highly indexed during this period.

Table 1 provides estimates of nominal wage equations, distinguishing two periods:

1976-1982 and 1983-93. In the first period, collective bargaining was prohibited up to 1979 and there were mandatory wage increases both for the public and the private sector. Between 1980 and 1982 there was a transition phase where collective bargaining was reinstated for the private sector, but policies of wage indexation based on past inflation persisted, and public-sector wage increases were made extensive to the private sector not bargaining collectively. In the second period, all regulations had been eliminated, and the government only set public-sector wages increases and minimum wages.

Equation (1) highlights the fact that, between 1976 and 1982, wages were basically set by public-sector wage hikes; equation (2) indicates the zero explanatory power of unemployment in this period. Equation (3) shows that in the later period, when mandatory wage indexation was abolished and public-sector wage increases ceased to be extensive to the private sector, the model looses explanatory power, and the unemployment rate becomes a statistically significant variable in explaining wage behaviour. Changes in labour legislation at the beginning of the 1980s gave the market greater influence in wage-setting processes.

Another set of studies addresses the question of labour market flexibility by analysing inter-industry wage differentials. Some authors argue that wage differentials may be consistent with competitive models of the labour market when it is possible to show that these differentials correspond to unmeasured skills.[4] Others show that wage differentials persist even when all relevant human capital variables are controlled for.[5]

Estimations of inter-industry wage differentials for the Chilean case lend support to the view of a non-competitive labour market. The results obtained highlight the magnitude of wage dispersion and the regularity of its behaviour. Industries paying high wages are comprised of relatively bigger, capital-intensive firms, with higher gross profit levels per worker (Romaguera, 1990). The wage dispersion seen in the Chilean economy is an indicator of the heterogeneity that exists between the different sectors: in some sectors efficiency wages would appear to prevail while in others there may be a market-clearing wage. Allen et al. (1994) show that wage dispersion in Chile has fluctuated in recent

[4] See, among others, Murphy and Topel (1990) for the case of the USA.
[5] See, among others, Krueger and Summers, (1988) and Akerlof and Yellen, (1990).

decades, but the trend is towards an increase in dispersion.

The results of aggregate time-series analysis (Phillips curve), as well as cross-section analysis at the micro level (wage differentials), show that wages in Chile have not necessarily responded to market conditions. This is firstly because, during a significant period (1975-1982), wages were set institutionally, and secondly because there are sectors that pay wages above market-clearing rates because profits can be increased in this way (efficiency wages) or because of other imperfections in the labour and product markets.

The informal sector in Chile

Widespread non-compliance with labour market regulation should be carefully taken into account when studying labour market adjustments in developing countries. As it will be shown below, trade reforms can produce quite different outcomes whether the existence of a segmented labour market is taken into account or not. The segmentation hypothesis implies that while one sector (formal) has rigidities, either exogenous or endogenous[6], there is another (informal) segment which receives the excess labour supply generated in the first market and where wage-setting is competitive.

Estimates exist of the size of the informal sector in Chile, as well as of the wage differential between the formal and informal sectors. Table 2 estimates the informal sector of the Chilean economy at about 22% of the employed population at the national level. Another study[7] has examined historical figures at the aggregate level, and found a high degree of stability in the size of this sector

Although there is no estimation of the degree of competition in the informal sector as such, there is evidence of a higher wage premium in the formal sector. Estimations of wage differentials suggest that workers in the informal sector earn less than formal-sector workers with the same level of human capital and worker characteristics. Table 3 shows that a worker of similar characteristics earns 21% less per month, and 11% less per hour, if he works in the informal sector of the economy. Calculating the earnings differential on an hourly basis reduces the difference, for informal workers on average work fewer hours.

The competitive market assumption is related to the fact that workers are paid

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[6] These may be represented by payroll taxes, minimum wages, union bargaining, etc.
[7] Mizala and Romaguera (1996).

according to their productivity: a proxy variable for productivity would be their levels of skill and human capital. In this sense, a Mincer-type equation would be expected to achieve a better fit in the informal sector, but this is not so: in general, various studies have shown that returns to human capital are higher in the formal than in the informal sector; i.e. the informal sector is characterised by a flat income profile. This evidence is also found in the case of Chile: Table 4 indicates that a Mincer-type equation has better fit in the formal sector, and the return to human capital (education and experience) is higher in that sector.

Thus, it is concluded that a formal and an informal sector coexist structurally in Chile, with different wage-setting processes.

2.2 Basic economic structure of Chile (1992)

The basic data set for the CGE model used here is derived from the most recent available Chilean SAM.[8] Table 6 shows structural data for Chile. For each of the 24 sectors and three aggregate macro-sectors (primary, manufactures and services), the benchmark data for shares of gross output (column 1), value-added (2), total demand (3), exports (4), and imports (5) are shown. These columns summarise the sectoral composition of production, income, supply, demand, and trade in Chile. Notice, first of all, the still quite high reliance of the Chilean economy on primary sectors as shown by their 26 and 28% shares for gross output and value added. In terms of the first two columns, *Copper* represents the second largest sector (after the *Commerce and related Services* one). In manufacturing, a traditional sector, such as *Food*, represents 10% of total gross output, whereas the other industries register similar weights (around 2 or 3%) in terms of output and value added. Given a different production technology and a larger consumption of intermediate inputs, the manufacturing sector's total share of gross output (33%) exceeds its value added share (23%); while the opposite is true for services.

The domestic demand structure, displayed in column 3, shows some strong linkages with domestic production, especially for the primary sectors and *Food*. Exports (in column 4) represent an important additional demand source for some sectors. Among these clearly *Copper* dominates and, jointly with *Agriculture* and *Food*, registers almost two thirds of

[8] See Alonso and Roland-Holst (1995).

total exports. Some light manufacturing sectors, as *Wood products* and *Paper and print*, have also reached significant export shares, thus signalling a trend towards a more mature intra-industry pattern of trade. Looking at the import side, we notice a strong dependency on imports of capital goods (around 40% of total imports), *Chemicals*, and *Energy* (mainly mineral fuels).

The general conclusion one can formulate, observing these first 5 columns, is that Chile has a clear comparative advantage in the primary and food processing sectors. This is confirmed by the high export to output ratios and low import to demand ratios shown in columns 6 and 7 by the mentioned Chilean competitive sectors. The opposite is in fact recorded for most other manufacturing sectors, with some exception in light manufacturing.

Chilean regional trade dependency is displayed in the following four columns. It clearly appears that trade with the larger northern partner presents a stronger correlation with traditional comparative advantage. NAFTA satisfies almost 30% of Chile largest importing (capital goods) sectors' demand for foreign goods, and receives around 20% of total Chilean exports originating in primary or food processing sectors. This contrasts with Mercosur's trade pattern. In this latter case, we can see a stronger dependency of Chile on its southern neighbour for its energy and food imports and for its light manufacturing exports.

The last leftmost seven columns (from column (12) to (18)) presents labour employment statistics. For each sector, the figures in the table are calculated as skill percentages on total sectoral employment. The data set (and the model) includes 7 labour categories distinguished by their skill levels. From the highest skilled white-collar workers, these are: *managers and professionals*, *technicians*, *administrative workers*, *commercial and service workers*. The blue-collar categories are divided in *skilled* and *unskilled workers*, and finally an *informal worker* category[9] is added. On average, the most common skill categories in Chile are low skilled white and blue-collars. The percentages in the table can be interpreted as a proxy for skill intensities and will be referred to later, when commenting on the model's results.

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[9] Notice that informal workers include agricultural workers in small farms, i.e., salaried workers in agricultural farms that employ less than 5 people and agricultural independent workers. This explains the

2.3 Trade liberalisation scenarios

A recent IADB comparative study on reforms in Latin America reports that trade reform is probably one of the most far reaching of all. This is especially true for Chile that initiated its trade liberalisation at the end of the seventies and reached by the early nineties, a quite low and uniform tariff structure. In fact, in 1992, the base year for our model, Chile implements a uniform tariff structure of approximately 11%. Clearly only small gains should be expected through further tariff reductions.

Given this situation, current trade policy in Chile has been oriented at increasing market access for its exports, and a widely used instrument has been signing regional agreements. Among these, the most prominent for Chile are its entry in NAFTA and Mercosur.

While the benefits of multilateral liberalisation are unambiguous, those of regional treaties depend mainly on the extent to which trade creation outweighs trade diversion. For this reason many recent studies focus on this latter issue. Following this line of investigation, we use a single country CGE model to simulate possible future trade reforms in Chile. In this section we present results for 6 different experiments considering variations of Chilean external policy. Experiment 1 presents complete trade liberalisation and should be considered as a limit benchmark scenario rather than a realistic representation of future policies. Experiments 2 and 3 involve regional Chilean unilateral liberalisation towards NAFTA and Mercosur respectively. Experiments 4 and 5 consider the case of regional trade policy with increased access for Chilean exports in the NAFTA and Mercosur markets. In fact, once the regional agreements are signed, Chilean exports will face lower trade barriers in partner countries.[10] The last experiment is the joint combination of experiments 4 and 5 as if Chile would sign contemporarily a free trade agreement with NAFTA and Mercosur.

