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This document has been prepared by Fulvia Farinelli, of the United Nations Conference on Trade and Development (UNCTAD), Karina Fernández-Stark of Duke University, Global Value Chains Center, Soledad Meneses and Karim Reuse, of the National Oenologists Association of Chile (ANIAE) and Javier Meneses and Nanno Mulder, of the Division of International Trade and Integration, of the Economic Commission for Latin America and the Caribbean (ECLAC).

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Abstract

Over the past two decades, Chile has successfully developed its wine industry, being the world's fourth largest exporter in 2015 with mostly medium-quality wines. In addition to well known key factors such as climate and soil conditions, (foreign direct) investment in firms, imports of specialized capital equipment and highly skilled human resources, this paper explores the role of 38 (knowledge intensive) services in five different segments of the wine value chain. On the basis of answers by 29 wine firms regarding services activities on a survey carried out for this study, firms indicate they outsource about the same share (34%) as they carry out in-house (32%), while another 15% is produced using a combination of both. The degree of subcontracting of services falls as one moves further along the segments of the value chain. Moreover, it seems that small and large firms fully or partially outsource about half of all services, while medium size firms outsource less.

Introduction

Since the early 1990s, there has been a remarkable export boom of natural resource-based products from Chile, including farmed salmon, forestry and wood products and wine. This phenomenon is surprising, considering the monopolistic role played by advanced countries in these industries (e.g. Italy, France and Spain in the wine industry; Norway, Scotland and Canada in the salmon industry). It also raises questions on whether the conditions under which it is taking place are any different from those that in the past led to the repeated failures of a development model based mostly on the exports of natural resources.

In the 1960s, 1970s and 1980s, a number of development theories emerged that emphasized the negative impact of primary exports on development. The most prominent among these are the "resource curse", the "declining terms of trade" and the "commodity trap" theories, arguing, respectively, that resource-abundant countries tend to perform more scantily in terms of economic growth than resource-poor countries, that the price of primary resources is inexorably condemned to fall compared to the price of manufactured products, and that natural resource-based industries operate as mere "enclaves", isolated from the rest of the economy. Thus, they would all consider natural resources as a poor and unadvisable alternative to industrialization, and economic and social development.

Given the debate existing in the literature on the limited growth opportunities offered by natural resources, there is a need to investigate the recent export boom of natural resource-based processed products from Chile, and to reflect on whether it can be transformed into a viable strategy for long-term economic development. This is a particularly timely issue for those developing countries, especially in Latin America and Asia, which are caught in the "middle income trap" and can no longer compete on the basis of low wages and standardized manufacturing products.

However, understanding whether an alternative use of natural resources is possible and desirable is even more important for those developing economies that have been pushed back to dependence on raw material exports. This "reprimarization of the region's exports" is mostly due to the fast rising demand of China and other Asian economies for these products since the early 2000s.

Currently, an historical transition from a consolidated natural resource "pessimism" to an embryonic natural resource "optimism" is taking place. Evolutionary economists have made clear that supposedly "low-tech" or traditional industries can be seen as highly innovative, if their growing R&D content as well as the use of scientific-based inputs in the production process were taken into account.

They also observed that the knowledge intensity of production, which permeated the manufacturing sector in the 1970s, has gradually extended to all sectors of the economy, creating a wide platform for innovation and technological accumulation in both developed and developing countries.

Only in the last few years, however, have scholars begun to acknowledge that processed primary products[1] increasingly apply knowledge along the entire value chain, require a continuous process of innovation, and are less "staples" than specialized and diversified branded products. This has led some theorists to envisage that a process of "decommodification" of primary resources is taking place —whereby a variety of primary resources would be gradually transformed into high quality, diversified, processed goods, with rising barriers of entry, increasing value added content and higher export price per unit.[2]

Quite surprisingly, this holds even for the most traditional and paradigmatic agricultural products, such as coffee, tea and cocoa. Their production has increasingly integrated new concepts, such as that of "vintage plantation", "geographical indication" and "denomination of origin", giving rise to a range of diversified, fashionable and thus premium-priced luxury goods, such as the Indian Darjeeling tea, the Jamaican Blue Mountain coffee, or the Arriba Nacional Ecuadorian cacao. Therefore, it can be argued that the old pessimism about the development potential of natural resources has become at least in part obsolete and a new way of looking at natural resource-based processing industries is needed.

This paper analyses whether and how, under the globalizing trends that began in the last quarter of the twentieth century, Chile was able to transform some of its primary commodities such as wine into medium-quality, diversified, processed goods, with increasing value-added content and export price per unit, thus becoming a platform for development. In particular, as a complement to previous studies, this paper looks specifically at the role of knowledge intensive services in the Chilean wine sector. It is based on the hypothesis that these services have allowed Chilean wineries to add value to their wine exports and constantly improve their operations along the different stages of the value chain.

This paper is structured as follows. Section I describes Chile's remarkable wine export performance and reviews previous studies regarding the main factors that explain this expansion. Section II provides a description of the five main segments of the wine value chain and the multiple service inputs within each one of them. The motivations to produce these services in-house or subcontract are discussed in section IV. The results of a survey, carried out in the context of this study, to assess which services are produced in-house or outsourced are discussed in section V. The last section concludes and provides suggestions for future research.

[1] The category of primary resources refers to both agricultural and mineral commodities. It includes mining, oil, crops, fisheries and forestry products.

[2] Following Kaplinsky (2006), the term "decommodification" (of natural resource-based products) is used here to define a process leading to increasing product quality, name branding and diversification, and conferring increasing value per unit to those producers who have chosen innovation-based strategies, creating rising barriers of entry and generating high local value-added.

I. Chile's performance in the global wine market

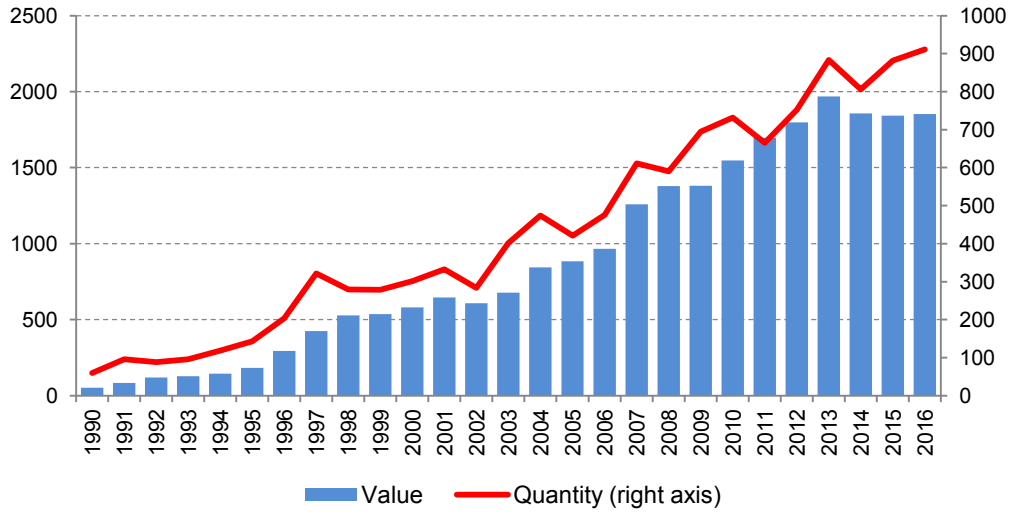
Within less than three decades, Chile has become the world's ninth largest wine producer and fourth largest wine exporter. Chile's annual production grew from 0.2 million hectolitres in 1990 to 10.1 million hectolitres in 2015 (Chilean Agricultural and Livestock Service, SAG). Starting from a low base, the average annual growth rate was much higher in the 1990s (42 per cent) than during the period 2000 and 2015 (5 per cent). Due to Chile's fast expansion, the country moved up the largest world producer ranking from 11th in 2000 to 9th in 2015 (International Organization of Wine and Vine, OIV, 2016).

