



# Learning, Adjustment and Economic Development: Transforming Firms, The State and Associations in Chile

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**Summary.** — This article views learning processes as key to successful economic adjustment. It discusses results of research conducted in Chile, focused on the agroindustry and footwear sectors. It identifies specific problems that large and small firms face to upgrade production, and stresses the limits of focusing exclusively on market reforms for achieving growth. The article discusses how institutions reshape to facilitate learning and improve performance in Chile, particularly the relations between firms; the reorientation of trade associations; and the state's role as facilitator of collective learning processes. © 2000 Elsevier Science Ltd. All rights reserved.

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## 1. INTRODUCTION: BEYOND THE MARKET REFORMS

As policy makers in Latin America pursue dramatic changes in the national economic policy regimes, reducing government regulation and liberalizing trade, firms face greater competition in unprotected domestic and foreign markets. How economic actors adjust to increased competitive pressures, and how public policy might help firms reorganize have become key issues in the development debate. This article discusses these questions, focusing on Chile, the paradigmatic case in Latin America because it pioneered the adoption of market reforms in the 1970s, and its economy showed subsequent rapid growth.<sup>1</sup> The reform package included policies to liberalize both trade and domestic market prices, privatize state-owned enterprises, devalue the exchange rate, and reduce inflation by eliminating the fiscal deficit.<sup>2</sup> Chile's average GDP rates grew over 6% per year during 1984–95.<sup>3</sup> The unemployment rate declined over 1982–92 from a peak 27% to 4%.<sup>4</sup> Inflation rates also declined and are now in the annual range of 10%. The export share of GDP, at constant prices, rose from 12% in 1970, to 20% in 1980, and reached 35% by 1995.<sup>5</sup>

Most explanations about Chile's successful growth and expansion of exports focus almost

exclusively on the macroeconomic reforms.<sup>6</sup> This paper looks beyond that reform package, and explores how Chilean firms have overcome past production performance deficiencies, how they have improved their capacity to compete abroad or in the newly opened markets at home, and how institutions and practices evolved in the context of the changing national policy regime. The case studies discussed here uncover a complex development process in which the interactions between firms, the state, and associations reconfigured institutional arrangements while these actors transformed in the course of improving performance.

The dramatic changes in the national economic policy regime, and the goal to expand exports exerted new competitive pressures on Chilean firms. The central challenge became

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how to meet international production standards to capture market shares at home and abroad. The evidence from the cases reveals a process in which successful performance resulted from the complementary interaction of three elements. First, the state became actively involved in the search for new ways of organizing production, encouraging new standards of product quality and processes to upgrade the productive capabilities of Chilean firms. This conditioned public debate, and reoriented the communication between private firms and government. Second, the state and business associations redefined their relations. The state pressured associations to reorganize to respond to the new challenges, by supporting business operations instead of concentrating efforts on "getting something" from the state. This, in turn, pressured the state to assist in the formation of *new* associations that facilitated the diffusion of knowledge among firms and promoted collective learning throughout the sector. Third, economic success derived from a transformation in the relationships between customer firms (mostly large) and small suppliers in the production networks. That change entailed developing new institutional arrangements and capabilities of large "mother firms" to upgrade small suppliers that enhanced the collective capacity to improve performance.

This paper discusses the results of original field research.<sup>7</sup> The case studies focus on two sectors in Chile: agroindustry and footwear. The agroindustry case exhibits the specific traits most associated with recent Chilean economic success: export growth in a natural resource-related sector. In 1994, total exports (at constant prices of 1994 US dollar value) more than doubled their 1985 level, and increased by 6.5 times their 1960 level.<sup>8</sup> During 1985–94, non-copper exports grew 15.4% annually.<sup>9</sup> Agroindustrial exports expanded significantly during this diversification process.<sup>10</sup> Thirty years ago this sector did not export; by 1993, exports of processed fruits and vegetables had reached US\$682 million, accounting for 20% of total processed natural resource-related exports, and 7% of total Chilean exports.<sup>11</sup> In addition, the processed fruit and vegetable industry has been among the most dynamic employment generators. It accounted for 18.6% of total industrial employment in 1985–92.<sup>12</sup> Networks of small producers as suppliers to large firms are predominant in Chilean agro-industrial production.<sup>13</sup>

In contrast, the footwear sector has not performed well in the post-reform period. It experienced a dramatic decline in the 1970s, a temporary growth of exports in the late 1980s, only to later decline in the 1990s. The footwear case exemplifies the profound repercussions of the market reforms on the manufacturing sector. With liberalized trade, the rates of protection for the traditional industries dropped precipitously.<sup>14</sup> Competition from foreign imports combined with domestic demand contraction (due to restrictive fiscal and monetary policies, and declining employment and real wages), led to the bankruptcy of many footwear firms. The remaining firms turned to subcontracting after the market reforms.<sup>15</sup>

## 2. CHALLENGING THE CONVENTIONAL VIEW: LEARNING AND INSTITUTIONS FOR ECONOMIC DEVELOPMENT

The conventional view that focuses almost exclusively on market reforms as sufficient basis for restructuring and growth makes several controversial assumptions. First, it assumes that the reorganization of firms to meet increased competitive pressures is automatic once prices are undistorted and pure competitive markets prevail.<sup>16</sup> Second, it presumes a ready supply of exports that requires minimal technological transformation. It underestimates the problems to be competitive that emerge during the process of improving production performance. Third, the belief is that state intervention only stifles development, generates inefficiencies and promotes lobbying groups engaged in rent-seeking.<sup>17</sup> The perfect market becomes the key mechanism for achieving development.