Table 5 presents aggregate results for the described 6 experiments as per cent variations

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differences between this table and Table 2.

[10] The best way to capture this terms of trade improvement would be to have a multi-country model where bilateral partners trade prices would be endogenous (see for instance Harrison, Rutherford, Tarr (1997)). With a Chilean single country model, NAFTA and Mercosur's prices are exogenous and we have to simulate increased market access by shifting the partner countries import demands for Chilean products. These shifts produce the required price effects. Chile's exporters perceive increased demand for their products and react to increased regional prices by substituting among different destinations and towards the preferred partners.

with respect to the initial equilibrium. A brief explanation on the main macro closure rules of the model should facilitate interpretation of these results. Three main equilibrium conditions determine how the model reaches a new equilibrium after a shock. Factors of production are assumed to be fully employed, i.e. capital and labour supplies are assumed to be fixed and demand determines equilibrium prices. Foreign capital flows are also fixed, so that increased imports must be financed through increased exports and real exchange rate appreciation. Finally government' savings are assumed invariant. This means that reduced tariffs revenues are replaced with upward shifts in the non-distortionary direct tax on households' incomes.

As we anticipated, aggregate production and welfare effects, shown in the first 7 rows of Table 5, are quite small and proportional to the extent of the liberalisation. The small negative welfare effect registered for the full liberalisation case is explained by a small negative terms of trade effect and by the increase in direct tax on households necessary to balance tariffs revenue losses. As it was explained in footnote 10, Chilean exporters face a downward sloped export demand in the NAFTA and Mercosur regions. When, as in experiment 1, export supply to all regions goes up, a small reduction in export prices is induced and this explains the small negative terms of trade shock. As long as the increase in direct tax on households is concerned, one can think of different forms of balancing the government budget. For instance, in Harrison, Rutherford, and Tarr (1997) and Bussolo, Mizala, Romaguera (1998) diminished tariff revenues are compensated by increases in VAT rates. In these models VAT rates are changed in such a way to obtain a more uniform rate structure, thereby partially eliminating indirect tax distortions and moving closer to a first best equilibrium. Generally in these studies, households' welfare increases.

In addition, the difference in welfare results across households, as shown in Table 5, is explained by the fact that initial direct tax rates are not uniform for all households. Indeed, when calculated from the base year SAM, Q1 direct tax rates are lower than the other quintiles' rates. During the experiments this initial tax rate structure is maintained so that the lower quintiles bear a larger proportion of the increased tax burden.

Given the initial uniform tariff structure, a regional agreement will move the economy away from this uniformity and increase the distortions associated with the trade policy. This is clearly recorded here. Proceeding from complete trade liberalisation (experiment 1) to

regional agreements (experiments 2 and 3) reduces welfare and aggregate real GDP. This negative impact is partially offset in experiments 4, 5 and 6 when increased market access is included.

This improvement can also be seen in the terms of trade effects and real exchange rate movements. Terms of trade improve in experiments 4, 5 and 6 with respect to the first 3 experiments as a direct consequence of the increased partner countries' demand. This increased demand also explains why real exchange rate, which is depreciating in the first 3 experiments, appreciate in the last 3.[11] After reducing their own protection, foreign importers face cheaper prices for Chilean products, therefore they increase their demands and this creates incentives to produce more exportables within Chile. Production conditions here depend on substitution of inefficient domestic production with imports and on the supply constraints on primary factors. If factors are fixed, as in the current specification with a fixed capital stock and labour supply, only a limited expansion is possible before domestic resource cost goes up. Given that the real exchange rate basically represents this domestic resource cost, its appreciation is a direct consequence of foreign demand pressure on Chilean resources.

Total imports and exports increase in the best scenario by slightly more than 10%, in the regional trade agreement cases by around 3.5% reaching a maximum of almost 8% in experiment 6.

The bottom panels of Table 5 show more explicitly trade diversion effects of the considered trade policies. The variations in regional trade values are completely intuitive and clearly show diversion effects arising from regional arrangements. A summary measure of trade diversion is given in the last two rows of the table.[12] Diversion is stronger for

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[11] The only exception is experiment 5, which shows a depreciation, but this is smaller than that of the corresponding experiment 3 (-.18 against -.45).

[12] Diversion indices are defined as the normalised measure of the shifts in the composition of trade between the bilateral partner and the other regions (NAFTA, Mercosur and the rest of the world). For example, the import diversion index is given by: $\delta(M_0, M_1) = 100 \frac{\left\| M_1 \frac{|M_0|}{|M_1|} - M_0 \right\|}{\|M_0\|}$ where $M_0 = (M_0{}^b, M_0{}^r)$ and $M_1 = (M_1{}^b, M_1{}^r)$ are the 2-tuple of bilateral, and ROW imports in the base and after the experiment, respectively, and $\|\cdot\|$ and $|\cdot|$ denote Euclidean and simplex norms (the export index is analogously calculated). These indices measure the percent of imports or exports diverted from one market to another; positive values indicate diversion into the

imports than exports, and is higher in the case of liberalisation vis-à-vis NAFTA because of its larger size. Notice that export diversion rises with increased market access (experiments 4,5 and 6).[13]

In summary, our results confirm the intuition that only small aggregate gains are achievable through further tariff reduction. In addition, regional agreements may increase distortions in the initial uniform tariff structure and produce negative trade diversion effects. These may partially be offset by gains in increased market access. Aggregate results of liberalisation vis-à-vis NAFTA are not qualitatively different from a similar policy towards Mercosur, although, in the NAFTA case they may be slightly larger, given the size of this northern partner.

The two regional trade agreements' similarity in their aggregate effects weakens when more detailed sectoral level adjustments are analysed. Table 7 presents sectoral output variations (as per cent changes with respect to initial equilibrium) for the 6 experiments. From this table's first column, clearly emerges the Chilean specialisation in sectors of traditional comparative advantage. Import-competing sectors decline to release factors that move towards more profitable exportables sectors (primary sectors, food processing and wood products).

This same structural adjustment pattern is detected when regional agreements are considered, although several interesting differences are noticeable. Firstly the degree of adjustment is lower and depends directly on the size of the regional market; in addition it increases when market access effects are included. Secondly, the Chilean economy reacts quite differently when it opens up to NAFTA or to Mercosur. For brevity, consider just sectors 1, 3, 5, 14 and 17, the most trade intensive[14] sectors in Chile. Sectors 1, 3 and 5 (export intensive) record larger output increases with a NAFTA than with a Mercosur agreement. Conversely, sectors 14 and 17 (import intensive) face greater reductions in

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partner region (NAFTA or Mercosur) and away from the others.

[13] The puzzling trade diversion of the completely unrestricted trade regime of experiment 1 is uniquely attributable to price effects in the partner country regions. Notice that in the current specification of the model, basically Chile faces a downward sloping demand for its exports to NAFTA and Mercosur. When full liberalisation is implemented, the described specification generates terms of trade effects by lowering export prices to the partner countries. This causes the recorded diversion in favour of the ROW region.

[14] Trade intensity refers to the export-to-output and import-to-demand ratios of Table 5.

correspondence with liberalisation with the northern partner. At first sight a NAFTA extension may then seem more favourable, yet it should be noticed that these simulations are static and that a too strong specialisation towards traditional comparative advantage sectors may undermine Chile's long run growth potential.[15]

The two considered regional agreements have also quite different repercussions on the Chilean domestic labour markets, as illustrated in Table 8.

In these initial experiments, domestic factor prices' variations can be interpreted according to the traditional Stolper-Samuelson theory. Changes in relative prices of goods caused by tariff abatement generate reallocation of resources towards more profitable sectors, as depicted in Table 7, and, given initial factor intensities and substitution possibilities, affect factors' relative prices.[16]

As anticipated trade liberalisation seems to affect more intensively less skilled workers' returns with a lower positive impact on high skill labour. Results in Table 8 are more easily interpreted by considering labour skill intensities presented in column (12) through (18) in Table 6. To clarify what it is meant by skill intensity consider one particular sector: *Machine and Equipment*. Its employment is composed by 10% of managers and professionals, 7% of technicians, and 11% of administrative workers, and these percentages are higher than their corresponding averages for the manufacturing as a whole (6%, 4%, and 5%) or for the whole economy (9%, 5%, and 7%). In this relative sense Machine and Equipment uses intensively high skilled white collars workers. Clearly a contraction of this sector (as it is the case in these experiments) reduces the upward trend in real wages, especially for the high skilled categories.