Chile also climbed up the ranking of major world exporters. The value of its exports increased 2.3 times from 2000 to 2015, which allowed it to become the world's fourth largest exporter behind Spain, Italy and France (OIV, 2016). The country's performance is notable. In the early 1980s, Chile's wine exports were only US$ 15 million, mainly sold to the United States. In the 1990s, the country expanded its exports destinations to the EU market and in the 2000s to Asia. In 2015, Chilean wine exports totalled US$ 1.8 billion (United Nations, Comtrade, 2016).

In an industry where historical tradition and reputation are considered equally important as quality and price, Chile was among the first developing countries to become internationally recognized by wine experts. In 2001, Santiago became an official member of the "Wine Capitals of the World", alongside centres of excellence such as Bordeaux, Florence, Melbourne and San Francisco. The export success of the Chilean wine industry was far from predictable, considering that wine is a knowledge intensive and innovative industry with many entries and exits, and strong competition. Moreover, as recent as the late 1970s, oenologists visiting the country were often frustrated by the oxidized taste of Chilean wines and found them boring and monotonous.

Several researchers have shown that the successful performance of the Chilean wine industry was the result of radical changes that led to tangible improvements in product quality over time rather than a linear process of extending traditional production practices. After 17 years of dictatorship and return to democracy in 1990, the sector went through a process of intensive technology upgrading and innovation, driven by a group of foreign investors who revolutionized the traditional way of producing wines in Chile. This allowed the producers to upgrade to international taste and quality standards. Another factor has been the gradual emergence of endogenous innovation capabilities and wine-related R&D.

Figure 1
Evolution of Chilean wine exports in volume and value, 1985 to 2015
(Millions of USD and million tons)



Source: Elaborated by the authors on the basis of the United Nations, COMTRADE database.

From a traditional sector totally oriented towards the domestic market and in deep crisis due to political and economic instability, the Chilean wine industry has gained international recognition since the early 1990s. It has become a large export-oriented industry —over 60 percent of the production is currently exported— together with other non-traditional industries such as salmon. Chile has been gradually identified by international consumers as an ideal country for producing modern varietal (fresh and fruity), good-value-for-money wines, and it has won worldwide recognition in the wine community faster than any other country in modern history (Phillips, 2000). This is a striking achievement, considering that until the 1970s, Chilean wines were based on a few cultivated varieties and was relatively homogeneous in taste.

The origin of the Chilean wine industry goes back to the Spanish colonization in the early sixteenth century, when priests entered the country from Peru. Only after the dictatorship of Augusto Pinochet (1973-1989), foreign investors showed an interest in the potential of the Chilean economy and its fertile natural conditions. With the transition to democracy, and the stabilization of inflation and interest rates, the wine revolution could finally take off. Thanks to the arrival of foreign investors, the trend towards a drastic upgrading of vines that had characterized the 1980s, and the progressive replacement of vineyards with pines and eucalyptus trees for the expanding wood-processing industry, could be completely reversed. In 2000, the amount of planted land with vines recovered the peak level of the 1950s (104,000 hectares), and reached 130,000 hectares in 2015 (SAG, 2016).

The key and most-publicized viticultural advantage of Chile is the absence of pests and diseases, such as oidium and phylloxera, due to the natural barriers that isolate the country. Thanks to climate conditions and limited humidity, fungi, insects and viruses that normally affect grape growers around the world are practically unknown in Chile. Another commonly recognized viticultural asset of Chile is related to the country's favourable natural conditions: climate (limited precipitation, high levels of summer sunshine and great luminosity, moderate temperatures, light winds), soil composition and types (mostly poor in organic matter and well-drained) and geography (the wine producing regions occupy a

1,400 km central band out of the 2,600 km length, providing a number of different soil types and climate conditions which allow the cultivation of a diverse range of wine grape varieties).[3]

The static comparative advantages based on natural resource endowments were certainly not enough for Chile to penetrate into the international wine market. Chile succeeded where many other countries with similar conditions have failed. It performed well in terms of export growth, quality upgrading and international market positioning. Chilean wine production increasingly adapted to international tastes. This was reflected in the improvement of average export prices, rankings in international wine competitions and market outreach over time.

The export boom was facilitated by marketing campaigns such as "Tastes of Chile", carried out by the producer association Wines of Chile. The government financed 15 percent of the association's budget through its export promotion agency, ProChile. However, the most important factor behind Chile's wine export expansion was the product and process upgrading led by intensive technology upgrading and innovation processes. The initial driver of this process was a group of foreign investors who revolutionized the traditional way of producing wines in Chile, and brought them closer to international taste and quality standards. The largest Chilean wineries (Concha y Toro, followed by Errazuriz, San Pedro, Santa Rita, Santa Carolina and Undurraga) made large investments in infrastructure, equipment and technology in order to upscale their wine production, improve quality and maintain their export momentum. The smaller boutique wineries followed suit.

Led by the Spanish winemaker Miguel Torres, most industry innovations introduced in Chile in the 1980s and 1990s were imported from abroad. These included imported off-the-shelf technologies together with knowledge of international markets (Vergara, 2001; Mac Cawley and Contreras, 2006; Bustos, Torres and Willington, 2007). Foreign chief oenologists and "flying winemakers" provided updated advice on international consumer tastes (Farinelli, 2013). In fifteen years (1990-2005), the Chilean wine industry received US$ 118.1 million in foreign investment, including both green-field investment and joint-ventures (Foreign Investment Committee, 2009). These were mainly American, but also French and Canadian, and more recently also Spanish and Italian. Between 1990 and 2005 more than US$ 52 million was invested in joint-ventures between Chilean and foreign wineries, with a peak between 1990 and 1998, when investment in joint ventures, especially French, reached US$ 38 million (Visser and de Langen, 2006). This shows an increasing interest of foreign investors in Chile as a wine export platform but also in Chilean domestic wine companies as partners for strategic cooperation. This foreign capital accelerated the improvement in technology of Chilean wineries.

This process was reinforced by the emergence of internal sources of innovation, which became instrumental in consolidating the wine revolution and in "embedding" it in the local context. A substantial adaptation of new technologies to local conditions, factors and needs was also crucial (Giuliani, 2007). Such adaptation was increasingly carried out by highly skilled local oenologists, agronomists and viticulturalists. They were key to the creation of local tacit knowledge and to the actualization of incremental changes based on learning-by-doing and internal trial-and-error efforts. According to a survey carried out in 2012 (Farinelli, 2012), the majority of Chilean exporting wineries, employs Chilean rather than foreign oenologists as chief winemakers, with top academic credentials and a broad working experience abroad, and at least one, but usually more, highly skilled agronomists with a university degree or even PhDs. Consequently, Chile is gradually becoming a producer of wine-related knowledge in its own right, and it is increasingly recognized as an authority and a well-respected member of the international wine community, including organizations such as the OIV.

Therefore, foreign technology and know-how spurred the initial "resurrection" of the Chilean wine industry after a long period of decline, but was soon complemented by the gradual emergence of endogenous innovation capabilities and wine-related R&D to sustain export growth. In particular, the continued product upgrading and prolonged export growth of Chilean wines have been achieved by building the innovation

[3] Chile is divided into 13 administrative regions (I-XII from North to South), plus the Metropolitan Region, including the capital city, Santiago and its surroundings. Grape growing for wine production currently takes place in one third of the territory and in 7 of the 13 Chilean regions.

capacity of local actors, including highly skilled oenologists, agronomists and winemakers, and by creating domestic linkages with local grape producers and input providers along the value chain. Despite the limited amount of resources destined to R&D expenditures and the clear gaps in terms of university and industry collaboration, Chile has also intensified its scientific efforts on wine in order to face the increasing competition of other wine producers from both the Old and New Worlds. Furthermore, the leading Chilean exporting wineries have contributed to the adaptation and improvement of imported technologies by carrying out an extensive amount of in-house R&D, second to none in the world of international wine production.