Thinking on economic development in the institutionalist literature departs significantly from the conventional approach, in several crucial dimensions. In particular, three bodies of literature are relevant: the theories on learning and development; the literature on new forms of economic organization (flexible specialization, industrial districts); and on the role of the state. I briefly discuss these next.

Learning is a central process in economic development. This idea refers to the acquisition of knowledge and skills that improves the performance of production processes and the quality of products to become competitive in local or foreign markets.<sup>18</sup> Learning involves building institutions, organizations, and

capabilities. Viewed from this perspective, static comparative advantage is insufficient for achieving long-term competitiveness. The initial success based on low wages is unsustainable when other lower-wage countries enter the market, or when other countries with higher productivity levels outcompete.<sup>19</sup> Development, therefore, requires a process of acquiring technological capabilities, building skills and competence to improve existing designs, processes and products (dynamic growth issues).

The governance structures and institutional arrangements that facilitate learning, according to Sabel, reduce information asymmetries among and within firms, and between firms and the state.<sup>20</sup> This literature focuses on the concept of *learning by monitoring*, that is, the ability to evaluate current practices and performance to develop new standards to then build a capacity for continuous improvement. This is a process that operates at many levels of the economy (firms, associations, the state), and guides the communication between economic actors. The actors set goals and make an effort to reach defined targets through continuous review and monitoring of the partners' performances and capacities to reach those targets. This process encourages the creation of relations among and within firms, or between the state and the economy that continually foster flows of knowledge and maximizes the possibility of learning (improving production performance). *Learning by monitoring* opens the possibility that, instead of pursuing self-interest, rent-seeking, and accommodation to protectionism, the actors can redefine objectives and pursue beneficial developmental projects.

The literature on successfully performing industries and regions of advanced economies shows that the market as a coordination mechanism does not result in the best economic performance. When uncertainty is high and constant innovation is crucial to remain competitive, network forms of coordination are key to achieving successful performance.<sup>21</sup> In particular, the literature on *flexible specialization* and industrial districts demonstrates that regulation at the micro-level, and the creation of institutions that encourage innovation by balancing cooperation and competition among firms play a key role in improving economic performance.<sup>22</sup> This literature focuses on the direct relationships among firms that allow for the transfer of complex information associated

with the learning process. From this viewpoint, learning is an interactive and socially embedded process. It depends on an institutional context that builds reciprocity and collaboration, and is not compatible with a regime of unregulated markets and unimpeded competition.

The institutionalist literature on the role of the state in the economy focuses on the relations between the state and private groups. It argues that it is possible to have a growth-enhancing collaboration between business and government.<sup>23</sup> The idea of *embeddedness* characterizes the relationships between the state and firms, in contrast to the state's insulation from societal forces that the conventional view assumes as necessary for development.<sup>24</sup> The emphasis on ties between state agencies and business groups prompts the question about what institutional arrangements characterize those ties when they encourage learning, and avoid traditional corporatist relations.

The next section discusses how institutions and practices have evolved in Chile and what characterizes them when they have facilitated learning processes resulting in more efficient production at world-class standards. The examples discussed below show problems central to improving Chilean economic performance, for example: the ability to build local technological capacity, reorganize production, procure quality raw material, and adopt and diffuse new knowledge across production networks. Resolving these problems entailed a process of constructing new institutional arrangements, and of reconfiguring the firms, the state and associations.

### 3. BUILDING INSTITUTIONS TO ENCOURAGE LEARNING: THREE EXAMPLES

#### (a) *Transforming relations in the agroindustrial production network*

The first example concerns the redefinition of relationships between large firms and their small suppliers in the Chilean agroindustrial sector. Many accounts attribute the growth of agroindustry to the market reforms initiated under the Pinochet government (1973–1990). Successful export supply, however, required more than just changes in price signals, even when a supposed comparative advantage existed. To develop quality exports, Chilean firms had to overcome substantial technological

disadvantages, and considerable problems of coordinating production organized in contracting networks.

To illustrate, I use the Chilean tomato processing industry case that achieved substantial competitiveness, and produces an important share of processed exports.<sup>25</sup> Export sales of processed tomato products grew from only two million dollars in 1981, to more than 100 million dollars in 1995, a 50-fold increase.<sup>26</sup> During this period, the total volume of processed tomato production increased eight times, from 14,420 metric tons per year to 113,650 metric tons.<sup>27</sup> By 1994, Chile occupied fifth place among the world's tomato paste producers, after the United States, Italy, Turkey, Greece, and tied with Spain. Not only did Chile increase its share of the world market, but it penetrated very demanding ones.<sup>28</sup> In addition, production networks grew substantially; in 1995, nine large firms worked with nearly 5,000 raw material suppliers in the South Central Valley of Chile. A decade earlier, only two companies existed and contracted 210 suppliers.<sup>29</sup>

Agroindustry products often get incorrectly categorized as primary exports, masking the complex process for producing products acceptable to foreign clients, even when natural advantages exist. Just two decades ago, Chile lagged far behind other producing countries. None of the indigenous firms had the capacity to export. Their processing plants used small-scale, reconditioned second-hand equipment; and discard quality raw material bought on the spot market. Becoming exporters presented at least four technological challenges. First, producers used local fruit varieties and species inappropriate for industrial purposes. Second, the volumes produced at the time were insufficient to achieve a relevant presence in foreign markets. Third, the existing local plants had dated equipment compared to that used by the established competitors (California, Italy, Portugal). Fourth, the firms could not meet the quality standards required for exportation.

