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Chile's semi-successful export development

Abstract

Chile has successfully developed non-traditional exports and has upgraded and modernized some of its older non-copper export industries. The aggregate performance of these non-traditional and rejuvenated export industries is satisfactory, but on closer inspection there are signs that the country has not been able to keep upgrading the sophistication of its exports. This paper examines macro level data and then presents and discusses product-specific data. At the level of specific products, the pattern indicates that Chile exports raw materials that have been processed only part way, not finished to suit the needs of final consumers. These findings may be relevant to other countries that are seeking to develop their export industries, and may also be useful for Chile as it proceeds to the next stage of its growth. The authors suggest an explanation for these important and disturbing findings, and invite other explanations.

Keywords: economic development, modernization, Prebisch-Singer, exports.

JEL Classification: O10, F10.

Introduction

Chile has been an economic success story. Its success included diversifying its exports, and it also increased its financial assets per capita¹. Chile reduced dependence on copper, but did not achieve a complete upgrading and transformation of its export mix. It did develop entirely new export industries, and it moved up the ladder of sophistication in others, but it did not succeed in becoming an exemplar of export-led growth. Chile's performance in exporting has been decidedly inferior to the emblematic accomplishments of the Asian Tigers.

Chile's non-copper exports have grown from 10.144 billion dollars in 1996 to 23.247 billion dollars in 2009². That is an average annual compound growth rate of 6.6%, a respectable growth rate but not as high as the rates achieved by the Asian Tigers³. The Tigers increased their exports more than twice as rapidly⁴. This paper presents data from two categories of non-traditional export industries to show the transformation that Chile was able to achieve. The data show that Chile added differing amounts of value to its exports, and in four of the industries studied did not produce finished goods. For that reason we have classified Chile as semi-successful in exporting.

Chile's exports were, for a time, becoming more sophisticated in composition⁵. Then the pattern of the

country's exports drifted back toward its historical emphasis on commodities, and by the late 1990s the mix was dominated by a narrow range of commodities, headed as always by copper⁶.

This paper presents data about Chile's largest non-copper export industries, and indicates the degree of forward integration that each one achieved. We discuss six export industries, four that did not integrate forward, and two that did. Among the four that did not, we give prominent attention to the wood products export industry, because firms in that industry made well-financed efforts to integrate forward and failed. This failure happened while Chile's fresh fruit and wine export industries were integrating forward into long-distance distribution and marketing.

1. Semi-successful export industries

The four export industries that did not integrate forward are wood, cellulose, salmon, and trout. Each made attempts to integrate forward. The attempts were sincere and some of them continued for periods longer than one year⁷. Yet all four failed, and the exporters reverted to being price takers who sell bulk cargoes to international trading companies. Those trading companies take charge of distribution, differentiation, and positioning. Meanwhile the fresh fruit and wine export industries built their own capabilities in marketing, distribution, positioning and differentiation.

This contrast between successful and less-than-successful forward integration is of great interest to countries trying to replicate Chile's success⁸. It is

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¹ <http://imf.org/external/pubs/ft/weo/2009/02/weodata/index.aspx>.

² Banco Central de Chile, Banco de Datos Estadísticos http://si2.bcentral.cl/Basededatoseconomicos/951_713.ASP?cap=060.

³ For comparison, Singapore's exports grew 15% per year from 1965-1996. http://www.mas.gov.sg/resource/publications/staff_papers/MASOP004-ed.pdf. Singapore's current account balance rose from US\$3,890 million in 1988 to US\$47,108 million in 2009. <http://www.singstat.gov.sg/stats/themes/economy/hist/histbop.html>.

⁴ Luiz de Mello, Nanno Mulder. "CHILE: Still a Latin tiger?" Organisation for Economic Cooperation and Development. The OECD Observer 252/253 (2005), pp. 62-63, or <http://www.jstor.org/pss/3339049>.

⁵ Siliverstovs, Boriss, and Dierk Herzer. "Manufacturing exports, mining exports and growth: cointegration and causality analysis for Chile (1960-2001)", *Applied Economics*, 39, pp. 1-3 (Jan-Feb 2007), 153 (15).

⁶ Siliverstovs, Boriss, and Dierk Herzer. "Manufacturing exports, mining exports and growth: cointegration and causality analysis for Chile (1960-2001)", *Applied Economics*, 39, pp. 1-3 (Jan-Feb 2007), 153 (15).