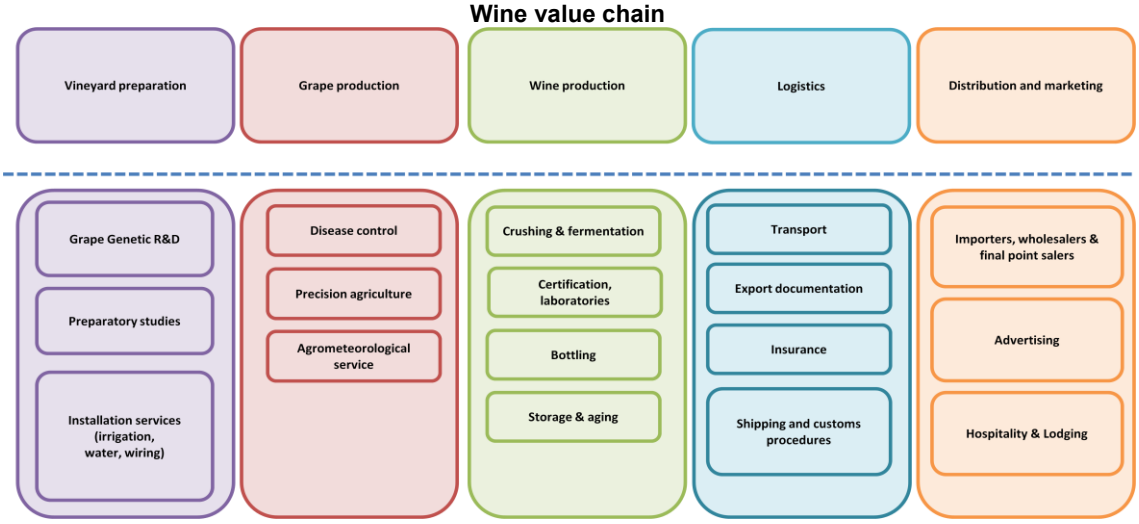
This paper focuses on the specific role that services have played throughout the value chain to upgrade the quality of Chilean wines and improve sector efficiencies. According to the OECD (2014), services are the links that forge value chains and are essential to effective participation in global trade. It has been estimated for example that the quality and efficiency of services, especially in logistics, account for 42% of the value-added in the exports of industrialised economies.

II. Knowledge services in the wine value chain

A. General description

The wine value chain consists of five broad production stages: vineyard preparation, grape production (viticulture), wine production (viniculture), logistics, and distribution, marketing and sales (see diagram 1). Fernandez-Stark and Bamber (2016) identified 70 different types of services present in the whole value chain. Oral interviews with oenologists for this study singled out another 12, totalling 82 types of services in five broad stages of the wine value chain. These can be broken down by 11 services in vineyard preparation, 17 services in viticulture, 21 services in viniculture, 7 services in logistics, 18 services in distribution and marketing and 8 in back office and general services throughout the value chain.

Diagram 1
Wine value chain



Source: Elaborated by the authors on the basis of Fernandez-Stark, K.; Bamber, P. (2016): Wine Industry in Chile. In: Low, P.; Pasadilla, G.O. (eds.): Services in Global Value Chains: Manufacturing-Related Services. Singapore: APEC Policy Support Unit, pp. 364-389.

Below, each of these stages is presented together with a description of the predominant types of (knowledge-intensive) inputs and services. A more detailed description of these services is provided in the Annex II.

B. Vineyard preparation

The first stage of the chain is the preparation of the vineyards. This starts with choosing the best terroir (the natural environment represented by the climate, soil, and topography) for the grape variety to be planted. Before the land plot for the vineyard is chosen, a number of studies are carried out using different types of professional services, including climate studies, soil surveys, topographical analysis and land mapping, and water availability studies. The best grapevines' seeds are identified through variety selection and adapted to local circumstances over the medium term through genetic development. Subsequently, the land is being prepared through leveling, movement and subsoiling, the vineyard planting is laid out, followed by the installation of the irrigation equipment and electricity. After the wiring is finished, vines are planted.

C. Wine grapes production (viticulture)

The second stage is grape production within vineyards. The properties of the grapes depend on several conditions, including nutrients, seeds, soil, sun exposure, temperature and water. Some of these conditions can be regulated to a certain extent as part of vineyard management services using information technology (IT) and specialized software. This management includes disease and plague control, defoliations, fertilizers, frost control, pruning, soil correction and weed control. Also using drones and ITs, this management focuses often on small plots through precision agriculture. Agrometeorological stations are employed to permanently monitor weather conditions. Experimental vineyards are often used to do trials that help to reach optimum production methods. For the harvesting of grapes, workers are recruited, who are transported to the vineyards. Also, for the harvest special equipment can be rented. Sometimes, harvesting services are fully outsourced. Harvested grapes are examined by post-harvest quality controls and transported to the wineries for the next processing stage. Certification is key to ensure the safety of workers and environmental sustainability of the vineyard. To prepare the new growing season, plant material for new plantations is gathered.

D. Wine making (Viniculture)

Before the start of grape processing, the winery where this process takes place is designed by architects and constructed using engineering services. The wine making process begins with crush grape services that grind the grape clusters to remove grapes from the stems. Subsequently, the fermentation of the grapes in temperature controlled vessels turns sugar into alcohol together with other chemical processes. The clarification stage removes the must from solid residues such as grape skins and other unwanted solids and residues by pressing the wine through tangential filters from the fermentation vessel into a cask or barrel. Laboratory analysis is done throughout the production process. Reverse osmosis and alcohol contents engineering adapt the degrees of alcohol to regulations in destination markets. Moreover, traceability and certification services are performed to comply with public sanitary and phytosanitary standards, private standards and certification of origin of denomination. Wine production generates liquid industrial waste, which need to be treated. Both, the (wine) product and production process, are constantly improved through research, development and testing. Wine can either be bottled straight away or can be stored in ceramic, oak or steel containers to age further. Labels are added to bottled wines.

The whole production process is managed using IT services for winery and inventory management. Both skilled and unskilled and fixed or temporary workers are hired and trained to conduct the wine-making process, in particular oenologists.

E. Logistics

Logistics consist of the land, maritime and air transport (although, rare) of wine from the winery to the final points of sale under the best conditions possible such as temperature controlled containers to maintain the quality of the wine. Before wine can be sold abroad, export documentation with all required information is prepared and insurance policies are contracted. This documentation goes through different customs and shipping procedures.

F. Distribution and marketing

Using agents and brokers, different schemes can be used to distribute wine between producers to the retailers. One scheme uses importers that buy from wineries, and in turn sell to wholesalers. These deliver to final points sales such as bars, hotels, restaurants and retailers. Under another scheme, retail chains buy directly from producers and skip importers. The latter scheme is often used in leading export markets. In several cases, wine is exported in bulk containers and bottled in the destination markets.

With growing international competition and expansion of consumer populations, marketing and promotion has become a key part of the firms' strategies. High-volume and low price wines are promoted in a different way than low-volume and high price wines. For the former, the emphasis is on large advertising campaigns promoting a specific "experience" and the design of labels to attract the attention of young customers. For the latter, specific promotion campaigns, participation in wine competitions and wine fairs are important. Other marketing activities include promotion through social media, website hosting, hospitality (tours, tasting), catering, and lodging for visitors at the winery, product development, public relations, pricing policies (such as special discounts), tasting in the points of sales, and training of sommeliers.

G. Services throughout the value chain

Multiple types of services are conducted throughout the wine value chain. These include accounting, catering, cleaning, finance, hiring and training of employees, medical services, legal services, repair and maintenance, security, and social insurance.

III. In-house provision and outsourcing of services

This paper not only looks into the presence of (knowledge intensive) services in the wine value chain, but also into the modality of the provision of those services. Basically, the provision can be in-house, outsourced or a combination of both. Outsourcing refers to the transfer of certain tasks of the value chain to third parties that have a comparative or competitive advantage to carry out those tasks.

Firms consider various factors when they decide to outsource or not a specific service (Low and Pesadilla, 2016).