The movement of the agroindustry from low-quality and inefficient production, to being world competitive involved a process of interactive learning between the government and the private firms, as well as between the enterprises. The state contributed to improve technological capacity as well as to politically facilitate the firms' reorganization, before and after the market reforms.<sup>30</sup> First, the government conditioned public debate generating collective

learning processes, bringing new information, and illuminating possible strategies. Second, it facilitated the shift from an old pattern of production to export-oriented, catalyzing the emergence of new organizations and the diffusion of improved technology. This public action did not require the "strong" state, that is, insulated and with superior knowledge about what to do and when. As these research results suggest, the government helped to identify and coordinate the general direction of a move over time. Moreover, the state efforts interacted with private firms' search for ways to improve products and organization, jointly forming crucial inputs to the adjustment process.

In the late 1960s, the Frei administration advanced the idea of developing an internationally competitive agroindustry. The public agency CORFO (Production Development Corporation) reviewed existing Chilean business practices to understand where they stood relative to the international competition, and what needed to change.<sup>31</sup> CORFO searched for the best foreign and local practices to serve as a working model for Chile. The old model of relying on cheap, discard quality raw material to produce processed products could never meet the requirements of foreign clients. The state engaged in development projects that facilitated the transfer of foreign *know-how* (plant varieties, soil preparation, cultivation, and industrial processing technologies), and that expanded agroindustrial activity into new geographical zones.<sup>32</sup>

In addition, CORFO experimented and helped establish a new organizational model to improve the previous procurement system of buying raw material on-the-spot market. The new model promoted the creation of *leader* processing firms that would assist in the wide-spread diffusion and adoption of foreign technology. Specifically, networks of small producers would link as suppliers to the large modern processing industries, that would be either state, private, or cooperatively owned. The large firms would develop their own internal capability to build the skills of external suppliers. This model borrowed from the state's experience in the sugar beet processing industry, and closely connected the technical personnel from the processing firms to the external suppliers.<sup>33</sup> Knowledge-sharing between the "tecnicos" and small producers was a central aspect for improving agricultural practices, meeting the industry's requirements,

and competing abroad. Frei's government had as a parallel developmental objective to modernize small producers (a goal tied to the simultaneous implementation of an agrarian reform).<sup>34</sup>

The success of Chilean agroindustry, however, is not the simple result of government design. Frei's state policies and projects could not determine nor predict this industry's growth in the subsequent decades. In the 1970s and 1980s, after the adoption of market reforms, multiple attempts to export processed tomato failed, even after private Chilean firms established contracts with outside raw material suppliers, and after substantial investments in state-of-the-art processing plants. Insuring consistent volumes of high-quality product to meet the stringent international food standards required developing a production capability that did not happen automatically. The evidence from the case studies shows that large processing firms encountered many coordination problems in the process of production, resulting in many deficiencies in the quality of their product and performance of their process.<sup>35</sup> For a decade, grave problems plagued the industry: low yields; bad quality and rotting of highly perishable raw material; irregular flow and untimely supply; lack of synchronization between the suppliers and the processing plant; and low volumes of product.

On the supplier's side, the high perishability of the crop combined with the inefficient reception at the industrial plant often led to reductions in the price received for the product, due to a higher reject rate, and subsequent penalties. Suppliers often bore the burden of a coupon rationing system that the customer firms established to avoid frequent raw material overloads. The supplier could harvest and deliver to the plant only a pre-approved amount of raw material, irrespective of the amount ready for delivery. Disagreements on the timing of harvest, quality and weight, and therefore, on final price received, left many suppliers with a feeling of being deceived. In addition, suppliers found it difficult to achieve good yields and quality as they had never worked with this particular crop that required special cultivation practices (i.e., spacing, timing of planting, sowing, irrigation, use of specific fertilizers and pesticides).

Finally, the firms had to learn to adopt, adapt, and diffuse widely the new agricultural technology, specifically hybrids. Until the early 1980s, only open-pollinated seeds had been

used. Reaching the potentials that hybrids offered was not easy. First, the hybrid seeds are more costly (80 times higher per kilo) than open-pollinated seeds. Second, hybrid seeds are useful for only one growing cycle, given their peculiarity that only the first generation following the cross is useful, requiring that new seed be obtained each year. The small suppliers of these companies could not afford hybrid seeds, nor could they easily access information on this new technology. Third, hybrid seeds suffer frequent maladaptation to local conditions as their performance changes when removed from the original breeding ground (due to differences with soils, pests, climate, fertilization), often resulting in inferior performance. Simply making the new technology available to suppliers was insufficient as it was not a *turnkey* process.

Merely establishing a network of suppliers did not solve the problem of irregular supply and quality. The problem was two sided: small suppliers could not easily build their technological capabilities on their own; and the large processing firms initially lacked the capabilities to coordinate, monitor and upgrade their suppliers. The challenge to the processing firms then became how to create conditions where their suppliers could learn, in a context where other institutions (market, public or private organizations) were not providing them. As discussed below, large customer firms redefined the relationships with their suppliers through a process that involved building the large firms' own internal capabilities.