⁷ This comes from interviews conducted by the Center for Innovation and Development at the University of Chile under the direction of Prof. Francisco Arroyo from 2004 to 2006. The names of the executives and the companies are available from Francisco Arroyo. We do not publish the names because the executives spoke candidly to him and did not wish to have their candid remarks published.

⁸ Professor Roberto Bonifaz of La Universidad Adolfo Ibanez in Vina del Mar, Chile, stated this in an interview with John Edmunds on March 6, 2007.

revealing that as Chile assesses its success, it classifies itself as less than fully successful in exporting, and also criticizes its rate of innovation in the industrial sector¹.

In Chile there is a precedent that argues against depending on exports of primary products. A century ago the country was a major exporter of saltpeter, which used to be an important fertilizer. Then German chemists developed synthetic substitutes, and Chile's exports ceased². This traumatic experience left scars, and gives Chileans a reason to want their exports to evolve and adapt to the changing needs of final consumers.

2. Data showing forward integration

In this section we begin by showing top-down data that illustrate to what degree Chile diversified its export mix and broadened its array of customers. Then we show in detail what the patterns have been in the industries included in our study. At the level of individual industry sectors, patterns become more clearly visible.

Industry trade groups and government agencies report data for exports by industry sector, and, in the case of wood products exports, the data are presented in enough details to allow us to compute growth rates for unprocessed and processed categories. Those disaggregated figures allow us to compute whether Chilean exports have incorporated more local processing, or less local processing, during the time period studied.

At the aggregate level, the annual growth rate of exports of wood products was high for every time frame from 1980 to 2008³. Moreover, there were two additional desirable attributes besides rapid growth. One was that the industry appeared to have been jump-started by hundreds of entrepreneurial firms. The other was that wood products exports went to a large number of countries, implying that Chile's export industry did not depend on shipping goods to just a few countries. The overview is quite appealing, as Table 1 shows.

Table 3. Chilean salmon and trout exports (million dollars FOB)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports	489	538	668	714	818	973	964	973	1,147	1,439	1,721	2,207	2,242	2,392
% variation		10%	24%	7%	15%	19%	-1%	1%	18%	25%	20%	28%	2%	7%

Source: SalmonChile.

Table 1. Diversification of forest product exports and exporters, 1991, 1996 and 2001

	1991	1996	2001
Value of exports (million \$)	913	1,808	2,206
Number of exporters	670	942	968
Number of products exported	385	420	407
Number of countries exported to	76	89	98

Source: Instituto Forestal (2002).

Table 2 shows a similarly encouraging pattern in another Chilean export industry. Exports of seafood, with the exception of mussels, grew rapidly, and the value of those exports grew faster than the volume in kilos. The increase in value per kilo is encouraging, because it implies that Chilean exporters became more skillful in producing high quality seafood, or that they succeeded in obtaining higher prices per unit for their exports. The data in Tables 1 and 2 support the optimistic view that Chile was succeeding in launching non-traditional export industries, and in raising the sophistication of its export mix, integrating forward, and developing marketing expertise in selling its exports abroad.

Table 2. Mean annual growth rate of Chilean exports (1995-2005)

Product/category	Mean annual volume %	Growth rate value %
Scallops	9.73	13.85
Seaweed	0.6	2.58
Salmon	1.2	3.72
Fish fillets	13.97	16.93
Aquatic invertebrates	10.86	3.04
Mussels	-12.05	-7.96

Source: Lacayo R., Morales C. (2007). An analysis of the performance of the Chilean agricultural exports (1994-2004), *Interiencia*, 32, pp. 296-302.

Table 3 shows a similar pattern in two additional major categories of seafood exports. Chilean exporters of salmon and trout succeeded in exporting increasing amounts almost every year, for an average annual compound rate of 13%. The exporters showed increasing productivity and sophistication. They were even able to increase exports when the main salmon-producing zone was hit with a fungus in 2008⁴.

¹ <http://www.innovacion.cl/noticia/ministerio-de-econom%C3%ADA-entregabalance-de-la-innovaci%C3%B3n-en-los-%C3%BAltimos-cuatro-a%C3%B1os>.

² Smil, Vaclav. *Energy in World History*, Westview Press, 1994, p. 182.