Considering regional liberalisation scenarios, it is possible to notice another difference between a NAFTA and a Mercosur agreement. In the first case (experiments 2 and 4), the induced specialisation in traditional sectors exacerbates the wage differential between skilled and less skilled workers. To see this more clearly, consider the middle panel of Table 8 where real wage variations are expressed as employment weighted averages for skilled (SK) and unskilled (UNSK) workers. Clearly the gap is larger for the NAFTA

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[15] A similar observation is reported in Roland-Holst and Reinert (1995).

[16] This is clearly observed in experiment 1, but it is still detectable in the other regional agreement

agreement than for a Mercosur agreement.

The bottom panel of Table 8 shows summary measures for sectoral employment shifts. These indices[17] give an indication of the extent of the labour reallocation consequent to the adoption of trade liberalisation and highlight some general features of the adjustment process. The indices' values confirm that the larger the size of the regional agreement, the higher the trade dependency and the size of tariff reduction, the larger will be the adjustment required after the policy shock. Notice also that a larger proportion of high skilled workers is reallocated in the NAFTA experiment with respect to the Mercosur case.

In the next section, the results of the previous tables are contrasted with those arising when more complicated labour market interactions are included.

3 Trade reform in a context of labour market regulations

In this section we analyse two traditional labour market regulations: minimum wages and union bargaining. For each of these cases, we will first present empirical evidence of their significance for Chile and then quantify it more precisely with model simulations.

3.1 Minimum wages, unemployment subsidy and reserve wage

Empirical evidence on minimum wages

One of the most common sources of wage rigidity is a broad spectrum of government policies fixing directly minimum wage levels or supporting reservation wages via social insurance programs.

In the literature there is a wide-ranging debate on the effects of minimum wages on the labour market. Standard labour-market models argue that the establishment of a minimum wage has negative effects on employment among groups affected by it.[18] However, recent studies have called these conclusions into question, arguing that it is not clear that the establishment of a minimum wage gives rise to negative employment consequences among

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experiments.

[17] Adjustment indices are calculated in a similar manner to the trade diversion indices. They take this form: $\lambda(L_0, L_1) = 100\frac{\|L_1 - L_0\|}{\|L_0\|}$, where $L_0 = (L_{0,i}, L_{0,j})$ and $L_1 = (L_{1,i}, L_{1,j})$ are the sectoral employment in the base and after the experiment, respectively.

[18] See Brown, Gilroy and Kohen, (1982), Deere, Murphy and Welch, (1995), Kim and Taylor, (1995).

the groups earning that wage.[19]

Studies have also been made of the indirect effect of minimum wages on wage-setting processes in other sectors of the economy, as well as for different skill levels, through the process of wage leadership (Paldam and Riveros, 1987). A recent study, using cointegration analysis, shows that minimum wages in Chile do not affect the average wage-setting process in the long run, but they do affect average wages in the short run (Dresdner and Letelier, 1997).

In Chile the coverage of the minimum wage is around 10% of the work force, as shown in Table 9. Considering workers with incomes up to 1.2 and 1.5 times the minimum, the percentages rise to 15% and 31.2% of employment respectively. These percentages indicate that fraction of the labour market, which is likely to be affected by the setting of the minimum wage.

Turning at the sectoral distribution (consider Table 10), the largest coverage is registered in the agricultural wage-earning sector, where the minimum wage affects about one-quarter of all workers; in the other sectors, the minimum wage covers less than 10% of the employed population. An analysis of the percentage of workers earning less than 1.2 times the minimum shows that 40% of agricultural workers are in this situation, as well as 15% of workers employed in manufacturing industry, construction and commerce.

The empirical evidence existing for Chile on the effect of minimum wages on the labour market comes from both cross-section and time-series studies. The cross-section evidence seems to come down in favour of a negative impact on employment. A study by Castañeda (1983) analyses changes in the minimum wage in 1978 and 1981, using information from the Greater Santiago Employment Survey carried out by the University of Chile, and the methodology used by Linneman (1982). Paredes and Riveros (1989) correct Castañeda's estimates for selection bias and find that a failure to correct for this bias underestimates the negative effects on employment. Chacra (1990) recalculates Paredes and Riveros' estimations, using the TOBIT method, to arrive at similar conclusions.

On the other hand, time-series studies do not find a relation between the minimum wage and employment, at least for Greater Santiago during the period 1957-1993. Bravo and

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[19] See Katz and Krueger, (1992), Card and Krueger, (1994), Card, (1992 a, b).

Robbins (1995), use a conventional time-series analysis together with data from the University of Chile's Greater Santiago Employment and Unemployment Survey, and they run regressions using the employment/population quotient for different low-income groups as dependent variable. They conclude that there is no evidence that increases in the minimum wage have had a significant negative effect on employment among the various low-income groups.

Bravo and Contreras (1997), meanwhile, using a "natural experiment" resulting from the introduction of a minimum wage below the adult level for those under 18 years in June 1989, find that changes in minimum wages seem to have no effects on employment. The methodology they use is an analysis of difference in differences, comparing the experimental group with a control group.

Unemployment Subsidy and Reserve Wage

Unemployment subsidies have been designed as a welfare policy giving minimum support to the unemployed. But an unemployment subsidy can also be seen as an exogenous source of wage rigidity, given that it strengthens and increases the reserve wage by lowering the cost of being unemployed for the individual concerned.

The unemployment subsidy that exists in Chile is of very small amount and for this reason has scant coverage. Table 11 shows the number of workers covered, and the small number of people using the subsidy is an indication of the deficiencies of this mechanism as protection against unemployment. Therefore, it is unlikely that this subsidy will affect significantly the supply of labour.[20]

The amount of the subsidy depends on the duration of unemployment, with three brackets being established, as shown in Table 12. The maximum period for which a worker may receive the subsidy is 360 days, with the amount being independent of the pre-unemployment wage and decreasing over time.

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[20] Decree law D.L. 150 rules unemployment subsidy, March 1982. To take advantage of it, the worker must have been made redundant for reasons against his or her will, and be registered on the Unemployment Register in the social security institution to which he or she belongs, as well as in the Unemployment Registry of his or her Municipality. The latter is to enable the individual to carry out welfare work for the benefit of the community, and it can be a cause for ending the subsidy if the worker does not undertake such work. Furthermore, the worker ceases to receive the subsidy if he or she turns down a job offer made by the National Training and Employment Service (SENCE), unless the wage offered is below 50% of that in the

As far as the unemployed population is concerned, the number of people who have made use of the unemployment subsidy is small; but this is determined by unemployment rates which have been low since the end of the 1980s.

A pertinent question is what proportion of workers who could have had access to the subsidy did in fact make use of it. To answer this, the population "with a right" to the subsidy needs to be known. Echeverría (1993) presents information based on data from the Labour Directorate which indicate that 40% of job severance relate to dismissal, and it is estimated that in 1991 there were some 80,000 workers with the right to unemployment subsidy. Given that the (monthly average) number of subsidies was 30,000 that year, this suggests that 37.5% of the potential beneficiaries made use of the system.

The unemployment subsidy is a program aimed at the low-income segment of workers, and this obviously is reflected in its coverage figures. In practice, severance payment based on years of service has been used as the main way of financing unemployment periods; for that reason the ongoing debate in the country, on the need to create a system of unemployment insurance as such, is important.

Simulation experiments

After having reviewed minimum wage policies in Chile we incorporate these policies in our CGE model to assess their influence on the structural adjustment resultant from trade policy reform.[21]

The specific case we consider is when the government attempts to guarantee a nominal hourly minimum to all formal labour categories. Table 13 is a more sectorally detailed version of Table 10 and it has been used as the basis for the model simulations.[22] We assumed that minimum wage is actually a constraining policy only for those sectors and skills for which the percentage of wage earners earning less or equal to the minimum wage is at least 15% (the constrained skill-sector combinations are in italics and underlined in Table 13).[23] From Table 13, it clearly appears that agriculture, textiles, clothing and other

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previous job. The subsidy is financed out of Treasury grants, and employers do not contribute towards it.

[21] Given the small amount of the unemployment subsidy and its low coverage, it is not very likely to have a significant effect on labour supply; therefore, we do not incorporate this policy in the model.

[22] It should be noticed that data in Table 10 are for the year 1994, while the model base year and Table 13 refer to the year 1992.

[23] Although it is perfectly possible to implement in the model a universal (for all formal workers) minimum

services are among the sectors with highest percentages of minimum wage earners and that these are concentrated in the lowest skill categories of both white and blue collars (*Commerce and service workers* and *unskilled workers*).[24]

In the model we assume fixed labour supplies throughout, and in the event that the minimum wage is binding, unemployment will be created in the target formal occupation-sector groups. We assume that these workers respond by moving to other sectors, thereby putting downward pressure on the average wage for the specific skill.