- Cost reduction and flexibility. The permanent provision of a service by an outsider may be cheaper than in-house production and allow for greater flexibility when using a service or not.
- External economies of scale: certain firms improve their performance when focusing on a single activity along with other firms producing the same service. The clustering and interaction dynamics, which are beyond the control of a single firm, increases competitiveness and efficiency. Examples are information technology (IT) and other knowledge-intensive services.
- Internal economies of scale. Subcontracting allows a firm to reduce fixed costs into variable cost. For example, instead of incurring high fixed cost of an investment into a machine that is relatively little used, firms can lease them for the needed period at a much lower cost. Another example relates to hiring workers for a few weeks instead of all-year round when their services are only required in the harvesting season. This and the previous arguments have their roots in the transaction cost theories.
- Access to supply networks. To ensure the continuity of service provision, some firms prefer to hire outside workers whom are part of a larger entity (network) rather than employ internally (an) individual person(s).
- Focus on comparative and competitive advantages. Even though some firms may produce some tasks cheaper in-house, they may decide to outsource to focus more on their core business.
- Completion with (mandatory) requirements. Often firms are obliged to outsource the compliance of these requirements to public or private institutions, which are designated to

perform auditing or compliance inspections related to issues such as health, safety, and (environmental-friendly) sustainable production.

- Specific knowledge. Subcontracting allows firms to access easier specific knowledge, which sometimes is essential for the competitiveness of a firm.
- Frequency of the service: to the extent a service is a one-time operation or needed a few times, the probability of outsourcing increases.

The relation between firm size and the degree of outsourcing is not straight forward. Some authors suggest that small firms tend to focus more on their core competencies, leaving the rest to suppliers (Abraham and Taylor, 1993). However, others argue that large firms subcontract relatively more than small ones to achieve large cost reduction through flexible production (Arvantis and Loukis, 2012). In addition, some found an inverted-U shape: small firms outsource little due to the high cost burden and little variety of the products they sell. Large firms also do not outsource much having sufficient in-house capacity. In contrast, middle-sized firms outsource more having the resources and lacking in-house knowledge.

Firms may also have specific reasons to prefer in-house production of specific services. These may include the sensitive nature of some services in terms of having defining features of the firm's competitiveness, the scarcity of qualified providers with competitive prices in the (local) market, the transaction costs associated with the search and supervision of service providers, and risks involved with no compliance.

IV. Use of knowledge intensive services in the Chilean wine industry: a survey

A. Sample design

A survey was conducted among wine exporters to identify which in-house and outsourced services are being used in different stages of the wine value chain. This survey was sent to over 100 oenologists of the Chilean National Oenologist Association, who work predominantly in wineries, on 26 October 2015 with a deadline of 11 December 2015. In total 53 firms, which represented 39% of bottled wine exports in the 12 months prior to June 2015. However, only 29 firms, accounting for 42% of total exports, filled out the complete survey. The final sample of firms was divided into three size groups according to the official size definition: a) small: firms with annual sales of up to US$1.15 million; b) medium: firms with annual sales between US$1.15 and US$4.6 million; and c) large: annual sales of more than US$4.6 million. The sample consisted of 13 small firms, 9 medium firms and 7 large firms, which represented 17% the total universe of small firms, 9% the total universe of medium firms, and 48% the total universe of large firms (see Table 1). Most wineries that participated in the survey export predominantly bottled wine, except for two which focus more on bulk exports. These two firms show much lower unit values than the rest.

The survey asked oenologists whether the firm where they are employed uses selected types of services in different stages of the wine value chain. If their firm uses a specific service, oenologists were asked how the service is procured: in-house, outsourced, or a combination of both. From the 84 services identified in section III, a subset of 38 services were selected considered by oenologists as knowledge intensive are most crucial for the quality of wine production. These can be broken down by 6 (out of a total of 11) services in vineyard preparation, 7 (out of a total of 17) services in viticulture, 10 (out of a total of 21) services in viniculture, 4 (out of a total of 7) services in logistics, and 11 (out of a total of 18) services in distribution and marketing. The 8 back-office and other general services throughout the value chain were excluded, as they are less critical for wine quality.

Table 1
Characteristics of wineries that participated in the survey, 2015

Firms	Share of bottled wine exports (%)	Share of bottled wines exports of subgroup (%)	Unit value (US$ per case)	Bottled wine (share of the firm's exports (%)
Large				
1	20.81	30.2	21	92.0
2	4.37	6.3	20	98.4
3	2.16	3.1	42	97.5
4	1.56	2.3	38	96.9
5	1.54	2.2	27	98.5
6	1.50	2.2	20	93.5
7	1.25	1.8	28	92.3
Sub-total	33.19	48.2		
Medium				
1	0.46	1.7	33	99.9
2	0.43	1.6	25	100.0
3	1.46	1.5	21	92.4
4	0.87	0.9	45	99.9
5	0.23	0.9	36	100.0
6	0.17	0.6	17	99.1
7	0.15	0.5	27	78.6
8	0.14	0.5	27	99.1
9	0.14	0.5	27	100.0
Sub-total	4.04	8.7		
Small				
1	0.07	1.7	19	79.4
2	0.06	1.5	37	100.0
3	1.50	1.5	36	98.8
4	0.06	1.5	77	100.0
5	0.04	1.1	40	100.0
6	0.04	0.9	8	62.0
7	0.03	0.8	25	100.0
8	0.01	0.2	18	24.7
9	0.01	0.1	28	1.0
10	0.00	0.1	15	0.3
11	0.00	0.0	90	100.0
12	-	7.4	5	0.0
13	0.02	0.5	63	100.0
Sub-total	1.85	17.4		
TOTAL	39.08			

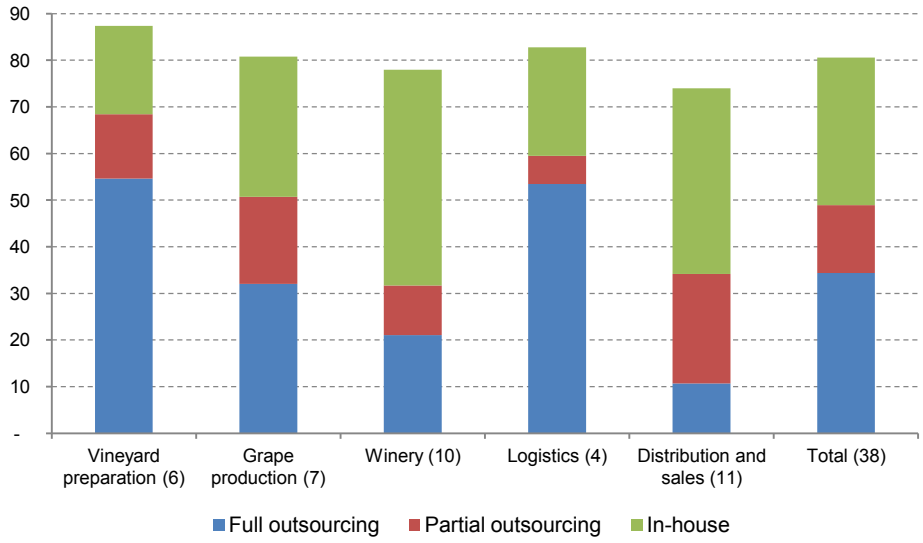
Source: Elaborated by the authors on the basis of the survey results.

B. General outcomes

Out of a total of 38 different types of knowledge-intensive services, wine firms fully outsource about the same share (34%) as they fully produce in-house (32%). Another 15% of the services are provided using a combination of outsourcing and in-house provision. This general pattern hides substantial differences between segments of the value chain.

With the exception of logistics being mostly outsourced, the share of services outsourced decreases when moving down the segments of the value chain (see figure 2). In vineyard preparation, 68% of the services are fully or partially outsourced, whereas this share is about 30% in wine making, and marketing and distribution. The latter are the core competences of these firms and determine most of their commercial success. For the same reasons, the shares of in-house provision of services are greatest in these segments. These results confirm those of Fernandez-Stark and Bamber (2016).

Figure 2
Share of in-house, full and partially outsourced services by segment of the value chain
(Percentage)



Source: Elaborated by the authors on the basis of the survey results.
Note: the number of services in each segment is listed in parentheses.