Solving these coordination problems in production involved a process of building new skills, interfirm practices, and upgrading the small suppliers' capacities so that they could collectively improve performance. Chilean agroindustry firms have been particularly successful at developing an institutional alternative. Initially, processing firms relied on a system that generated excess raw material supply, used quality control only at the post-harvest reception at the processing plant, and then applied penalties for bad produce. As firms adopted expensive hybrid technology, the continued reliance on the old system (that is, acceptance or rejection upon receipt) proved even more costly and vulnerable to failure. Moreover, demand for raw material, and thus, demand for suppliers increased as more firms entered agroindustry.<sup>36</sup> Firms came under pressure to keep the suppliers with whom they had established contracts. The firms defended

against local competitors by reducing the likelihood of supplier defection, or their failure to meet the buyer firms' raw material standards. Gradually, the competition among processing firms evolved away from a focus on bidding higher prices paid for raw material toward an interest in providing effective services to suppliers.

New interfirm practices designed to ensure longer-term relations and high-quality supply developed. These practices included: price stability; introduction of quality control to monitor every step of the production process; the provision of a package of services; and the building of close ties between technical plant personnel and suppliers.<sup>37</sup> Contracts established in advance the prices that customer firms would pay suppliers upon delivery of raw material. As all the processing firms paid the same price, there was little incentive for suppliers to jump ship and sell to other firms. Large firms could invest in suppliers with the assurance of consistently improving future deliveries. Simultaneously, price stability reduced the financial risk for suppliers, as they knew in advance the price they would receive at the end of the production season. In addition, suppliers knew in advance the yield performance target that would bring a profit.

Agroindustry firms created an interactive learning and information exchange using technical assistance and quality control to identify production problems and to monitor performance. Technical assistance went beyond the mere function of transferring *know-how*; it became part of an arrangement designed to reduce the likelihood of small producer failures. Technical assistance and quality control became part of a system of coordination that increased the capacity for *learning by monitoring*. Quality control and technical assistance allowed a constant evaluation of actual performance against a target performance, at every step of raw material production to then improve production practice. Frequent field visits by the plant's technical personnel (at least once a week) to suppliers allowed for timely correction responses to deficiencies to meet the buyer firms' quality standards. Furthermore, the structure of technical assistance built-in the evaluation and comparison of the performance of the technical advisors at the buyer firm. Weekly meetings served to evaluate the field problems across various geographical zones, and created pressures on the technical advisors to work closely with suppliers to ensure the best

possible production in their zone of responsibility.

Where did agroindustrial firms get ideas on how to improve their practices to coordinate production with suppliers? The processing firms borrowed and built on models provided by three sources. The first was the enterprise organization model the government developed in the Chilean sugar industry and the new export-oriented tomato processing enterprise. This state model emphasized supportive relationships with suppliers to achieve the successful diffusion of technology. Second, as some firms established contracts with world-class customers that had expertise in quality control techniques, they acquired new skills to better manage relations with their suppliers, particularly in the area of quality control. Third, two important channels of information developed as a result of the movement of managers between firms, and the information exchange between managers through their participation in the sector's trade association. Firms that were behind in learning the skills to upgrade suppliers benefited from others' experiences through horizontal networks between the large processing firms.

This example briefly illustrates the way in which the institutions and governance structures in the Chilean agroindustry evolved over the past two and a half decades. The relationships in the interfirm network changed as the institutional arrangements coordinating production reconfigured in the context of increasing competitive pressures. Large firms had to build their capability to upgrade their small suppliers, and to develop the capacity to improve continuously production jointly with them. Initially the large firms did not have this capacity. The new practices emerged out of interactive learning in the relations between public and private actors.

(b) *The reorientation of the agroindustry business association*

The second example concerns the reorientation of one of the most important associations in Chile today, the Federation of Agroprocessors (FEPACH). It illustrates how the state has constructed new connections with groups of private enterprises, encouraging them to seek ways to improve the production performance of firms. This process of reconfiguring relations between the state and associations began after the market reforms, under the Pinochet

government, but the trend continued, and even intensified, after the transition to democratic governments in Chile. In this case, the state ventures beyond macroeconomic management to both assist and encourage firms' learning in a way similar to what Sabel calls a *developmental association*.<sup>38</sup> This is a grouping of firms that does not act as conventional interest groups but rather collaborates with the state to compete in markets. The state encourages firms to improve their products by using international standards as a reference, shaping the firms' goals in the process.

The market reforms adopted under Pinochet drastically affected the life of existing trade associations. Much like firms themselves, the associations had the challenge of reinventing themselves. The agroindustry firms successfully rebuilt the role of their association in a process assisted by the state. The Association of Processed Foods (Asociación de Fabricantes de Conservas or ASFACO) was born in the late 1950s.<sup>39</sup> It was born during a period of protectionism and import substitution industrialization. During the 1950s and 1960s, ASFACO became the voice of the canning firms. It represented them for negotiations with the Pacific Steel Company (CAP), a state enterprise, and the sole producer of steel and tin products in Chile. ASFACO organized all the canning firms to make joint purchases of the needed cans from CAP, resulting in lower prices for its members.

Two issues consumed the agenda of the association during this protectionism period. First, as the firms could not import tin products, they could only buy their supply from CAP with whom they faced many problems related to tin quality and prices. The next most important item on the agenda of the association's meetings was the issue of prices for their products. During the 1950s and 1960s, Chilean governments had a system of price controls covering nearly every retail food item.<sup>40</sup> ASFACO representatives engaged in constant negotiations with the Ministry of the Economy attempting to raise the prices of their processed food products.

The new policies of the Pinochet government radically transformed the economic environment of Chilean firms, and changed the purpose of ASFACO. The two issues that had consumed the life of ASFACO ceased to be relevant. Market liberalization allowed for foreign imports, and thereby eliminated CAP's tin can monopoly in the domestic market.

Moreover, the government also removed price controls. What ASFACO could offer its members was now obsolete in the new economic environment, and the organization entered a period of inactivity and decline.