³ Ricardo Ffrench-Davis emphasizes this point and the concern it causes, citing a quantum leap in non-traditional exports from Chile, followed by a gradual slowing of the growth rate of those non-traditional exports. Ffrench-Davis, *Export Growth*, op. cit., p. 11.

⁴ Interview with Ing. Rodrigo Sainz, Puerto Montt, Chile, January 22, 2010.

These industry-specific numbers in Tables 1, 2 and 3 above show that the country has been able to increase its non-copper exports at rates that should satisfy most observers. Nevertheless, drilling down to a more granular level into the industry-specific export data reveals that Chile has not been able to maintain its mix of processed exports. In the detailed discussion of the wood products export sector below, we present disaggregated data from more recent time frames, and those figures paint a less encouraging picture. The product-by-product data show increasing specialization in semi-processed raw materials.

3. Industry-level data for the wood products export industry

Chile's wood products export industry has two attributes that make it a suitable candidate for a detailed investigation of the pattern that emerges in the disaggregated data. The first is that the industry produces and exports different categories of goods that can easily be identified as raw, semi-processed, fully processed, or tailored to the needs of final consumers. The second attribute is that the industry had early success and then was unable to upgrade the mix of its exports¹. This is a well-documented case, which can be contrasted with other Chilean export industries, and may help other researchers in the search for explanations why some nontraditional export industries, both in Chile and elsewhere, have not successfully integrated forward.

The wood products export industry began by shipping unprocessed logs, and ultimately advanced to shipping moldings. That one-sentence history telescopes a varied reality that unfolded over more than three decades. The concern that Chileans express is that the progression from logs to moldings took many years to accomplish and during a similar time interval the Asian Tigers were able to raise the sophistication of their exports much more².

Chile has natural endowments that make wood exporting feasible. Chile's population density is only 20 inhabitants per square kilometer³, and it has extensive forests; a national survey classified 21% of the total land area as forests⁴. Also, the country subsidized tree farming, so it has abundant amounts of wood to export and to process into cellulose⁵. For those reasons ex-

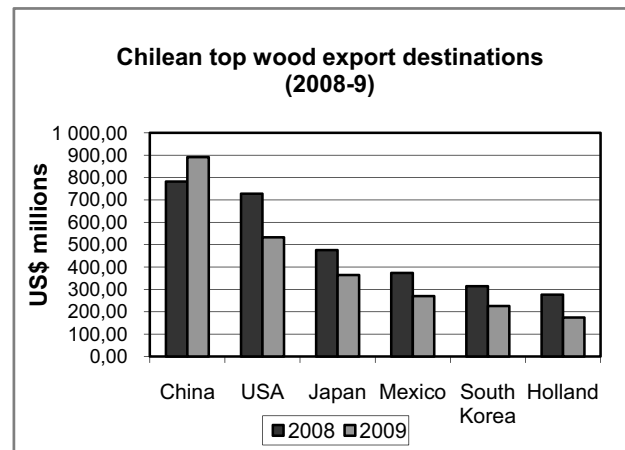
ports of wood and cellulose could grow rapidly, and wood export industry became one of largest ones⁶.

The amount of processing makes a big difference in the value per cubic meter of the wood products exported. Table 4 shows the average prices that Chilean exporters obtained per cubic meter equivalent of unprocessed trunks, sawed wood, and finished products. The prices are lowest for unprocessed trunks, and prices for moldings, a finished product, are as much as 120 times higher. The prices give strong incentives to integrate forward and to try to differentiate the mix of products.

Table 4. Wood industry growth by product

	Price per ton	Export growth as a percent
Tree trunks	160.4	-99%
Sawed woods	289.3	91.40%
Processed and sanded wood	586.7	903.20%
Boards and slats	511.5	192.30%
Moldings	1,102.0	820.30%
Doors, windows, and frames	1,240.3	239.50%
Furniture	2,512.9	49.60%
Furniture kits	4699.1	12.50%

Source: Computed from industry statistics by the Center for Innovation and Development, University of Chile.



Source: Lignum, published by Infor-Conaf (Wood and Pulp Producers of Chile).

Fig. 1. Chilean top wood export destinations (2008-2009)

Figure 1 shows the composition and relative concentration of countries to which Chile exported its wood products. The shipments going to China grew slightly, but what is also notable was that the number of destination countries was small. That might be taken as an indication that some of Chile's wood exports are not reaching final consumers until further processing was done on them in the importing countries.