The wage equation for a given target occupation-sector group (l,i) is modified to take the form: $\omega_{li} w_l \geq \overline{w}_{li}$. Note that this specification binds the combined average skill wage (w_l) and sectoral premium (ω_{li}), thus if in a targeted (skill-sector) group equilibrium wage falls below the required minimum due to the simulated trade policies, the equilibrium is restored by increasing the occupation-sector premium ω_{li}.[25]

The introduction of minimum wage constraints in the model affects the way the economy adjusts to the trade policies shocks and the main results are shown in Table 14. Since similar effects operate in all trade policy scenarios, we discuss only results for the full liberalisation case.

Given the reduced percentage of the employed population constrained by minimum wages, aggregate output results do not change significantly, although the new experiments show increased efficiency. This is not surprising: the model operates in a second-best scenario where inter-sectoral labour productivity differences are assumed and calibrated into a fixed wage distribution.[26] Therefore labour reallocation can result in increased aggregate productivity per unit of resource cost, and, as explained below, this effect is magnified in presence of minimum wage legislation.

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wage policy, we preferred the described selective policy considering that for certain highly skilled workers (namely Managers, professionals, technicians and skilled blue collars) and for particular sectors (mining and energy for instance) minimum wage policies are hardly binding. The results conferred by our specification are most likely more realistic. Indeed we have run simulations with different values than the chosen 15% (we tried 10 and 20%), proving that the main conclusions are unaffected.

[24] For brevity, in the text we use the terms protected and unprotected workers as synonyms for "workers for which the minimum wage is binding (i.e. the percentage of minimum wage earners is above 15%)" and "[...] not binding".

[25] See in Table 14 the panel labelled "*Premia for sectoral wage maintenance*".

[26] See Table 19 for a complete numerical illustration of this distribution.

With this new rigidity, trade liberalisation induces a qualitatively similar resource reallocation among sectors (as shown in the perfectly competitive case in Table 7). The difference is that, in the contracting minimum-wage-constrained sectors, wages cannot fall below the minimum and therefore workers are laid off. These move to unprotected sectors contributing to the contraction of the aggregate skill wage.

These effects are greatest for the *Commerce and service workers*, one of the skills with highest percentage of minimum wage earners and one of the relatively intensively used skill in the import-competing declining sector. Table 14 shows a reduction of the *aggregate* real wage for *Commerce and service workers* (-3.6%) and a corresponding increase in the premium in the protected sectors (up to 8.8%). It is important to note that initially laid off *Commerce and service workers* move to expanding sectors which have a higher productivity, thereby increasing efficiency and aggregate output. Firms in these high premium (= high productivity) sectors are induced to expand their demand of *Commerce and service workers* by the reduced *aggregate* skill wage.[27]

There is also another cross-effect operating among different skills. Given the within-skill spill-over effects just described, firms in uncovered sectors face additional cheaper supply of workers coming from protected sectors, and attempt to substitute for this available cheaper skill.[28] This explains the differences in real wages' variations for managers and professionals, technicians and other non-protected skills between Table 14 and Table 8. These reallocation processes, different between the perfect competitive and the minimum wage cases, are summarised in the adjustment index shown in the bottom panel of Table 14. Certain skills seem to undertake larger reallocations in the minimum wage scenario (as it is the case for unskilled workers), while lower inter-industry migrations are registered for other skills.

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[27] An example may clarify the issue: consider such import-competing sectors as *textiles, clothing,* or *leather.* These employ intensively *Commerce and service workers* and are constrained by a binding minimum wage. Additionally this type of workers in these sectors has a below average productivity premium, as shown in Table 19 column 4 rows 8 through 10. When cheaper imports enter the market many of these workers loose their jobs (or are left to earn the minimum) and move towards expanding sectors with usually higher premia (as in copper). They can actually find jobs there because the aggregate skill wage has decreased to such a level that compensates firms for paying higher premia.

[28] The model incorporates quite low inter-kill substitution elasticity. Systematic results' sensitivity analysis to changes in this elasticity has not been carried out.

All these effects concur to reverse one of the standard theory predictions. By confronting the employment weighted averages changes in real wages for unskilled and skilled workers recorded in Table 14 with those of Table 8 above it is possible to notice that, in the presence of minimum wages alone, skilled and unskilled workers' wage differential appears to be widening. This has also an important corollary. When non-compliance is widespread, the industrial countries' effort of imposing tighter labour market standards in developing countries may produce unexpected counter-effects. As we recorded for Chile, instead of reducing output in low skill labour intensive countries and so sustaining wages for unskilled workers in developed nations, these stricter standards may create strong incentives for the employment of non-protected workers which in turn may increase aggregate output and exports.

3.2 Unions and Collective Bargaining

Empirical evidence

Another of the traditional institutional influences on wages involves wage negotiations in which unions seek to extract rents from employer firms.

The standard case of a bargaining process is when there is a bilateral monopoly, i.e. a monopsony in factor hiring faces a union, which monopolises the supply of workers. The outcome will depend on the objective function of the union: e.g. maximisation of employment, the wage or total income of the unions' members. Depending on the union's objectives and its negotiating power, a field opens up in which wages are determined by the bargaining power of the parties. The theory of games has also contributed to analysing how wages are determined in a context of strategic bargaining between workers and the firm.

In Chile there is union freedom: union members have to pay a compulsory union due, while non-unionised workers who enjoy the benefits of a collective contract negotiated by the union have to pay 75% of the union due during the period in which the collective contract is in force. The legislation allows the existence of different types of union: firm or inter-firm unions, as well as unions of independent workers, and unions of transitory workers.

Table 15 shows the development of unions over the period 1986-1996. Union membership grew between 1986 and 1990, with the latter year recording the greatest

coverage; afterwards a slight decline in membership occurs. Although coverage has been declining, the number of unions is on the rise. This is because more than one union may exist in a firm, and the result has been a reduction in the number of members per union. However, unions can jointly negotiate within a given firm.

Table 16 shows the coverage of unionisation by activity sector. It is important to note that this varies greatly between sectors: being much higher in mining —a sector with a long history of unionisation— as well as in electricity, gas and water, a very capital intensive sector where manpower use is low, and which has a highly monopolistic market structure. Coverage is very low in sectors such as agriculture and construction. These sectors have seasonal characteristics, which mean that a significant percentage of their workers are temporary or seasonal. There is greater relative membership in sectors dominated by large firms and less where the firms are small and geographically dispersed. As regards its trend over time, there has been a drop in the rate of unionisation in practically all sectors over the period 1991-1996; however, the sectors where the unionisation rate falls most in percentage terms are: electricity, gas and water (51%), financial institutions (35%), construction, (34%), and mining (31%).

In Chile the collective bargaining process is highly decentralised, and it is located at the firm level. Both unions and other negotiating groups may take part in collective bargaining. Employers in firms whose workers initiate a collective bargaining process are obliged to participate in it; but if the collective bargaining process involves more than one firm, a voluntary agreement among the parties is needed for the process to have validity. Only in very exceptional cases have negotiations extended beyond the individual firm. Following the return to democracy in 1990, the coverage of collective bargaining grew up to 1992, since then it has been declining, displaying a similar pattern of behaviour to the rate of unionisation.

The minimum duration of a collective contract is two years, and most contracts have this period of duration.

The coverage of collective bargaining varies greatly between sectors of economic activity, and despite the fact that both unions and other negotiating groups may take part in negotiations, activity sectors where collective bargaining is most prevalent coincide with those where the rate of unionisation is highest. This is due to the fact that more than half of

all collective bargaining processes is carried out by unions. At the sectoral level there has also being a drop in the coverage of collective bargaining, with this being significantly greater in mining.

Issues subject to negotiation, according to the Labour Code, are the common conditions of work and wages, as well as other benefits in kind and money. An examination of examples of collective bargaining contracts supports the hypothesis that in Chile unions bargain exclusively over wages, and there is no empirical evidence of cases where employment is a topic for negotiation.

Simulation experiments

A main consequence of the presence of imperfect wage-bargaining processes is that real wages will deviate from productivity levels. In other words, firms must pay a premium (ϕ) above the marginal revenue product (pF_L) of labour. The size of this premium will depend directly on the parties' (unions and firms) bargaining power. To incorporate the imperfections of the bargaining process, our model extends the approach used by Francois, Roland-Holst, and van der Mensbrugghe. We employ a similar union member's utility function, where δ represents the union's bargaining power in wage setting[29]:

$$U = A(W\phi - W)^{\delta}(L - L_0)^{1-\delta}$$

and derive an expression for the wage premium ϕ :

$$\frac{\phi - 1}{\phi} = \frac{\delta}{1-\delta}\frac{L^d - L_0}{\sigma^l L^d}$$

The major difference is that our model includes different skills so that substitution possibilities (measured by the elasticity of substitution σ^l) are not only between an aggregate labour bundle and capital but also among different skills. With a single type of labour, inter-sectoral wage premiums may indeed arise because of institutional rigidities but they may also reflect sector specific differential skill composition. The current version of the model explicitly takes into account this latter source of wage dispersion and allows a

[29] Originally De Melo and Tarr (1992) proposed this approach. The utility function used to specify the union preferences is quite general and by changing the values of the parameter δ it can incorporate different hypotheses on the union and firm behaviours. For a complete discussion see De Melo and Tarr (1992) pp.

more precise assessment of specific labour market characteristics.