In stark contrast to the free market ideology of the Pinochet government, the state agency PROCHILE, created in 1975, promoted the formation of alliances between agroindustrial firms to assist their explorations into unknown foreign markets. The collapse of Chile's economy in 1981–82 prompted a revision of the policies of the first decade of the Pinochet government, and led to changes in the government's relationship with the private sector.<sup>41</sup> The goal to increase exports in the post-1982 period led the government to form groups of firms, apart from existing trade associations, to promote the upgrading of existing production methods and products.<sup>42</sup> The central focus of these state-coordinated groups was to learn how to improve the product quality to meet international standards, as well as examine production practices and explore what to produce for world markets.

ASFACO began to reactivate in the early 1980s, partly as a result of the export promoting activities of PROCHILE. Through the Export Promotion Fund, PROCHILE co-financed export projects proposed by groups of firms in the same sector. Only firms in a group could receive financing, not individually; and the government financed 50% of the project, with private firms financing the balance. PROCHILE organized the association of firms into sector-specific export committees that would then define a project. Projects fell into two categories: (i) improving quality to meet international standards; and/or (ii) develop new products.

Once PROCHILE approved a project, it supported the export committees by providing all the specialized services that firms needed to develop their exports: acquiring information on foreign standards; organizing trips abroad to visit the factories of foreign competitors, as well as product discovery missions; providing information on market trends. These committees provided a base from which firms, with government assistance, could discuss the building of new local standards, and new product ideas acquired during visits to trade shows or to potential foreign clients.

PROCHILE contacted and recruited firms directly, one by one, bypassing existing organizations, such as ASFACO, to bring together

firms that were both members and nonmembers of existing associations to form the new sector export committees. Early committees represented the following sectors: processed fruits and vegetables, salmon and other processed seafood, fresh fruit, furniture, textiles, wine, and paper products. In all, some 65 committees consisting of six to 14 enterprises each, and integrating over 700 firms were in place by 1988.<sup>43</sup>

In the specific case of the agroindustrial firms, the PROCHILE committee brought them together in a way that ASFACO on its own could not. It provided an opportunity for them to develop a sense of common identity that led firms to look at the existing association ASFACO, and seek ways to recreate it in a way that would serve to improve the competitiveness of their industry. The groups of firms began to feel that the reputation of the group, rather than just one firm, was the key to attracting foreign buyers to Chilean products. The firms identified the need for uniform quality standards as key to the process of becoming reputable exporters. They developed new standards based on the new awareness of what clients demanded, as well as the technical information that firms had acquired on their explorations of international markets, and their contacts with foreign customers.

Whereas ASFACO used to include only producers of canned products, other type of fruit and vegetable processors began to join (frozen, juices, dehydrated products). In subsequent years, a new federation emerged, named FEPACH. It grouped not just the ASFACO members, but all the various agroindustrial subsectors, including producers of frozen, juice, and dehydrated products that had come together in the PROCHILE export committees.

The association of agroindustry firms contributed to learning among processing enterprises. It promoted new quality control practices and new contracting relations with suppliers. It encouraged firms to subject their products to independent quality control labs for evaluation. While each processor has a lab, FEPACH has promoted the use of an independent certifying company, besides the quality control of each firm. It also provided a common route for firms to learn about international standards and production practices. Likewise, they could compare themselves with other local firms regarding processing yields and volumes, export sales, production costs,

and contracting relations with suppliers. In addition, the association served as a forum for discussions on how to regulate competition for suppliers among buyer firms. The firms agreed to discourage opportunistic behavior by establishing common prices for raw material. These cooperative strategies required much sharing of information among managers of large processing firms which reinforced knowledge acquisition.

FEPACH now coordinates and establishes contracts as a group with ocean shipping lines, in the process reducing the confidentiality of firm-level proprietary information. This coordination entails sharing information among firms such as destination, customer identities, products and volumes exported. In time, the association began to produce yearly reports containing data such as: member ranking by production and export sales, types of products, and their destination.

With the government as facilitator, the agroindustry firms became connected around a new agenda that focused on promoting higher standards, initiating certification programs, developing independent quality control labs, and organizing joint technical missions abroad. Once reinvented, the association could provide its member firms with horizontal channels of information. Enterprises increased their opportunities to learn what needed to change and how they might improve their practices. The association made large processing firms less dependent on export traders or foreign customers as their sole source of information on foreign markets and technology.

The *developmental association* that emerged is very different from the traditional corporatist schemes, or rent-seeking groups. Rather, we observe a process in which associations acquire a new role as key institutions for assisting the upgrading of firms' capabilities. Besides changing the nature of the interaction among members within associations, there is also a significant redefinition of the communication between private firms and government. The communication centers around a productive dialog that generates information on how to upgrade and enter unknown markets.

Under the new economic environment, traditional public policy approaches do not fit. But instead of pure market coordination, meso-level agencies like CORFO and PROCHILE develop a new role sparking processes of collective learning to facilitate firms' adjustments. The state orchestrates the formation of

new networks among firms focused on collaborating to build their competitiveness by meeting higher product standards and improving production processes. This, in turn, places new demands on the state as it reshapes the organization of its services, transferring the programs it initially managed so they become part of the tasks undertaken by the *new* association.