¹ This finding is from interviews that Francisco Arroyo conducted with the top executives of many wood products exporting companies in Chile. The names of the executives and the companies are available from Francisco Arroyo. We do not publish them because the executives spoke candidly to him and did not wish to have their candid remarks published.

² Young, Terry. Re-Assessing the Health of the Asian Tigers, Graziadio Business Report, 2000, Volume 3, Issue 1.

³ http://www.photius.com/wfb1999/rankings/total_land_area_0.html and http://www.photius.com/wfb1999/rankings/population_density_2.html.

⁴ www.rinya.maff.go.jp/mpci/other/portland/PortC111a.pps.

⁵ Gwynne, op. cit, p. 344 (4 of 18).

⁶ For the year 2009, farming materials and lumber were 24.4% as large as of Chile's copper exports for that year. For that year, fisheries products exports were 56% as large as copper exports, and wine was 21% as large. http://www.economywatch.com/world_economy/chile/export-import.html.

Table 5 shows that the response from exporters to the price incentives has been muted. The average annual growth rate of wood products exports for 2005-2007 was 8.4%. That is lower than in the

earlier days of the industry, and 2009 was a down year. That gradual slowdown was the backdrop for a wide range of growth rates of individual categories.

Table 5. Wood product exports by industrial category

Product	2005	2006	2007	2008	2009
Total	3,495.40	3,890	4,952.30	4,452.50	4,162.30
Bleached Pulp Pinus Radiata	702.3	794.8	1,221	1,250.80	988.9
Bleached Pulp Eucaliptus	348.7	384.4	932.2	1,205.90	817.1
Plywood Boards Pinus Radiata	204	226.8	247.8	346.3	285.2
Sawed Boards Pinus Radiata	395.5	388	549.6	512.7	272.4
Paper and Cardboard	130.7	168.5	206.1	248.5	253.7
Firewood w/o Bark – Eucaliptus	139.1	156.1	169.2	236.8	181.8
Crude Pulp – Pinus Radiata	153.1	159.7	194	169	168.5
Newspaper	133.4	160.5	143.2	150.7	138.5
Wood Moldings Pinus Radiata	248.3	315	209.7	192.4	133.1
Moldings MDF Pinus Radiata	131.2	160.4	142.6	122.8	108.9
Boards MDF Pinus Radiata	52.6	60.2	92.2	136	94.3
Firewood w/o Bark – Eucaliptus Nitens	19	30.5	46	89.5	93.6
Planed Wood – Pinus Radiata	154.1	185.5	134.6	100.4	69.9
Others products	683.5	699.4	664.2	690.5	556.4

Source: Infor-Conaf.

Table 6. Growth rates of wood products exports classified by amount of processing

	2005	2006	2007	2008	2009	Growth rate
Semi-processed wood products	1408.1	1565.7	2595	2972	2259.7	9.92%
More fully processed wood products	1612.6	1748.3	1700.7	1618.8	1140.7	-6.67%

Table 7. Wood exports by product (million dollars FOB)

Product	2002	2003	2004	2005	2006	2007	2008	2009
Chemical pulp	821.8	881.9	1,211.50	1,204.60	1,339.60	2,347.40	2,626.40	1,974.60
Wood chips	122.6	130.1	137.3	160.4	189.2	218.2	329.7	275.5
Woods pieces/bits	24.6	13	12.1	3.9	2.8	1.1	0.4	0.4
Sawed wood	207.3	275	334.8	413.1	402.4	562.8	525.1	276.9
Remanufactured wood	662.6	672.1	1,036.40	939.5	1,060	827.2	716.3	542.3
Paper & carton	257.4	310.8	381	417.8	503.6	527	617.3	590.3
Non-wood (pulp)	28.9	31.1	33.4	33.7	42.8	48.3	65	54.4
Other products	9.7	11	11.2	12.5	14.1	16.1	20.1	15.6
Total	2,301.10	2,524	3,396.60	3,495.40	3,890	4,952.30	5,452.50	4,162.30

Source: Servicio Nacional de Aduanas de Chile, Infor-Conaf.