The data for relative wage dispersion across sectors, necessary to calibrate the current bargaining specification, are derived from the Chilean base year SAM and employment volumes and are shown in Table 19. It is worthwhile to notice that, as expected, there are some strict connections with data of Table 16 and of Table 18: in these two tables, above average premiums and rate of unionisation correspond perfectly for the energy (or electricity, gas and water) and copper (or mining) sectors. High premiums are also recorded for tobacco (a small sector), paper and print, chemicals (an import competing sector) and financial services.

Three additional experiments are carried out: experiments 10, 11 and 12 correspond to the usual full trade liberalisation and the NAFTA and Mercosur regional agreements with increased market access.

In the new experiments though, jointly with tariff abatement, the δ parameter is reduced.[30] This corresponds to a reduction of the weight the union puts on maximising wages.[31] In the Chilean case, this is clearly justified by the observed reduction of the unionisation of the economy, as shown in Table 15 and Table 16. Furthermore a plausible cause for this reduction is the growing import competition due to trade liberalisation. Our experiments 10, 11, and 12 may therefore be considered as an attempt to model more precisely the complex transformation of the Chilean economy during the 90's.[32]

The direct effect of decreasing the δ parameter is shown in the left panel of Table 20 where changes of inter-sectoral wage premiums are expressed as per cent variations with respect to the initial equilibrium. These results are impressive: most specific occupational-sector groups' initial rents drop considerably up to almost one third the initial value.[33] This

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124-130.

[30] The model is initially calibrated with δ equal to 0.8 and this is reduced to 0.6 during the simulations.

[31] In fact instead of using the term "wages", we could use that of "monopolistic rents". A reduction of δ correspond to a convergence of ϕ towards 1, i.e. the rent, or the difference between the distorted and the competitive wage $w \quad \phi \quad - w$, tends to zero.

[32] Indeed the model still presents various limitations, one of which is the assumption of perfectly competitive products markets.

[33] It should be noticed that in these simulations the premiums converge to 1. For certain skill-occupational groups the initial premium is below 1, thus when δ is reduced these groups enjoy *increased*, closer to 1 premiums.

causes extensive labour reallocation as shown in the right panel of the same table. It clearly emerges that employment is repressed in mining, one of the largest sectors in Chile, but also in some other light manufacturing sectors and some services. Clearly, given the full employment and fixed labour supply assumptions of the model, inter-sectoral adjustment as presented in Table 20 may be exacerbated and should be considered a limiting case.

Additional aggregate results are shown in Table 21. Notwithstanding the dramatic reduction in the initial wage premiums, real GDP measured at factor costs slightly diminishes only in the regional cases and, abstracting from income distribution effects, aggregate welfare measured by weighted average equivalent variation actually improves, contrasting with the negative results of Table 5. The strong wage deflation reverts the initial real exchange rate appreciation into depreciation. Most impressively the change in the wage bargaining process seems to do more than direct commercial policies to increase international trade. In experiment 10, export and import flows raise more than in experiment 1, and, in the regional agreement cases, trade increases almost twofold with respect to the case where we only consider pure commercial policy.

Most of these effects are explained by the dramatic reduction in labour monopoly rents. It should be noticed that real wages increase for most skills and quite significantly. This apparent counter-intuitive result can be explained by the factor substitution induced by the reduction in labour premiums. With a reduction in the imperfections of the wage bargaining process, firms increase their labour demands up to the point of offsetting the cut in the premiums.[34]

Experiments with a positive sloped labour supply, rather then vertical as it is in the present case, show that real wage increases would be smaller but accompanied by employment growth taking us back to the initial point made in the introduction. It should also be noticed that in this case, as in the minimum wage scenario, skilled wage workers earnings increase relatively more than those of unskilled workers, confirming once more that labour market imperfections can explain empirical observations and that results from the standard neoclassical model may be reversed.

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[34] This effect is also operating in Francois et al (1994) model. It can be added that in these experiments the less abundant and more qualified skills are those who get the maximum benefit, a rather encouraging

4 Final Comments

Our objective in this paper has been to survey the main regulations in the Chilean labour market and to study their interaction with trade policy. Previous research efforts in this area have been trying either to establish the importance of trade as an explanation for variations in the wage gap, or to measure the effect of labour market regulations on labour demand. In this work, we have tried to unify these two approaches by building a general equilibrium model with which we could simulate the simultaneous interactions of trade reform and labour market rigidities.

We were able to identify various kinds of imperfections in the Chilean labour market, notwithstanding an increasing role of competition in determining the key labour market variables from 1982 onwards. There is a substantial informal sector: our estimations indicate that this sector represents 22% of the employed population at the national level, and that workers in this sector have 14.2% lower incomes than those in the formal sector. Additionally, there are rigidities whose origin is of institutional type; i.e. they rest on legislation seeking to protect workers. The first type we considered is the minimum wage. In general, most of the firms in the formal sector comply with minimum wage legislation, and it is estimated that 16% of the population earn up to 1.2 times the minimum wage. Another institutional rigidity we discussed originates from the union movement. Although union coverage has been loosing weight in the past two decades, in 1996, it was at 18%.

Once identified the relevant sources of labour market inflexibility, we used our model to examine the effects of trade reforms in two ways. Firstly we analysed how these reforms affect Chile structural adjustment in a perfectly competitive labour markets framework, and then we modified this by introducing the described regulations.

Our initial results confirmed the intuition that only small aggregate gains are achievable through further tariff reduction. In addition regional agreements may increase distortions in the initial uniform tariff structure and produce negative trade diversion effects. Aggregate results of liberalisation vis-à-vis NAFTA are not qualitatively different from a similar policy towards Mercosur, although, in the NAFTA case they may be slightly larger, given

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outcome.

the size of this northern partner. The two regional trade agreements' similarity in their aggregate effects weakens when more detailed sectoral level adjustments are analysed. The Chilean economy reacts quite differently when it opens up to NAFTA or to Mercosur. Export intensive sectors record larger output increases with a NAFTA than with a Mercosur agreement. Conversely, import intensive sectors, face greater reductions in correspondence with liberalisation with the northern partner. At first sight a NAFTA extension may then seem more favourable, yet it should be noticed that these simulations are static and that a too strong specialisation towards traditional comparative advantage sectors may undermine Chile's long run growth potential. In terms of labour market impact, the regional liberalisation scenario show that the NAFTA's induced specialisation in traditional sectors exacerbates the low positive effects on highly skilled workers.

If we include minimum wages in the model, a basic prediction of the standard trade model breaks down and we record for Chile a widening gap between the wage of unskilled and skilled workers. Finally, additional simulations are carried out combining the usual trade liberalisation scenarios with changes in the wage bargaining process. Again we found that the interaction of trade and labour market regulations produces unexpected results. The mix of direct commercial policies with labour market flexibilisation seems to have a greater impact in increasing international trade than pure commercial policy. Most of these effects are explained by the dramatic reduction in labour monopoly rents. However, it should be noticed that real wages increase for most skills and quite significantly. This apparent counter-intuitive result can be explained by the factor substitution induced by the reduction in labour premiums.

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Tables

Table 1: Nominal wage equations

	1976-82	1976-82	1983-93
	1	2	3
Constant	0.010	0.009	0.118
	(3.17)	*(1.29)*	*(7.56)*
Rt	0.955	0.730	0.108
	(11.72)	*(8.25)*	*(2.99)*
UNt		-0.043	-0.040
		(-0.69)	*(-3.17)*
Pt-1		0.117	0.157
		(3.838)	*(5.22)*
adj R^2	84.5%	89.9%	46.4%
N	26	26	42

Source: Mizala and Romaguera (1996).
Dependent variable: variation in wages in the industrial sector, INE
Rt: Public-sector wage increase in the in quarter t.
Pt-1: Inflation in the previous quarter.
UNt: Unemployment rate in quarter t.
Equation (3) was estimated using the CORC method; ρ=-0.488 (-3.58)

Table 2: Composition of the employed population at the national level (Percentages)

	1990	1992	1994
Formal	53.1	53.2	58.6
Informal	21.7	21.6	22.0
Domestic service	6.3	6.0	5.7
Agricultural sector	16.6	15.7	13.5
Unclassified	2.3	3.6	0.3

Source: 1990 and 1992: Mizala and Romaguera (1996), based on the CASEN Survey.
1994: own calculations based on CASEN 1994[35].
Informal Sector = Self-employed workers, minus professionals, unpaid family workers, workers in goods-producing firms with less than five workers, workers in commerce and service firms with less than five employees and no labour contract.