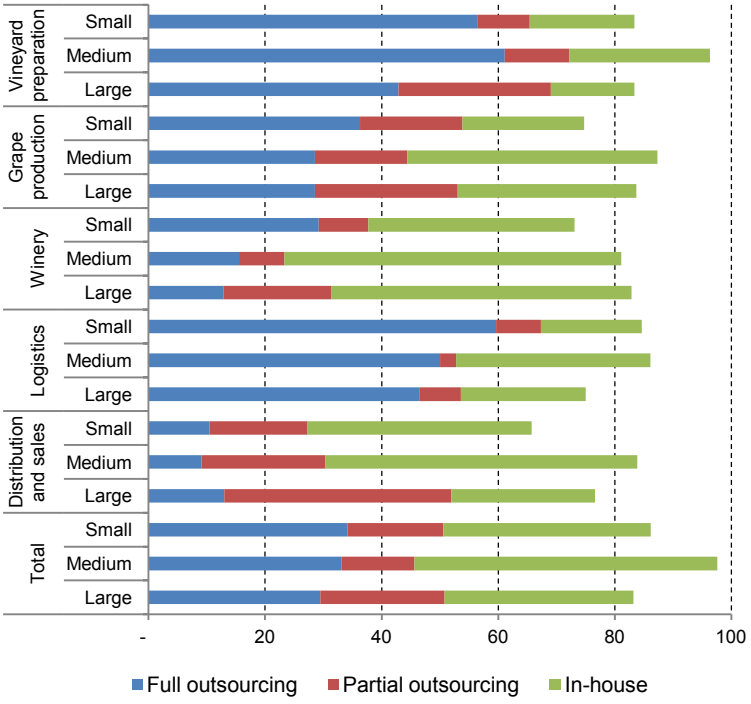
There is no clear relation between outsourcing and firm size. Overall, small and large firms fully or partially outsource about half of all services. On average, small firms proportionally outsource more than medium firms (34% vs. 29%), while large firms combine relatively more outsourcing and in-house production of services (21% vs. 16%). This is in part because large firms have more capabilities and personnel to coproduce services. Medium firms outsource slightly less than small and large ones.

These in-house and outsourcing patterns of services differ more by segment of the value chain rather than firm size. Between segments, the largest difference is between vineyards and distribution, where firms fully or partially subcontract 68% versus 34% of the services, respectively. The largest difference in outsourcing patterns between large and small firms is the distribution and marketing segment (52% versus 27%, respectively). Outsourcing patterns between large and small firms are most similar in the first two segments (vineyard preparation and grape production) (see figure 4).

Large firms subcontract proportionally more than small firms in marketing and distribution and vineyard preparation, whereas the opposite is true in wine making and logistics. Subcontracting behaviour of medium firms lies in between large and small firms in distribution and sales, whereas in other sectors (grape production and wine making) they subcontract comparatively less than both small and large firms.

The in-house services production patterns of services largely reflect the flipside of the outsourcing patterns. In large and medium firms, most in-house services are produced in wine making, being the most strategic segment of the value chain (more than half of total services). Small firms provide most in-house services in distribution and marketing (38%), followed closely by wine production (35%). Large and medium firms provide the least in-house service in vineyard preparation (14% and 24%, respectively), whereas medium firms have the least in logistics (17%).

Figure 3
Share of (full or partially) outsourced services by company size and segment of the chain
(Percentage of firms in size group)



Source: Elaborated by the authors on the basis of the survey results.

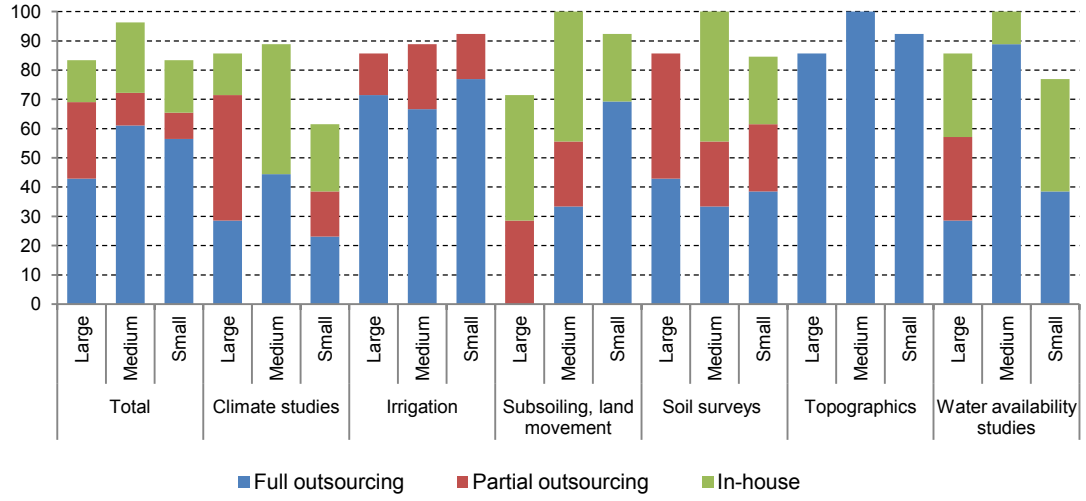
C. Detailed results of the surveys

1. Vineyard site preparation

Outsourcing rates of services in vineyard preparation are the highest of all segments of the value chain. This is no surprise, as these services are needed only once at the start of operations (one-off). The main motivations for outsourcing are cost reduction linked to the low use of these services, internal economies of scale and access to specific knowledge. Most subcontracting is done for the installation of irrigation equipment and topographical studies.

Subcontracting is high across the board in all firms in this segment, although partial outsourcing increases with firm size. Also, there are differences between size-groups regarding specific services. Large firms subcontract proportionally more climate studies and soil surveys, whereas small ones outsource more in irrigation and in subsoiling and land movement. In-house production is small in this segment, except for climate studies by medium firms, subsoiling and land movement by large and medium firms, and soil surveys by medium firms (see figure 4).

Figure 4
Outsourcing of vineyard preparation services by firm size, 2015
(Percentage of firms in size group)



Source: Elaborated by the authors on the basis of survey results.

Climate and topography studies: Medium size firms are those that most fully subcontract this service. Large firms mix subcontracting and in-house provision, in part because they have built internal historical records facilitated by having more personnel.

Installation of irrigation equipment: This service is mostly outsourced by most firms in all size categories, while some combine it with in-house provision. No firms produce this service exclusively in-house, suggesting the high level of expertise required for the design and installation of this service and the single use character of this service. Moreover, Chile has a large number of specialized firms in this area. Most employ agricultural engineers, who are specialized in water needs of crops, irrigation efficiency and "fertirrigation" (simultaneous application of water and fertilizers through irrigation). Water shortage for more than 8 years in Chile and competition for subsoil water rights has increased cost and pressured wine producers to contract specialized knowledge.

Leveling, movement and subsoiling: is done by large firms mostly in-house or together with subcontractors, but never exclusively by third parties. This reflects the fact that most large vineyards have their own specialized equipment for this type of work. Small firms outsources this service the most, while medium firms use a combination of in-house production, full and partial outsourcing.

Soil analysis and surveys: The three firm size groups either subcontract this service or produce it through a mix of outsourcing and in-house. Large firms are the category that mostly combines full and partial subcontracting. In contrast, 44% and 23% of medium and small firms, respectively, perform this analysis in-house due to cost constraints.

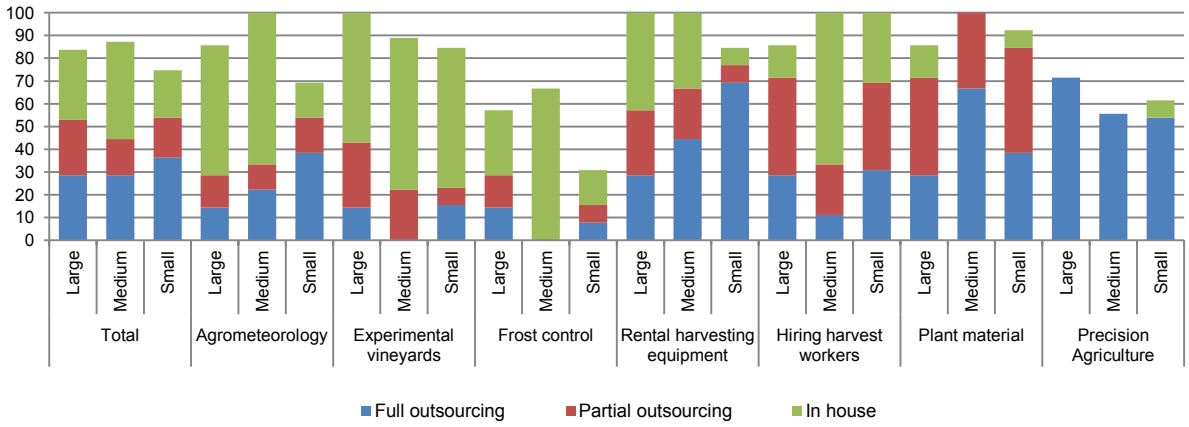
2. Grape production

Firms outsource on average half of the services in this segment, compared to more than two-thirds in vineyard preparation. The most subcontracted service by firms is the use of plant material for new plantations (85% on average), whereas the least subcontracted is frost control services. Most services in grape production are produced through a combination of in-house provision together with subcontracting, except for precision agriculture because of its high knowledge intensity.