Grouping the line items in Table 5 into semi-processed and more fully processed, as we have done in Table 6, gives the striking result that semi-processed wood exports grew at almost 10% per year, and more fully processed wood exports declined at 6.67% per year. The data in Table 6 show the average annual compound growth rate of semi-processed exports was 10.3%. Table 7 shows the data grouped in a different way, classified for a different purpose. The line items in Table 8 are not as easy to group into semi-processed and more fully processed groupings in a way that would allow calculating an average annual growth rate, but are consistent with the broad pattern: the fast-growing

categories were semi-processed goods. The data seem to indicate that exporters sawed the logs into boards, or converted the wood into bleached pulp, but did not do any additional processing before exporting the product.

There are anecdotal explanations of this pattern. Conversations with managers of wood products export companies indicate that there have been subtle barriers, not simple barriers of labor costs or access to financing. They point out that the observed form of organization is top-down and oriented toward increasing volume of production, not unit value of production. Chilean export firms, in the opinion of

these managers, have been unable to develop the total strategic approach that would allow them to provide solutions for final users abroad¹. Those managers also said that the four largest wood exporting firms in 1995 all attempted to integrate forward but gave up after trying to export more sophisticated wood products. They spent the equivalent of US\$200 million to market products with more differentiation and processing, but did not succeed in exporting more than US\$20 million of the differentiated, more fully processed products². Three of the firms that made these attempts were affiliates of large, well-connected business groups, so they had advantages, but those were insufficient³.

There were also anecdotal comments that trade preferences might have spurred semi-processed exports. During the relevant time period there were trade preferences and it is possible that the Asian Tigers or other countries benefited from these and Chile did not⁴. A review of U.S. trade policy, however, casts doubt on that possible explanation. The decade of the 1990s was when China's exports to the U.S. outpaced Chile's. U.S. tariffs on wood products were in the 15% to 20% range during the 1990s, but there were many trade preference agreements in effect. For much of that decade, however, U.S. tariffs on Chilean wood products were lower than on Chinese wood products⁵. U.S. relations with Chile were strained during the 1980s but improved after the Aylwin government took power in 1990, and trade between the two countries increased. The cursory indication is, therefore, that trade preferences were not a big factor in explaining Chile's slow growth of exports of sophisticated wood products to the U.S., at a time when China was able to increase its exports of similar products to the U.S. more rapidly.

Turning now to other possible constraints, the availability of management talent might have affected the organizational designs that were implemented. Chile's labor force is highly educated, so it would seem that

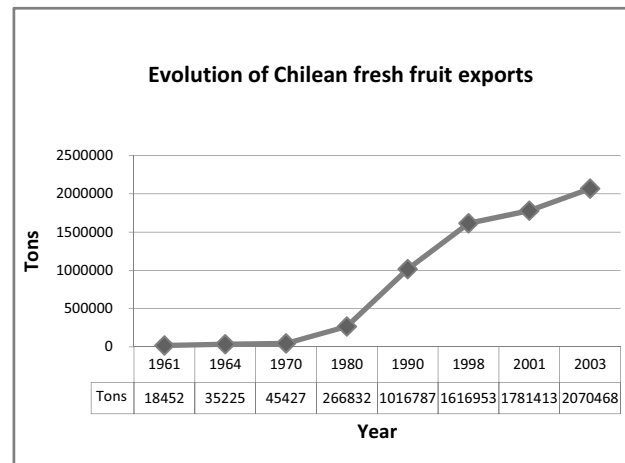
there would have been an adequate number of trained managers, but the educated workers have concentrated in Santiago⁶. Wood export firms did not compete successfully for the most highly trained managers⁷. With a highly-educated top manager and less educated subordinates, the organization would not have been able to maintain quality control if it made frequent modifications in its production, and that would have been a reason to specialize in simple, repetitive steps⁸.

The wood export data are consistent with a strategy that was opportunistic, risk-averse, and focused on quick returns. With that strategy, Chilean export firms could take advantage of abundant forestry resources, but would not progress smoothly to the next stages of adding more value to the raw wood.

4. Chile's success in exporting fresh fruit and wine

The pattern of exporting semi-processed products does not apply to the same degree to all the country's nontraditional export sectors. The country's export mix includes products that incorporate many steps of processing and also sophisticated marketing. But the exports that embody more processing, forward integration, or marketing have been declining in relative or absolute terms.

The apparent, often-cited exceptions are the fresh fruit and wine industries. Both of these add more processing to the raw products before exporting them.



Source: FAO Index (United Nations), 2003.

Note: Average compound annual growth rate 11.9%.