Table 3: Income differences between formal and informal workers, 1992 (percentages)

	monthly	hourly
(1) % difference based on arithmetic mean	-0.356	-0.336
(2) Differences without controls	-0.405	-0.328
(3) = (2) + controls for human capital	-0.221	-0.142
(4) = (3) + activity sector	-0.212	-0.112

Source: Mizala and Romaguera (1996) based on CASEN 1992 survey.
Note: The dependent variable is the logarithm of labour income. Controls for human capital include: education, experience, experience squared, gender and interaction variables.

[35] These figures are smaller than those estimated by ILO due to a different definition of the informal sector.

Table 4: Return to human capital by sector, 1992

	Constant	Education	Experience	Experience^2	Adjusted R^2	F	N
Hourly income							
Formal workers	4.251	0.131	0.034	$-3.24*10^{-4}$	0.361	821.2	21.819
	(93.77)	*(50.48)*	*(29.16)*	*(-14.22)*	*(93.77)*		
Informal workers	4.706	0.058	0.027	$-3.45*10^{-4}$	0.099	69.08	9.254
	(56.11)	*(12.58)*	*(13.22)*	*(-11.63)*			
Monthly income							
Formal workers	9.581	0.118	0.035	-3.92	0.358	814.0	21.867
	(218.25)	*(47.02)*	*(29.88)*	*(-17.72)*			
Informal workers	9.479	0.068	0.037	$-4.98*10^{-4}$	0.167	123.8	9.310
	(112.4)	*(14.56)*	*(17.91)*	*(-16.72)*			

Source: Mizala and Romaguera (1996) based on CASEN Survey 1992.

Table 5: Aggregate results of Chilean Trade policy

	Exp 1	Exp 2	Exp 3	Exp 4	Exp 5	Exp 6
Real GDP	.50	-.01	-.04	-.05	-.03	.03
Equivalent Var						
Q1	.44	-.20	.06	.04	.16	.32
Q2	-.21	-.39	-.13	-.14	-.03	-.01
Q3	-.22	-.38	-.18	-.15	-.08	-.06
Q4	-.09	-.34	-.17	-.15	-.06	-.05
Q5	-.06	-.32	-.23	-.18	-.11	-.13
EV Weight ave	-.07	-.33	-.18	-.15	-.07	-.07
Real Exchge Rate	-.96	-.49	-.45	.08	-.18	.04
Terms of trade	-.30	-.10	-.09	.47	.18	.65
Total M (value)	12.69	3.81	3.41	4.75	3.89	8.05
Total Ex (value)	12.00	3.60	3.23	4.49	3.68	7.61
Regional Imports						
NAFTA	11.33	55.82	-9.83	57.19	-9.43	44.22
Mercosur	14.84	-13.13	66.50	-12.23	67.33	48.55
ROW	12.62	-13.17	-9.75	-12.40	-9.34	-19.31
Regional Exports						
NAFTA	5.00	1.56	1.40	19.23	0.55	19.69
Mercosur	4.81	1.48	1.39	0.26	19.55	19.67
ROW	14.60	4.36	3.90	1.42	2.49	3.18
Diversion Index						
Import	0.68	24.18	20.26	24.17	20.28	27.61
Export	2.78	.88	.78	4.39	2.25	4.96

Experiment 1: full trade liberalisation
Experiment 2: regional NAFTA trade agreement
Experiment 3: regional Mercosur trade agreement
Experiment 4: experiment 2 plus increased NAFTA market access
Experiment 5: experiment 3 plus increased Mercosur market access
Experiment 6: experiments 4 and 5 jointly.

Table 6: Basic structure of the Chilean economy (1992)

	(1) XP	(2) VA	(3) D	(4) E	(5) M	(6) E/XP	(7) M/D	(8) M NA/M	(9) M Msur/M	(10) ENA/E	(11) EMsur/ E	(12) M.ger Prof.	(13) Technic.	(14) Admin.	(15) Comm Serv	(16) Skilled	(17) Unskille d	(18) Informal
Agriculture	7	8	7	10	2	22	5	38	35	42	4	2	1	1	12	2	38	44
Fisheries	1	2	2	0	0	1	1	26	0	20	0	3	5	3	20	11	16	42
Copper	11	13	5	39	0	60	1	56	17	12	9	12	4	7	30	15	15	18
Energy	6	5	7	2	10	4	27	5	11	5	4	11	7	12	27	14	14	15
Primary	**26**	**28**	**21**	**50**	**13**	**32**	**11**	**12**	**15**	**18**	**8**	**3**	**2**	**2**	**15**	**4**	**33**	**40**
Food	10	6	9	14	4	24	8	11	41	19	6	7	3	7	36	12	17	20
Beverages	1	1	1	1	0	17	4	7	23	36	7	2	11	9	22	19	30	7
Tobacco	1	1	1	0	0	4	2	1	65	56	1	13	3	8	37	17	20	3
Textiles	2	1	2	0	4	4	34	21	18	20	35	5	3	4	36	16	8	29
Clothing	1	1	2	0	1	5	16	19	5	40	22	3	2	2	37	5	5	46
Leather	0	0	0	0	0	1	27	11	34	15	5	9	7	2	24	8	3	47
Shoes	1	0	1	0	0	8	7	5	27	34	17	3	1	2	58	7	8	20
Wood Prod.	2	2	2	3	0	30	4	25	11	17	4	2	1	3	27	11	9	46
Paper&Print	3	3	3	6	2	28	15	32	22	4	16	13	6	8	28	17	13	15
Chemicals	3	2	3	2	12	12	77	36	16	24	12	9	10	7	21	23	18	11
NonMetal Pr.	2	2	3	1	3	4	23	24	26	20	15	5	3	4	24	30	9	24
Metal Prod.	3	2	3	2	6	10	35	16	37	21	13	6	3	5	36	12	8	30
MachinEquip.	4	2	4	1	38	7	180	28	13	10	47	10	7	11	35	14	7	16
Othr Manufact.	1	0	1	0	4	11	102	29	5	46	19	7	8	7	19	4	5	50
Manufacturing	**33**	**23**	**33**	**32**	**75**	**16**	**42**	**27**	**18**	**18**	**11**	**6**	**4**	**5**	**33**	**13**	**10**	**29**
Construction	6	6	7	0	0	0	0	25	17	0	0	6	3	3	33	2	22	31
CommHotel	12	16	13	5	5	8	7	25	17	18	9	4	3	9	29	1	8	45
TranspComtn.	6	6	5	11	6	31	22	25	17	18	9	4	5	12	8	28	10	32
Financial Serv.	4	7	5	1	1	3	3	25	17	18	9	17	27	38	9	1	7	2
Public Serv.	6	8	7	0	0	0	0	25	17	0	0	39	12	11	21	2	13	2
Othr Services	8	6	9	0	1	0	2	25	17	18	9	10	9	7	15	1	6	52
Services	**41**	**49**	**46**	**18**	**13**	**7**	**5**	**25**	**17**	**18**	**9**	**12**	**7**	**9**	**21**	**4**	**10**	**36**
Economy-wide	**100**	**100**	**100**	**100**	**100**	**17**	**19**	**25**	**17**	**18**	**9**	**9**	**5**	**7**	**22**	**6**	**15**	**36**

Column (1): Sectoral per cent shares of gross output
(2): Sectoral per cent shares of value added
(3): Sectoral per cent shares of total demand
(4): Sectoral per cent shares of exports
(5): Sectoral per cent shares imports
(6): export to output ratios
(7): import to demand ratios

Column (8): per cent shares of imports from North America over total imports
(9): per cent shares of imports from Mercosur over total imports
(10): per cent shares of imports from North America over total imports
(11): per cent shares of imports from Mercosur over total exports
(12) –(18): sectoral per cent shares of specific skill employment over total employment; columns (12) to (15) represent white collars and columns (16) to (18) blue collars. Generally skill decreases moving rightwards.