Large firms coproduce more services together with subcontractors (partial outsourcing) compared to mediums and small firms across the board, while small firms fully outsource relatively more. However, these general patterns hide large differences between the two in individual services. Large

ones subcontract proportionally more in experimental vineyards, probably because of a larger product variety, frost control, and precision agriculture. In contrast, small firms outsource relatively more agrometeorological stations and the rental of harvesting equipment, to reduce the high cost of these capital goods.

Figure 5
Outsourcing of grape production services by firm size, 2015



Source: Elaborated by the authors on the basis of survey results.

Agrometeorological stations: are key to monitor weather conditions for wine production and therefore widely available in vineyards. This explains why about 62% of large and medium-sized firms and 15% of small firms concentrate this service in-house. More than half of small and one third of medium sized winegrowers also outsource this service, in part through a network of automated weather stations installed by multiple Associations of Winegrowers.

Frost control: is performed exclusively in-house by two thirds of medium firms, because these systems are already installed in their vineyards. Large firms use an equal proportion of in-house and outsourced services, which may be explained by the geographical location of some of their vineyards. For example, coastal vineyards with high average export price per wine case probably subcontract helicopters to control frost. Few small firms seem to subcontract or auto-produce this service.

Rental of harvesting equipment: is fully outsourced by 70% of small firms, 44% of medium sized firms, and 29% of large firms. Another 29% of large firms provide this service in-house, while the remaining share of large firms uses both modalities. Because of high production volumes, large firms use both owned and hired equipment for processing. Less than 10% of small firms own their equipment, due to high cost and little use throughout the year.

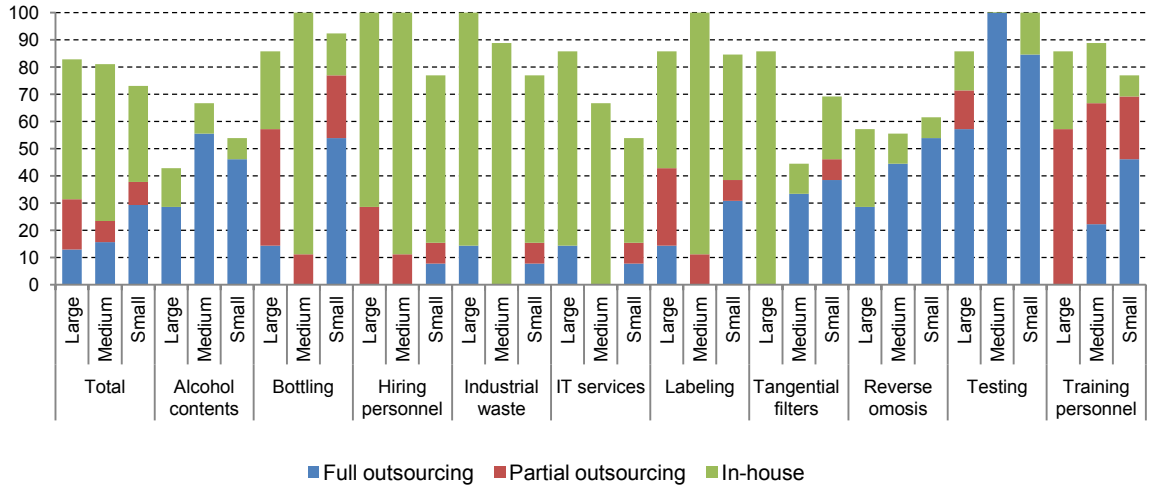
Precision agriculture services: the high knowledge intensity of this service explains why this service is fully outsourced across the board by all firms. A minor share of small winegrowers produces this service in-house using generic information, which is interpreted internally.

3. Wine production (viniculture)

The production of wine is the segment with the lowest degree of outsourcing of services within the whole value chain, and highest share of in-house provision. Firms mostly produce in-house the treatment of industrial liquid waste and hiring of personnel, and to a lesser extent labeling, IT services and tangential filters. The only services outsourced by more than half of the firms are testing (85% of the firms) and training of personnel (64%). More than 40% of firms outsource alcohol contents engineering, bottling and reverse osmosis.

As mentioned, the selection of new workers is mostly done in-house, but training is carried out through a combination of on-the-job training within the firm together with specialized external courses. For the latter, the wineries receive specific subsidies.

Figure 6
Outsourcing of wine production services by firm size, 2015
(Percentage of firms in size group)



Source: Elaborated by the authors on the basis of survey results.

Large firms complement in-house provision of several services (bottling, hiring and training of personnel, and labeling) with outsourcing, in part to ensure the continuity of service delivery in peak production periods. As in other segments, partial outsourcing is the highest in large firms.

Alcohol contents engineering: the wine's alcohol contents needs to be adapted to legal restrictions in destination markets, the level of excise tax, and consumer preferences. Medium-sized enterprises are those that proportionally (56%) most outsource this service.

Bottling is done in-house by 89% of medium firms and almost one third of large firms. In addition, half of the large companies combine their own facilities with sub-contracting, which may be explained by the fact that their own facilities are insufficient to process their large production volumes. Half of the small wineries and 14% of the large ones fully outsource bottling services.

Labeling services follow a similar pattern as bottling regarding the shares delivered in-house, outsourced or a combination of both. Compared to bottling, a lower share partially outsources this service, whereas a higher share of large companies fully outsources, probably because of the strategic importance of the label for sales. Almost 90% of midsize wineries and 46% of small firms fully do the labeling in-house, probably due to cost constraints.

Reverse osmosis services has the same goal as alcohol contents engineering, partly through changing the sugar contents in the grape juice before fermenting. The degree of in-house production is positively related and the degree of outsourcing negatively with firm size.

Tangential filtering services is a recent technique that spread rapidly due to its easy use, speed and lack of waste generation, which has largely displaced the earth filters previously used for finishing wines prior to bottling. In large wineries, this task is carried out fully in-house, while about one third of small and medium wineries outsource this service. This may be due to the high initial investment involved in the purchase of a tangential filter

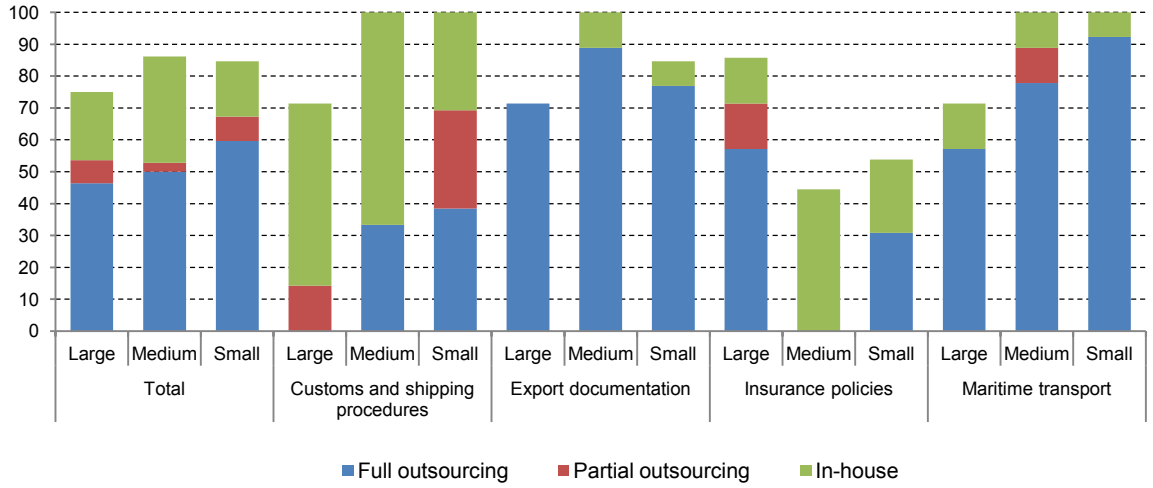
Treatment of liquid industrial waste is done mostly in-house in all groups of firms, and totally in medium wineries. Some small and large wineries also outsource this task. When this liquid waste meets

the volume and chemical contents requirements by the government, this group of firms dumps the waste into the local sewerage network.