(c) *Constructing institutions under the democratic regime*

In the 1990s, the transition to democratic governments in Chile intensified the trend toward constructing *developmental associations* and building alternative production practices to improve performance. First, in an attempt to overcome the limits of past policy strategies that focused mainly on macroeconomic balances, the newly elected governments emphasized the modernization of production with social equity. This brought attention to sectors adversely affected during the past decade, like textiles, garment, and footwear where unemployment was rising. Second, the export success and improving balance of trade during the 1980s brought along currency exchange appreciation, and the rise in real wages, diminishing the ability of Chilean firms to compete based on low wages. In this context, the new government adopted strategies to promote the competitiveness of exports based on increased productivity, better technology, and enterprise reorganization.

The experience of CORFO (Production Development Corporation) best represents the move toward the new policy strategy. Until 1973, CORFO engaged in programs to improve the technological capacity of Chilean state and privately-owned enterprises, especially in agro-industry, fisheries, and forestry. The Pinochet government considerably reduced CORFO's role. It became limited to privatizing the state-owned enterprises, and to providing credit to individual firms through private banks.

Under the new democratic government of Aylwin (1990–94) and Frei Tagle (1995 to present) CORFO assumed a new role to promote a reorganization of firms. The experience with CORFO's programs in the 1980s revealed the limits of the traditional instruments such as individual credit and technical assistance programs to firms.<sup>44</sup> In 1993, CORFO began a new policy focused on *Proyectos de Fomento* (Development Projects),

or PROFOS, drawing on PROCHILE's approach, and the experience of the European industrial districts. The current focus is to organize enterprises in groups to foster their joint access to new technology, and effect their internal reorganization.

The PROFO program works by creating groups of eight to 15 firms in the same sector and geographical vicinity, producing similar or complementary products, organized around the goal of developing their competitiveness. CORFO commits to finance up to 70% of the group's operation costs for three years; the firms must finance the balance. A group manager is hired to help firms elaborate, implement and monitor a joint plan. By 1997, 306 PROFOS operated in Chile, that included some 3,400 small and medium enterprises.<sup>45</sup> While initially CORFO managed directly the program, over time 10 business associations and seven regional development centers have assumed administration of the PROFOS, leading to decentralization of control.<sup>46</sup>

One example from the footwear sector illustrates the processes that the formation of these groupings can generate.<sup>47</sup> The footwear industry declined dramatically in the aftermath of trade liberalization. In the late 1980s, however, new export policies that relied on depreciated exchange rates led to a surge in footwear exports. By the 1990s, however, footwear firms could not sustain their competitiveness abroad nor even in a growing domestic market. When the originally advantageous conditions reversed, as the exchange rate appreciated and wages rose significantly in the 1990s, export growth was unsustainable. Contrary to the conventional assumption that the export supply response to depreciated exchange rates is lasting, the footwear case shows its fragility.<sup>48</sup>

Footwear firms continued to rely on dated techniques, a production organization that depended on suppliers as a way to cut costs, and significantly limited their capacity to upgrade them. Moreover, exporting footwear firms were highly dependent on foreign export traders as their main information source. In most cases, the trader was a weak linkage for learning, limiting the transfer of skills to copying designs, rather than transferring the new technological and organizational practices in footwear manufacturing.

One group of footwear firms organized a PROFO in 1993. Initially, their goal was to find new customers in foreign markets. In their

view, seeking customers abroad would be the solution to declining sales. The firms used the government funds to finance trips abroad. For some time, the firms did not view the PROFO as a resource they could use to upgrade their productive capabilities. Gradually, as footwear firms could not find new foreign customers, nor capture shares in a growing domestic market, they turned their attention to how to improve their capacities to overcome deficiencies that plagued the industry. With additional government assistance, the association not only began to reorganize, but the footwear firms began a new collective institution that for the first time joined both small and large ones: the Technical Footwear Institute. This institution centers its attention on assisting the internal reorganization of firms by learning about new plant layouts, design technology, and quality control management practices.

While these new programs address important problems, it is premature to say they will be successful. Nevertheless, the insufficiency of simply devaluing exchange rates and liberalizing trade becomes evident from the export experience of Chilean footwear firms. These new programs allow firms and state agencies to engage in discussions about how to develop practices that facilitate continuous improvements in production. The state provides general goals, and it need not have detailed knowledge of each firm, as it relies on decentralized authority (using local agents) to “force” enterprises to evaluate themselves according to the agreed goals. The jointly fixed goals, for example, include: increasing yields and quality, lowering production costs, adopting new technology, diversifying products, obtaining internationally recognized certifications (ISO 9000, occupational security or environmental standards). Setting joint goals, sharing experiences, and evaluating strategies, organization, and management generates collective learning processes, while reshaping the state, the firms, and their relations.

#### 4. CONCLUSIONS: CONCEPTUAL AND POLICY IMPLICATIONS

These research results suggest that achieving sustainable growth and development will depend on building economic institutions, and generating collective learning processes that facilitate adjustment and enhance productive capabilities.<sup>49</sup> The process of learning entails

acquiring knowledge about how to produce to the standards of quality and efficiency that are competitive in liberalized local markets, or in foreign ones. This involves a movement from existing practices and procedures, to better or new products, processes and organization. Firms need to develop skills to review their current operations, evaluate their performance compared to others, and strategize ways to improve it. These skills are not widely available, and existing forms of organization are ill-suited to coordinate adjustment.

This article provides elements for business promotion work, efforts to strengthen business associations, and reforms of the public sector. Under the new environment, the state acts as political facilitator of economic adjustments, using approaches that do not fit the views of “strong” or “little” government. It catalyzes collective learning processes, promotes debates, and provides a direction and resources that help firms identify their deficiencies compared to world standards. An interactive learning process emerges where both public agencies and private firms jointly produce, search, and synthesize ideas about how to improve business operations.