Table 7: Sectoral output results of Chilean Trade policy

	Exp 1	Exp 2	Exp 3	Exp 4	Exp 5	Exp 6
1 Agriculture	1.4	.4	.0	1.2	-.1	1.1
2 Fisheries	.2	.3	-.2	.4	-.3	.1
3 Copper	8.5	2.7	2.3	2.4	2.4	4.3
4 Energy	-7.3	.0	-.8	-.6	-1.0	-1.7
5 Food	.9	.6	-.3	.7	-.4	.3
6 Beverages	.0	.1	.2	.7	.1	.8
7 Tobacco	-4.8	-.6	-3.1	-.3	-3.1	-3.3
8 Textiles	-7.7	-1.6	-1.6	-1.9	-1.5	-3.2
9 Clothing	-4.0	-1.0	.1	-.9	.1	-.7
10 Leather	-7.3	-.1	-3.4	-.3	-3.5	-3.7
11 Shoes	-1.5	.0	-.5	.3	-.4	-.1
12 Wood Prod.	4.0	1.4	1.1	1.5	1.0	2.4
13 Paper&Print	.4	-.2	.0	-.9	.3	-.5
14 Chemicals	-12.0	-6.1	-2.3	-6.4	-2.5	-8.1
15 NonMetal Pr.	-6.5	-1.8	-2.6	-2.0	-2.6	-4.2
16 Metal Prod.	-6.6	-.8	-3.9	-1.0	-3.9	-4.6
17 MachinEquip.	-11.8	-4.3	-1.1	-5.0	-.9	-5.6
18 Othr Manufact.	-12.2	-4.6	.6	-4.4	.6	-3.8
19 Construction	2.4	.9	.2	1.2	.4	1.8
20 CommHotel	-2.8	-.9	-.4	-1.1	-.4	-1.4
21 TranspComtn.	8.3	1.7	1.9	1.7	1.9	3.3
22 Financial Serv.	-.8	-.4	-.2	-.5	-.2	-.6
23 Public Serv.	-.1	.0	.0	.0	.0	.0
24 Othr Services	-1.2	-.6	-.3	-.6	-.3	-.8

Experiment 1: full trade liberalisation
Experiment 2: regional NAFTA trade agreement
Experiment 3: regional Mercosur trade agreement
Experiment 4: experiment 2 plus increased NAFTA market access
Experiment 5: experiment 3 plus increased Mercosur market access
Experiment 6: experiments 4 and 5 jointly.

Table 8: Aggregate labour markets results of Chilean Trade policy

	Exp 1	Exp 2	Exp 3	Exp 4	Exp 5	Exp 6
Real Wages						
M.ger Prof.	2.3	.3	.4	.6	.6	1.2
Technic.	2.2	.1	.5	.3	.7	1.0
Admin.	3.0	.4	.8	.5	.9	1.3
Comm Serv	1.7	.4	.3	.7	.4	1.2
Skilled	7.5	1.6	1.4	1.7	1.5	3.1
Unskilled	5.8	1.5	1.0	2.6	1.0	3.4
Informal	3.3	.7	.8	1.3	.8	1.9
Empl. Wgt. Ave SK[36]	2.5	.3	.6	.5	.7	1.2
Empl. Wgt. Ave UNSK	3.9	1.0	.7	1.5	.8	2.2
Adjustment Index						
M.ger Prof.	3.1	1.0	.4	2.1	.2	2.1
Technic.	3.1	1.1	.4	2.2	.2	2.2
Admin.	2.7	1.0	.2	2.1	.0	2.0
Comm Serv	3.4	.9	.5	2.0	.2	2.1
Skilled	.5	.4	.1	1.5	.3	1.1
Unskilled	1.3	.4	.1	1.0	.0	.9
Informal	2.6	.9	.3	1.7	.1	1.7

Experiment 1: full trade liberalisation
Experiment 2: regional NAFTA trade agreement
Experiment 3: regional Mercosur trade agreement
Experiment 4: experiment 2 plus increased NAFTA market access
Experiment 5: experiment 3 plus increased Mercosur market access
Experiment 6: experiments 4 and 5 jointly.

Table 9: Coverage of the minimum wage (percentage of full-time employment)

	% Employment
= Minimum wage	9.1
1.2 times minimum wage	15.5
1.5 times minimum wage	31.2

Source: Bravo and Vial (1997) based on CASEN Survey 1994.

[36] In this and the following tables skilled workers ("SK") are defined as the sum of the first 3 categories (i.e. *Managers and professionals*, *Technicians*, and *Administrative workers*), all the other formal worker types are classified as unskilled ("UNSK").

Table 10: Minimum wage by activity sector (% of employment)

Sector	Percentage of wage-earners earning less than:	
	Minimum wage	1.2 times Min.wage
Agriculture	24.9	39.5
Mining	3.6	6.4
Industry	8.8	14.0
Construction	9.1	15.5
Commerce	7.7	14.8
Electricity, gas and water	7.0	9.3
Transport	8.3	12.9
Financial services	1.5	4.3
Other services	5.0	10.2
Others	5.0	7.4
Rural	24.2	38.4
Urban	6.9	12.3
Total	9.1	15.5

Source: Bravo and Vial (1997) based on CASEN Survey 1994.

Table 11: Beneficiaries of unemployment subsidy

Year	Subsidy beneficiaries (annual average)	Unemployed (%)	Beneficiaries/Unemployed (%)
1980	74,277	378,400	19.6
1981	74,923	398,900	18.8
1982	130,799	717,600	18.2
1983	142,520	626,600	22.7
1984	97,822	576,500	17.0
1985	97,327	504,100	19.3
1986	84,410	449,150	18.8
1987	66,051	424,030	15.6
1988	51,750	370,830	14.0
1989	39,245	341,870	11.5
1990	33,845	363,050	9.3
1991	30,246	353,220	8.6
1992	23,432	322,370	7.3
1993	19,147	349,690	5.5
1994	20,572	431,070	4.8
1995	21,282	363,820	5.8
1996	21,343	301,990	7.1

Source: Unemployment Subsidy: Superintendency of Social Security; Unemployed: National Institute of Statistics. The variable beneficiaries/unemployed is only an indicator of the degree of use of the subsidy.

Table 12: Amount of unemployment subsidy (1996 pesos)

Dates	Bracket I (First 90 days)	Bracket II (Day 91-180)	Bracket III (Day 181-360)
May' 85 - Nov '90	10,793	7,196	5,397
Nov '90 - Nov '91	12,659	8,439	6,329
Dec '91 - Dec '92	13,965	9,310	6,982
Jan '93 - Dec '93	14,864	9,910	7,432
Jan '94 - Dec '94	15,862	10,576	7,931
Jan '95 - Dec '95	16,692	11,128	8,346
Jan '96 - Dec '96	17,338	11,560	8,669

Source: Superintendency of Social Security, Social Security Statistics.

Table 13: Percentage of wage earners earning minimum wages (or less)

	M.ger Prof.	Technic	Admin.	Comm Serv	Skilled	Un-skilled	All Skills
Agriculture	3	2	4	*25*	12	*26*	*24*
Fisheries	0	4	0	*24*	4	*32*	*21*
Copper	0	0	1	6	1	9	4
Energy	0	0	7	10	5	11	7
Food	2	1	5	11	6	13	9
Beverages	0	0	9	5	5	*17*	9
Tobacco	0	0	0	0	0	0	0
Textiles	4	0	0	*21*	10	13	*16*
Clothing	0	0	0	*25*	5	10	*21*
Leather	7	0	0	*16*	0	*35*	14
Shoes	0	0	12	13	8	1	11
Wood Prod.	0	0	3	*15*	4	*29*	14
Paper&Print	0	0	6	4	8	9	5
Chemicals	0	0	*27*	3	11	2	6
NonMetal Pr.	0	0	7	14	9	13	10
Metal Prod.	0	0	0	7	0	0	5
MachinEquip.	0	0	0	2	9	10	3
Othr Manufact.	10	0	0	*20*	13	0	14
Construction	0	0	2	9	3	13	8
CommHotel	9	1	2	13	8	*24*	13
TranspComtn.	0	3	5	4	7	*18*	7
Financial Serv.	0	2	1	3	0	12	2
Public Serv.	3	6	4	*16*	7	*19*	9
Othr Services	3	6	7	*17*	7	*40*	*24*
Economy-wide	4	4	4	*15*	7	*27*	15

Table 14: Minimum wage simulations results

	Exp 7	Exp 8	Exp 9
Selected Aggregates			
Real GDP	.80	.04	.04
Total M (value)	15.2	5.2	4.4
Total Ex (value)	14.4	4.9	4.1
Real Wages			
M.ger Prof.	2.2	.4	.5
Technic.	1.7	.1	.5
Admin.	2.3	.3	.7
Comm Serv	-3.6	-.4	-1.0
Skilled	6.9	1.6	1.4
Unskilled	5.1	2.8	.5
Informal	2.0	.9	.5
Empl. Wgt. Ave SK	2.1	.3	.6
Empl. Wgt. Ave UNSK	.9	1.0	-.1
Premia for Sectoral wage maintenance (in protected sectors only)			
Admin.	2.3	.8	.4
Comm Serv	8.8	1.4	2.0
Unskilled			.5
Adjustment Index			
M.ger Prof.	2.1	1.7	.0
Technic.	2.4	1.9	.0
Admin.	2.1	1.8	.1
Comm Serv	5.3	2.1	.7
Skilled	.3	1.1	.4
Unskilled	.6	.5	.0
Informal	2.2	1.5	.0

Experiment 7: experiment 1 (full trade liberalisation) with minimum wages
Experiment 8: experiment 4 (NAFTA) with minimum wages
Experiment 9: experiment 5(Mercosur) with minimum wages

Table 15: Development of unions, affiliated population, wage earners and coverage: 1986-1996.