4. Logistics

Being a general service with relatively little impact on wine quality, logistics is the segment with the highest degree of outsourcing by all groups of firms. Both, export documentation and maritime transport, are the most outsourced services in this segment. In contrast, more than half of large and medium firms prepare customs and shipping procedure in-house.

Figure 7
Outsourcing of logistics by firm size, 2015
(Percentage of firms in size group)



Source: Elaborated by the authors on the basis of survey results.

5. Distribution and marketing

In combination with wine making, this segment is the most crucial for the international wine positioning. For this reason, 40% of all firms in this segment of the value chain produce these services exclusively in house, while another quarter combines in-house provision with outsourcing. Only 11% of all firms fully outsource this group of services. Services mostly produced in-house are those most associated to the wine brand, including hospitality, product development, public relations and social media. Catering to visitors and label design are the services that are proportionally most (by more than 50% of all firms) outsourced. This value chain also contains a high share of co-produced services, such as advertising, label design, public relations, website management and participation in wine fairs.

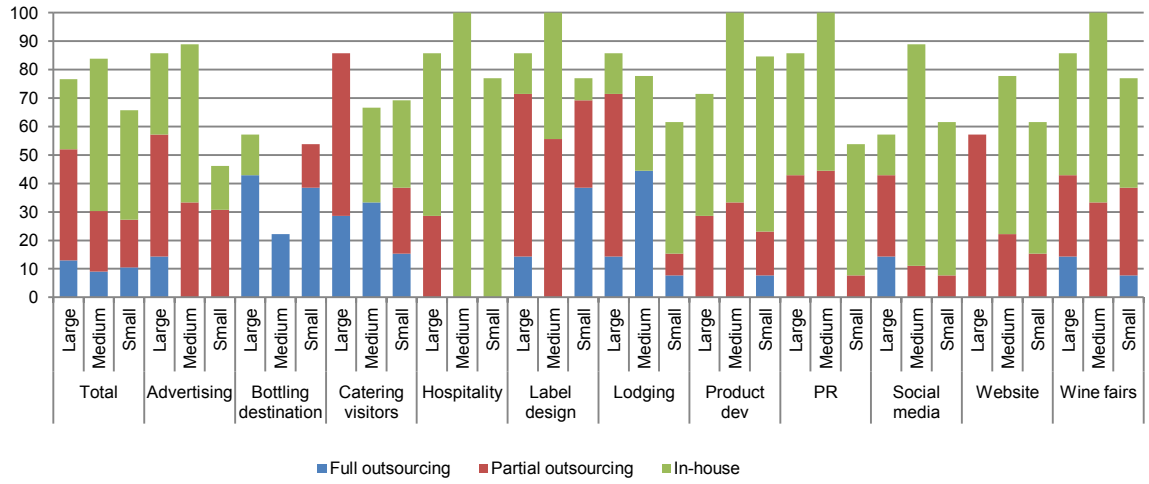
Advertising campaigns are prepared mostly in-house by midsize firms or through partial outsourcing by large firms. This mixed services delivery is preferably used for mass campaigns and/or for releases of exclusive brands. Some large wineries opt for full outsourced for specific campaigns in foreign markets. Small businesses sometimes partially outsource due to the lack of internal human resources specialized in these tasks.

Frequently wine is transported in bulk to destination markets and bottled upon arrival. This bottling is fully outsourced, except for some large wineries that established subsidiaries in those markets or own a share in local distributors.

Label design is done preferably by all large and medium firms using a mix of in-house and outsourcing, while relatively more small firms opt for full or partial outsourcing. Large wineries only fully outsource this service in the case of a new design to launch a new product, but perform this service

in-house when a product line is extended or renewed. A proportionally larger share (57%) of medium firms designs labels in-house.

Figure 8
Outsourcing of distribution and marketing by firm size, 2015
(Percentage of firms in size group)



Source: Elaborated by the authors on the basis of survey results.

Product development is done either fully in-house or in combination with subcontractors, but rarely fully outsourced, in all three firm size groups. This is because of the strategic importance of this service for the wine brand.

Social media marketing is mostly done in-house by small and medium sized firms. Large wineries fully or partially outsource these services proportionally more as they have more funds to do so and because this form of marketing is very time consuming, as they are specific to the specific brands managed by the winery.

The participation in wine fairs is organized by about two thirds of medium firms in-house, compared to about 40% of the large and small wineries. About one third of each of the three size groups used a mixed mode of in-house and outsourcing. This is done in part through Wines of Chile, which reserves and prepares standard type of boots for wineries at international fairs.

V. Conclusions and future work

Within less than two decades, Chile has become part of the world's largest wine producers and exporters. This good performance is reflected by the fast growth of value added and labour productivity of the wine industry since the 1990s. The wine industry also contributed to the expansion and modernization of other agricultural resource-based processing industries in the country, reinforcing the export-orientation of the Chilean economy.

This paper explores the key role of (knowledge intensive) services in the Chilean wine value chain. On the basis of a survey carried out in the context of this study, 80% of 29 wineries confirm they use intensively 38 different types of services across five segments of their value chain. They fully outsource about the same share (34%) as they fully provide in-house (32%), while another 15% is produced using a combination of both. The share of outsourced services falls when moving down the value chain, being highest in vineyard preparation and lowest in distribution and marketing. Moreover, small and large firms fully or partially outsource about half of all services, while medium firms outsource less. Knowledge intensive services are found in all five segments of the value chain, but the one that are most valued by the wine producers, according to the survey carried out in this study, are professional advice in vineyards and terroir, implementation of quality certifications, design and packaging, and assistance to international wine fairs and competitions. In sum, the service intensive character of the value chain may help to explain how Chile developed into the world's fourth largest exporter.

The sector is experiencing a high level of professionalism in which many providers are specializing to produce high quality services to small, medium and large wine makers. All these improvements have led to a process and product upgrading in the sector. At the start of the value chain, climate and topography studies, installation of irrigation equipment, and soil analysis are crucial to establish high quality vineyards. The best type of grape production is favored by services such as experimiental vineyards, frost control, plant material studies, and precision agricultural services. In wine production, the quality of wines is ensured through labaratory services, labeling, training of personnel and reverse osmosis services. The last two segments of the value chain are all about services. In logistics, transport and customs procedures play a central role. Finally, in distribution and marketing, a whole range of services play a crucial role to differentiate the product in the market and create customer loyalty, including advertisement, hospitality, public relations, social media, website design, and wine fairs.

The Chilean wine industry, though, should not take its export growth for granted for the future. The fact that it has completed the earlier phase of the wine technological revolution and that the service industry has developed accordingly does not mean that it is well prepared to meet future challenges and to sustain its export growth in the long term. In 2010, Wines of Chile presented its Strategic Plan for the next 10 years, aiming to become the leading New World producer of premium and sustainable wines by the year 2020, reaching an export value of US$3 billion. However, in 2015 and 2016, total wine exports stagnated around US$1.8 billion, despite growing volumes of exports This was due to *i*) falling unit values of wine exports, as exporters substituted bottled wine for bulk wine, and *ii*) increased international competition. To reach its export value target by 2020, Chile would require additional investments in R&D, innovation, marketing and branding to increase the quality and unit prices of its wines.