Fig. 2. Evolution of Chilean fresh fruit exports

¹ Francisco Arroyo Schick conducted the interviews with the executives of these companies. The executives wanted the names of the companies withheld, but will allow Francisco Arroyo Schick to give details to interested researchers.

² Ibid.

³ Ibid.

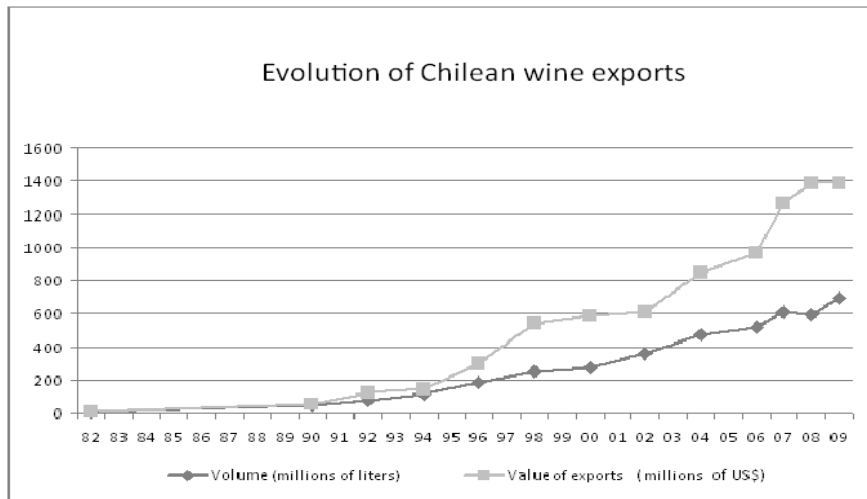
⁴ Congress Should Extend Trade Preferences to Asia's Poorest, by [Daniella Markheim](#) and [Walter Lohman](#) *WebMemo* №1578. http://www.science-direct.com/science?_ob=ArticleURL&_udi=B6W46-4TW13P8-1&_user=10&_coverDate=03%2F31%2F2009&_rdoc=1&_fmt=high&_orig=search&_sort=d&_docanchor=&view=c&_searchStrId=1209503399&_rerunOrigin=google&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=6c20b21b1329ffe4100e468d9d078bac.

⁵ Prestemon, Jeffrey P. The Effects of NAFTA and AN FTAA on U.S. Exports of Hardwood Forest Products, Forestry Sciences Laboratory, USDA Forest Service, <http://www.srs.fs.usda.gov/econ/pubs/misc/jpp982.pdf>.

⁶ Chile's 2002 Census shows that the total number of people with 18 years of education (post-university, for example M.B.A.) located in rural areas was 7,625, while the number living in cities was 171,610. http://www.inec.cl/cd2002/cuadros/5/C5_00000.pdf.

⁷ Salaries in the mining and finance sectors were consistently higher.

⁸ Galbraith, J. and Downey, D. *Designing Dynamic Organizations*, Amacom Publisher, 2001, p. 4.



Source: National Agricultural Society (SNA) and Central Bank of Chile.

Fig. 3. Evolution of Chilean wine exports

Table 9. Chile's exports of wine by volume and by value

Year	Millions of liters	Millions US\$
1982	8	11
1990	43	52
1992	74	119
1994	111	143
1996	185	294
1998	251	540
2000	276	585
2002	356	610
2004	474	845
2006	520	965
2007	613	1262
2008	591	1384
2009	695	1390

Source: National Agricultural Society (SNA) and Central Bank of Chile.

Note: Average compound annual growth rate of exports by value 19.24%.

These two export industries have achieved higher growth rates than the exports of wood and seafood, but the difference might not be entirely due to the management strategies adopted. The annual growth rates of unit volume of wine and fresh fruit exports are encouraging, but the prices do not remain high enough to justify large new investments in the two (possibly) exceptional export industries. This pattern is discouraging because theorists have argued that forward-integrated export industries have advantages, including linkages to the rest of the economy, relative to raw materials exporting enclave industries¹. In Chile, the pattern has been that the wine

and fresh fruit exporting industries have had years of bonanza and years of doldrums. The data for wine and fresh fruit exports cover periods when commodity prices were exceptionally high, and also periods when at the world level, the wine and fruit businesses were burdened with chronic overcapacity and mired in price wars. The non-export sectors of the economy of Chile probably benefited from the nontraditional export industries because linkages from exports channeled purchasing power through the related sectors and spilled over to unrelated sectors. But the successes did not breed enough new successes, and after 1997 the country's economic growth rate slowed down. To the chagrin of Chileans, the composition of Chile's exports in 2005, after the rebound in its growth of GDP had been going on for three years, was similar to the composition of Ecuador's or Bolivia's, and very different from Malaysia's or South Korea's² export.