Increasingly, research and public policy in developing countries are focusing on clusters and industrial districts. The concept of cluster focuses on the sectoral and geographical concentration of enterprises; the district emphasizes horizontal linkages among firms and other local economic agents.<sup>50</sup> The cases discussed in this article illustrate that the mere presence of a cluster of firms, or of district-like features are insufficient to generate learning. Rather, learning depends on developing institutions and practices to coordinate the production network that build the collective capabilities to improve performance. In particular, the opportunities for upgrading the capabilities of small suppliers depend on the investment and resources devoted to diffuse knowledge throughout the production network. Large firms do not naturally have the capacity to upgrade their suppliers, as both the Chilean and other experiences demonstrate.<sup>51</sup> Developing that capacity seems to depend on the degree to which the large firm itself connects to external resources and channels of knowledge to learn about new practices, routines and improved ways of organizing production.

The literature on industrial districts and clusters emphasizes the role of associations

among the key institutions for promoting successful industrial development. The literature, however, assumes associations as automatically capable. There is, however, a long experience with associations in developing countries with mixed results. The cases discussed here illustrate that organizations that might help improve firms' capacities often are unable or constrained in doing so. Associations often have little experience in providing the assistance that firms need to adjust to the new market environment. Even when they have been historically successful, they have difficulty adapting to a new policy regime. We have to look beyond the association's presence. The existence of an association, even a forceful one, is not sufficient to help firms' learning. The footwear sector, for example, did not lack for trade associations. The agroindustry association, however, has been far more effective at supporting improvements in the performance of firms than the footwear ones.

There are *old* and *new* associations at work in Chile. The *old* associations grew accustomed to being *representatives* of firms in negotiations with the state. They had assured membership under a legal framework that made it obliga-

tory to be part of an association. The *new* ones have reoriented their focus toward seeking ways to build the capabilities of firms by reexamining production practices. They have turned to sources that can help firms in adopting new production organization, quality control methods, process and product standards. Whatever shape these *new* associations take, constructing them is a process characterized by the close, decentralized interaction among public and private actors.

The institutionalist literature on the relations between the state and the economy emphasizes that improving economic performance depends on the combined action of the state with private groups. The principles guiding the construction of the public-private ties, however, are important in determining the capacity to successfully adjust and learn. The goal to achieve better standards, the search for better production practices, and a joint public and private deliberation on how to improve performance guides the new institutions emerging in Chile. This goal creates pressures on all economic actors to cooperate to move away from achieving competitiveness based on low wages, and toward competitiveness based on enhancing productive capabilities.

## NOTES

1. For a recent example of a new economic policy consensus in Latin America based on Chile's experience, see Edwards (1995).
2. A generalized import liberalization removed quotas and reduced tariffs to a uniform 10% by 1979, a drastic change since in 1973 tariffs averaged 105% (Dornbusch & Edwards, 1994). The reforms also dismantled price controls, eliminated multiple exchange rates, and privatized some 300 firms during 1974-78. For evaluations see Bosworth *et al.* (1994), Edwards and Cox (1987), Foxley (1983) and Stallings and Brock (1993).
3. Corbo and Fischer (1994).
4. Martinez and Díaz (1996).
5. Meller and Saez (1995, pp. 11-41).
6. See, for example, Corbo and Fischer (1994), Dornbusch and Edwards (1994), Edwards (1994, 1995), Fontaine (1989), Hachette (1992), Mujica (1992) and Wisecarver (1992).
7. The author conducted original fieldwork in Chile, during a two-year period during 1994-96. The unit of analysis focused on firms, emphasizing the direct relationships among firms in the production process, between firms and the government, and between firms and business associations. A total of 150 in-depth, semi-structured interviews with firm owners, managers, engineers; and representatives of trade associations and government agencies provide the basis for this discussion. For more on sources and methodology see Perez-Aleman (1997).
8. There was more than a threefold difference between the 1960s, when exports grew at an average annual rate of 3.2% (less than the GDP rate), and 1985-94, when exports increased at an average annual rate of 10.3% (higher than GDP annual growth rate of 6.2%) (Meller, 1995, pp. 13/35).
9. Meller and Saez (1995, p. 13). There was an important export diversification; copper's share of total exports declined from nearly 75% in 1970 to 39% in 1995. The share of copper exports declined even as the