Year	Number of Unions	Population affiliated to unions	Wage-earning labour force	Coverage (%)
1986	5,391	386,987	2,717,500	14.2
1987	5,833	442,301	2,798,500	15.8
1988	6,446	446,194	2,944,900	15.2
1989	7,118	507,616	3,019,600	16.8
1990	8,861	606,812	3,063,100	19.8
1991	9,858	701,355	3,134,600	22.4
1992	10,576	724,065	3,295,400	22.0
1993	11,389	684,361	3,472,500	19.7
1994	12,109	661,966	3,422,700	19.3
1995	12,715	637,570	3,482,610	18.3
1996	13,258	655,597	3,713,080	17.7

Source: Labour Directorate.

Table 16: Rate of unionisation by economic sector (% of employed work force)

Sectors	1991 (%)	1992 (%)	1993 (%)	1994 (%)	1995 (%)	1996 (%)
Agriculture	8.0	8.1	7.6	7.5	7.9	7.7
Mining	68.8	70.3	60.4	58.8	48.7	47.2
Manufacturing	23.6	22.9	21.7	21.5	18.8	17.8
Electricity, gas and water	75.5	60.4	61.4	48.4	53.8	37.1
Construction	15.4	15.6	10.9	10.0	10.8	10.2
Commerce	11.9	11.6	10.7	10.3	10.2	10.6
Transport and Communications	32.6	30.8	28.0	27.2	24.0	24.7
Financial institutions	14.3	14.1	11.7	11.3	10.7	9.3
Community and social services(a)	7.5	7.6	7.2	6.5	6.7	6.5
Total	15.3	15.0	13.7	13.3	12.7	12.4

Source: Labour Directorate. Note: (a) includes the public sector whose staff is not allowed to form unions.

Table 17: Collective bargaining coverage

Year	as % of wage -earners
1987	9.9
1988	10.0
1989	11.6
1990	13.4
1991	14.3
1992	15.1
1993	14.3
1994	14.0
1995	12.7
1996	11.8

Source: Labour Directorate and INE. Note: Includes workers who negotiated that year, as well as those who did so the year before but whose collective contract is still in force, since in Chile most collective bargaining contracts last two years.

Table 18: Workers covered by collective instruments, according to economic activity branch, 1994-1996.

Sectors	Coverage rate (a)		
	1994	1995	1996
Agriculture, livestock and forestry	4.9	4.2	3.8
Mining	63.5	35.8	26.5
Manufacturing industry	28.1	25.4	22.6
Electricity, gas and water	42.5	33.8	35.8
Construction	5.8	6.2	5.6
Commerce	12.2	12.2	13.1
Transport and Communications	17.9	15.5	15.9
Financial institutions	18.6	19.8	17.9
Community services	5.8	5.5	5.0
Total	14.1	12.7	11.8

Source: Labour Directorate. Notes: (a) calculated on the wage-earning labour force. (b) Workers covered by some collective bargaining instrument during 1994 include workers who negotiated that year as well as those who did so the previous year and whose collective contract is still valid, since in Chile the most collective bargaining contracts last two years. However, as the number of months of validity of contracts has tended to rise, the figures for workers covered underestimates the number of workers actually bargaining collectively.

Table 19: Inter-sectoral wage dispersion (ϕ) in Chile (1992)

	M.ger Prof.	Technic.	Admin.	Comm Serv	Skilled	Un-skilled
1 Agriculture	0.6	0.5	0.3	0.5	0.3	0.5
2 Fisheries	1.6	2.1	1.3	1.8	1.5	1.9
3 Copper	5.2	5.5	7.8	8.1	6.7	9.0
4 Energy	1.9	2.0	2.1	1.9	2.0	2.2
5 Food	2.1	1.2	1.0	1.0	0.9	1.4
6 Beverages	0.5	2.6	1.5	3.2	1.2	1.9
7 Tobacco	3.0	0.0	5.8	1.9	3.1	5.6
8 Textiles	1.3	0.8	1.0	0.7	0.5	1.1
9 Clothing	0.4	0.3	0.3	0.3	0.3	0.4
10 Leather	0.3	0.9	0.2	0.3	0.2	0.3
11 Shoes	1.1	0.9	0.4	0.5	0.4	0.9
12 Wood Prod.	1.2	1.7	0.9	0.9	0.6	1.0
13 Paper&Print	1.9	2.3	1.7	2.6	1.6	3.2
14 Chemicals	2.0	1.4	1.9	1.9	1.0	1.8
15 NonMetal Pr.	1.3	1.1	1.7	1.0	0.7	1.2
16 Metal Prod.	1.0	0.8	0.9	0.8	0.7	0.9
17 MachinEquip.	1.1	0.7	1.0	1.4	1.0	1.3
18 Othr Manufact.	0.2	0.7	0.2	0.2	0.1	0.4
19 Construction	1.3	1.1	0.6	0.7	0.6	0.8
20 CommHotel	0.7	0.6	0.4	0.4	0.3	0.6
21 TranspComtn.	1.0	1.0	0.8	1.0	0.6	1.0
22 Financial Serv.	1.4	1.5	1.4	1.6	0.8	2.1
23 Public Serv.	0.8	1.3	1.5	2.2	1.4	2.0
24 Othr Services	0.6	0.5	0.5	0.4	0.4	0.6

Table 20: Wage bargaining experiments - Sectoral results

	Inter-sectoral wage premiums change (%)						Lab Dem change (%)		
	M.ger Prof.	Technic.	Admin.	Comm Serv	Skilled	Un-skilled	Exp 10	Exp 11	Exp 12
1 Agriculture	0	0	0	0	0	0	0	-1	-3
2 Fisheries	0	0	0	0	0	0	-1	-1	-2
3 Copper	-8	-8	-11	-11	-5	-13	23	22	23
4 Energy	-21	-22	-22	-21	-19	-24	5	8	8
5 Food	0	0	0	0	0	0	-1	-2	-4
6 Beverages	0	0	0	0	0	0	-1	-1	-1
7 Tobacco	0	0	0	0	0	0	-7	-1	-5
8 Textiles	0	0	0	0	0	0	-10	-4	-4
9 Clothing	0	0	0	0	0	0	-5	-2	-1
10 Leather	0	0	0	0	0	0	-10	-3	-7
11 Shoes	0	0	0	0	0	0	-2	0	-1
12 Wood Prod.	0	0	0	0	0	0	4	0	0
13 Paper&Print	-11	-14	-8	-15	-3	-20	10	9	9
14 Chemicals	-28	-21	-26	-26	-10	-26	1	3	4
15 NonMetal Pr.	-15	-11	-20	-7	4	-14	-3	-1	-1
16 Metal Prod.	-10	-3	-5	-3	4	-7	-5	-2	-3
17 MachinEquip.	-20	-8	-18	-25	-14	-23	-7	-3	0
18 Othr Manufact.	0	0	0	0	0	0	-17	-8	-2
19 Construction	0	0	0	0	0	0	5	4	3
20 CommHotel	0	0	0	0	0	0	-3	-3	-2
21 TranspComtn.	4	5	10	5	22	4	2	-2	-2
22 Financial Serv.	-10	-10	-8	-11	9	-17	5	4	4
23 Public Serv.	0	0	0	0	0	0	0	0	0
24 Othr Services	0	0	0	0	0	0	-1	0	0

Experiment 10: experiment 1 (full trade liberalisation) with wage bargaining
Experiment 11: experiment 4 (NAFTA) with minimum wage bargaining
Experiment 12: experiment 5(Mercosur) with minimum wage bargaining

Table 21: Wage bargaining experiments – Aggregate results

	Exp 10	Exp 11	Exp 12
Selected Aggregates			
Real GDP	.15	-.34	-.27
Equivalent Var			
Q1	1.04	0.90	1.02
Q2	0.14	0.44	0.58
Q3	0.16	0.48	0.57
Q4	0.44	0.62	0.73
Q5	1.10	1.20	1.25
EV Weight ave	0.75	0.89	0.98
Real Exchange Rate	1.3	3.2	2.8
Terms of trade	-0.3	0.4	0.2
Total M (value)	13.56	7.48	6.69
Total Ex (value)	12.83	7.07	6.32
Real Wages			
M.ger Prof.	6.6	5.5	5.3
Technic.	5.9	4.8	4.9
Admin.	5.1	3.6	3.8
Comm Serv	4.7	3.6	3.2
Skilled	.0	-3.1	-3.7
Unskilled	6.6	3.4	1.6
Informal	3.2	1.2	.5
Empl. Wgt. Ave SK	5.9	4.7	4.7
Empl. Wgt. Ave UNSK	4.7	1.6	.1

Experiment 10: exp.1 (full trade liberalisation) with wage bargaining
Experiment 11: exp. 4 (NAFTA) with minimum wage bargaining
Experiment 12: exp. 5(Mercosur) with minimum wage bargaining