A question for further research is whether the two fast-growing nontraditional export industries went beyond exploiting absolute or comparative advantages³. Those two industries require more sophisticated management than the relatively simple activity of exporting unprocessed wood or farmed salmon. To export fresh fruit requires expertise to produce export-quality fruits and logistics; without the logistics too much fruit is lost in transit. Chile has both an absolute advantage and a comparative advantage in exporting fresh fruit to the Northern Hemisphere during the Northern Hemisphere winter. Those advantages, however, are not sufficient. In addition, managers had to develop the techniques of packing,

¹ Classic writers on industrial process engineering made this point. Frederick Winslow Taylor's pioneering work was on time and motion study; he referred to production line workers as "hands". Later writers, including George Filipetti, in *Industrial management in transition* (Irwin series in industrial engineering and management), 1951, acknowledged the status difference between managers and production line workers.

² Data collected by the Center for Innovation and Development of the University of Chile using trade statistics for 2005.

³ U.S. Department of Agriculture, *The World Fresh Fruit Market, 2004*, http://www.fas.usda.gov/hp/Hort_Circular/2006/02-06/World%20Fresh%20Fruit%20Market%202004.pdf.

chilling, transporting, marketing, and positioning the fresh fruit in Northern markets. It will be interesting to know whether those same management skills could have been applied in the wood products export industry, and why they were not.

To state the difference in more dichotomous terms, Chile's success in the fresh fruit exporting business has attributes that are qualitatively different from the country's success in the wood products exporting business. Exporters of fresh fruit achieved control over channels and positioning. They shepherded their products all the way to the supermarkets in the importing countries. Chile's success in exporting wine was also noticeably different from its success in exporting wood products. Exporting wine required marketing expertise and control over channels and positioning. In the wine business cost of production is not the sole determinant of success, and being located in the Southern Hemisphere is not an advantage. Industrial engineering is needed to produce a uniform, high quality product, but after that marketing must dominate. In contrast, the exporters of wood products did not need as much expertise in long-distance logistics or marketing. They only had to deliver their products to the ships that carried them away from Chile.

Conclusion

Chile has been both successful and semi-successful in developing nontraditional export industries. It has developed sophisticated export industries, but has also developed export industries that have settled into a pattern of exporting semi-processed raw materials. The country's impressive economic growth has earned it a honorable place in the archive of case histories of economic development. Its economic

accomplishments have been studied and debated, and researchers continue to uncover useful insights.

Chile's exports of wood products and seafood have contributed to the country's strong economic growth but have attracted less attention than the country's wine and fresh fruit export industries, and have also attracted less attention than the country's famous pension system. This study has presented data that show how rapidly the lesser-known non-copper exports have grown, and also show that the lesser-known wood and seafood export industries are worthy of further study.

The subject of success in exporting is a priority in Chile's current national debate. The stated priorities of the Pinera government call for redoubled efforts to create new businesses and new exports in goods-producing industries¹. The efforts to reactivate and renew the economy since the February 2010 earthquake have shown encouraging signs of success, and have included an increase in exports of sophisticated services. As of mid-2011, the reconstruction was stimulating new businesses, along with the preexisting ones, and in mid-2010 the country's index of economic activity posted its strongest performance in 14 years². At that time, there was a strong rally in the prices of common stocks, and the index of stock prices hit a new high³. The stock market rally might have been a vote of confidence in Chile's response to the earthquake, or to Chile's resilience, rather than a rally in response to forthcoming success in nontraditional exports. Whether it becomes a fully successful exporter of sophisticated goods or not, Chile will continue to be a fascinating case for students of economic development in Latin America and also in the rest of the world.

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¹ Andres Fontaine, Ministro de Economía, De terremotos y réplicas: "Puede Chile acelerar su crecimiento?" Junio 22, 2010.

² The IMACEC is the index of coincident indicators of economic activity in Chile. It grew at an annual rate of 6.8% in June 2010.

³ The IPSA is the most widely cited index of stock prices in Chile. It went above 4,000 for the first time in June, 2010 and in the early days of August 2010 it reached 4,400.

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