- volume and value of copper exports more than doubled during the same period (Meller, 1995, p. 23).
10. When I refer to agroindustry, I focus on processed fruits and vegetables products: canned, preserves, juices, frozen, dehydrated, paste and pulp. I exclude the dairy and meat products which also grew significantly. My emphasis differs from other studies on Chile that focus on fresh fruit; see, for example, Casaburi (1995), and Goldfrank (1990).
  11. In 1993, processed natural resource related products (including forestry, fishing, agroindustry, dairy and meat) accounted as a group for 35.6% of total Chilean exports (Meller and Saez, 1995, p. 37, Table 1.A.4).
  12. Rifo, Mattos and Silva (1995, p. 24).
  13. On the growth of networks of small suppliers and large agroprocessing firms in various subsectors, see for example, Abramo, Montero and Reinecke (1996), Castillo, Maggi and Dini (1994), CEPAL (1995), and Perez-Aleman (1997).
  14. During 1974–79, total imports grew by 34% (measured in constant dollars); while imports of nonfood consumer goods grew by 123% (Velasco, 1994, p. 401). On the impact of liberalization on the manufacturing sector see Gatica (1989) and Mizala (1992).
  15. For more on the growth of subcontracting in the footwear sector see Agacino, de Laire and Echeverria (1993); Perez-Aleman (1997).
  16. The argument for getting exchange rates right is predicated on an automatic supply response to price changes. See Rodrik (1995) for a discussion of this assumption in the analyses of consequences of policy reforms.
  17. The conventional view coincides with the neoclassical theories that dominated thinking on economic development in the 1980s. Examples include Balassa (1988), Bhagwati (1982) and Krueger (1990).
  18. Amsden (1989, 1996) and Sabel (1994).
  19. Amsden and Hikino (1993) and Amsden (1996).
  20. Sabel (1994, 1995).
  21. See, for example, the works of Brusco (1982), Piore and Sabel (1984), Piore (1992), Pyke and Sengenberger (1992), Sabel (1989) and Saxenian (1996).
  22. Piore and Sabel (1984) and Sabel (1989).
  23. Amsden (1989), Doner (1992), Evans (1995), Haggard (1990), Sabel (1994) and Campos and Root (1996).
  24. Evans (1995) defines *embeddedness* as the ties that connect citizens and public officers through networks that trespass the public-private divide. The concept draws on Granovetter's work on the embeddedness of market relations (Granovetter, 1985).
  25. The tomato industry is representative of the typical problems faced by other natural resource-related processed products like fruits, wines, and fishing, in which Chile achieved substantial competitiveness, as discussed in Meller and Saez (1995, pp. 43–107).
  26. FEPACH (1996).
  27. FEPACH (1996, p. 24).
  28. For example, in 1980, Chile exported little to Japan, accounting only for a .65% share of their total tomato paste imports. By 1985, Chile's share had increased to 4.46%, by 1990 it rose to 12.52%, and by 1992, it had reached 16.86%. By comparison, China's share in Japan's total tomato paste imports only increased from 6.63% in 1980, to 9.05 in 1990, and decreased to 8.07 in 1992. By 1992, Chile accounted for a larger share of Japan's tomato paste imports than Taiwan which until 1990, had been the major exporter to Japan (CORFO, 1995).
  29. Most suppliers are full-time farmers, cultivating around 10–12 hectares. They do not specialize in just one crop, rather a typical supplier might have three or four hectares of industrial tomato, combined with another crop to supply a different contract, or for home consumption, or for direct sale in the market.
  30. Multiple authors emphasize that state action during the 1960s, prior to the Pinochet government, created infrastructure resources that provided a basis for growth in the postliberalization period. See Castillo, Maggi and Dini (1994), Gomez and Echeñique (1989), Jarvis (1992) and Meller (1995).
  31. Author's interviews, #59, 1995 and #146, 1996.
  32. For an elaboration see Perez-Aleman (1997, pp. 43–74).
  33. For more on the sugar beet processing industry, see Perez-Aleman (1997, pp. 66–71).

34. The ideas of income redistribution and improving small producers were prevalent under the Christian Democratic government of Frei (Foxley, 1983). The priority given to smallholders in the agroindustrial push, had parallel with another of Frei's major program, the agrarian reform that began directly on the largest, best irrigated and most economically important properties of Chile's Central Valley. For analyses of the agrarian reform see Brown (1989), Kaufman (1972).
35. Author's personal interviews with Chilean managers, engineers, and suppliers at the firms Nieto, Malloa, Isasa, Iansa, and Agrozzi, particularly helped to unpack these coordination problems.
36. In addition to more tomato processing plants, there are agroindustrial plants for other products, so producers do not face only one crop market, or few firms per crop, but many firms in the industry with demands for many different crops.
37. For more on how interfirm practices and arrangements evolved see Perez-Aleman (1997, pp. 75–126).
38. Sabel (1994).
39. This section on FEPACH draws especially on author's interviews #18, 1995; #34, 1995; #128, 1996; #139, 1996; and #140, 1996.
40. On the government's role in price control regulations see Bennet (1968).
41. For more on the reformulation of the Pinochet government's economic policies, see Meller (1995) and Stallings and Brock (1993). On the multiple political coalitions formed between the Pinochet government and economic groups to pursue market reforms see Silva (1993).
42. After 1982, the government also implemented export promotion measures, including subsidies to exporters, such as value-added tax and import tariff reimbursement (Meller, 1995).
43. See Pietrobelli (1993).
44. See SERCOTEC (1992) and Muñoz (1995) for description of the various instruments to support individual firms.
45. CORFO (June 1998).
46. The discussion on PROFOS draws especially on author's interviews with Chilean officials at CORFO's national and regional offices, SERCOTEC, and owners and managers of firms in PROFOS.
47. For more on this case see Perez-Aleman (1997, pp. 152–183) and Beriostain and Ibañez (1995).
48. Advocates of price reforms claim that the initial export supply response to exchange rate is self-perpetuating and lasting even when the conditions are reversed (i.e. currency appreciation and higher wages). See Rodrik (1995) for a discussion of this issue.
49. This point supports an increasing view in the literature on the key role of institutions in encouraging growth; and on the insufficiency of macroeconomic changes, and the need for a microeconomic agenda. For example, see Campos and Root (1996), Porter (1990).
50. For examples of this literature as it relates to developing countries see Nadvi and Schmitz (1994), Rabellotti (1995), Schmitz (1995) and Schmitz and Musyck (1993). The original work that inspired the former authors is Piore and Sabel (1984).
51. The research of Dussel, Ruiz-Duran and Piore (1996) in Mexico shows that the capacity to upgrade suppliers was not common among Mexican garment firms.

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