The experience of leading wine exporters such as France and Italy, but also Australia and the United States, shows that the presence of well-functioning sectoral and regional systems of innovation has been essential in helping wine producers to benefit from localized knowledge spillovers at the interfirm level, that is, from continuous endogenous innovation (both of a radical and of an incremental nature) able to counterbalance technological path dependency and lock-in phenomena (Cimoli and della Giusta, 2000). As the export success of the Chilean wine industry was far from predictable, it is crucial to investigate the extent to which radical changes that led to tangible improvements in product quality are going to be sustainable over time. In particular, this study looked specifically at the extent to which the success of Chilean wine exports can be ascribed to the use of services, which have allow wineries to improve their operations along the different stages of the value chain and which are going to be key in addressing the main challenges ahead.

In this context, this study can be extended in different directions. First, it would be interesting to ask firms which services they assess as most crucial for the export value and profitability. Second, they could indicate their motivations to outsource or provide in-house certain services. Third, it is important to assess the "quality" of support services firms in Chile, in terms of their national or foreign ownership, their market share, their share of certification, innovation intensity, and perception of users. Fourth, similar studies in other new world leading wine producers including Argentina New Zealand and South Africa, as well as in competitor countries such as Australia, could help to benchmark the results of this study and indicate which factors are most essential for increasing the value of wine exports.

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Annexes

Annex 1
List of services in wine value chain

A total of 88 different types of services were identified in the wine value chain. Those marked in grey (38) have been included in the Survey.

A	**Vineyard preparation**	14	Certification of public phytosanitary standards
1	Climate studies	15	Crush grape services
2	Installation of irrigation	16	Engineering services
3	Leveling, movement and subsoiling	17	Fermentation
4	Soil surveys	18	Laboratory analysis
5	Topographical analysis	19	Research and development
6	Water availability studies	20	Storage
7	Electric grids	21	Traceability services
8	Genetic development	**D**	**Logistics**
9	Variety selection	1	Customs and shipping procedures
10	Vineyard planting	2	Export documentation
11	Wiring	3	Insurance policies
B	**Wine grapes production (viticulture)**	4	Maritime transport
1	Agrometeorological stations	5	Air transport
2	Experimental vineyards	6	Land transport
3	Frost control	7	Temperature controlled containers
4	Harvesting services	**E**	**Distribution and Marketing**
5	Hiring harvest workers	1	Advertising campaigns
6	Plant material for new plantations	2	Bottling at destination
7	Precision agriculture	3	Catering services for visitors
8	Defoliations,	4	Hospitality
9	Disease and plague control	5	Label design
10	Fertilizers	6	Lodging
11	Harvesting equipment rental	7	Product development,
12	Post-harvest quality controls	8	Public relations
13	Pruning,	9	Social media management
14	Soil correction	10	Website hosting
15	Specialized software	11	Wine fairs
16	Vineyard management using IT	12	Final points sales
17	Weed control	13	Importers
C	**Wine making (Viniculture)**	14	Pricing policies
1	Alcohol contents engineering	15	Specific promotion campaigns
2	Bottling	16	Tasting in sales points
3	Hiring temporary personnel	17	Wholesalers
4	Industrial waste treatment	18	Wine competitions
5	IT services for winery management.	**F**	**Services throughout the value chain**
6	Labeling	1	Accounting,
7	Pressing with tangential filters	2	Catering
8	Reverse omosis	3	Cleaning
9	Testing	4	Finance
10	Training temporary personnel	5	Legal services
11	Architects	6	Repair and maintenance
12	Certification of private standards	7	Security
13	Certification of origin of denomination	8	Social insurance

Annex 2
Definitions of services in wine value chain

Below a list is presented of the most important "services" in each segment of the value chains. In several cases, these services are combined with material inputs to provide critical inputs. Those marked with a * were included in the survey to assess their presence and type of provision (in-house, outsourced or a combination of both).

1. Vineyard site preparation

Climate studies seek to characterize a specific area in terms of heat accumulation, rainfall patterns, thermal oscillation, maximum and minimum temperatures, temperature variation, wind speed, relative humidity, among others. They are studies to assess the feasibility of establishing vineyards and obtain top quality wine grapes from the climate point of view.

Design of vineyard planting: the process by which the formation of barracks in the vineyard and the varieties that will be planted is planned, taking into account the specific conditions of soil and vineyard management tasks to be carried out.

Design and installation of irrigation equipment: is essential to provide the exact amount of water needed for the growth of the grape variety with an optimal combination of pulp and seed.

Genetic development of grapevine services is the study of how genes control the growth and development of grapevines throughout their life-cycle.

Levelling, movement and subsoiling: use of a tractor-mounted farm implement (subsoiler) for deep tillage, loosening and breaking up soil at depths to improve its fertility and water absorption.

Soil surveys analyze the soil according to its chemical, geological, mechanical, physical, and topographical characteristics. This includes performing physical-chemical and microbiological analyses, electrical conductivity, soil pits, characterization of soil series, texture, presence of impermeable strata, high water table, pathogen detection, etc.

Topographical analysis or land mapping is a set of operations performed on land with specialized tools to make a correct graphical representation or map. It helps to define the planting design because it gives an accurate idea of slope levels, which will allow us to define the direction of the rows depending on the required sun exposure. This service is also key to prepare the implementation of irrigation systems.

Water availability studies: determine available water resources at a land site. These determine whether water could be a limiting factor in the establishment of a vineyard.

Wiring is the installation of wires to conduct the development of the vine.

2. Grape production

Agrometeorological stations: installation designed to measure and record various meteorological variables on a regular basis. This data is used both for making weather predictions from numerical models to climate studies. The basic equipment consists of thermometer, thermographics, barometer, anemometer, hygrometer, rain gauge and tray evapotranspiration.

Defoliations is the removal of excess leaves on the vine work, which can interfere with normal ventilation and receiving sunlight in the canopy and generate biomass competes for nutrients that should be in the interest of the clusters.

Disease control: manual, mechanical or chemical techniques used in preventive or curative manner in order to minimize and/or stop the damage caused by diseases, mainly fungal and viral, of both the vine and grapes.

Experimental vineyards are plantations used for scientific experiments of new kinds of grapevines or different types of production methods.

Fertilizers: adding of macro and micronutrients necessary for the proper development of the vineyard.

Frost control: Set of measures implemented in vineyards, which aim to avoid and/or minimize the damage caused by frosts in spring, when the vines have already broken dormancy and rising temperatures have already triggered the bud sprouting.

Plague control: manual, mechanical or chemical techniques used in preventive or curative manner in order to minimize and/or stop damage caused by insects, birds or other animals of both vines and grapes.

Plant material for new plantations: This can be done through the use of cuttings from pruning, vine branches (branch that, without cutting of the vine, is buried to take root and produce new plant) or the purchase of certified nursery plants.

Precision agriculture services are the management of small plots within vineyards using big data and technology with different sources of data (on soils, crops, nutrients, pests, moisture, or yield) to maximimise profitability and environmental sustainability.

Pruning: practice of reducing the vegetative part of the vine to limit its natural growth and improve performance and quality of the grapes. This may be done by formation or production, depending on the stage of the vine. This is a key activity in a vineyard since it defines the level of production expected in the next season.

Recruitment of workers for wine season consist of providing temporary contracts for workers to assist in key tasks in the vineyards, including grape harvesting.

Renting of harvesting equipment: harvesting of grapes using specialized rented equipment.

Soil correction: application of organic and/or inorganic elements, aimed at correcting a deficit or limiting conditions in the soil, which limit the growth of the vine.

Weed Control: manual, mechanical or chemical techniques used in preventive or curative manner aimed to avoid, stop or eliminate weed development affecting.the proper development of the vine.

3. Wine production (viniculture)

Alcohol contents engineering in wine using specialized techniques such as reverse osmosis (nanofiltration) and rotating cone.

Bottling: process through which the wine is introduced into bottles and capping according to the type of closure defined for it (natural cork, synthetic cork, screw cap).

Hiring of (temporary) workers for winery season consist of providing temporary contracts for workers to assist in key tasks in the wineries.

Labeling: process through which a label is added to bottled wine, which contains distinctive design elements of the brand and legal information required by the target market. This process can be done immediately after bottling (entry level wines, varietals) or later after the wines have finished their aging process in cellars.

Laboratory analysis: chemical analysis aimed at determining the presence and concentration of some critical parameters in wine making, such as alcohol, acidity total volatile acid, tartaric acid, pH, free SO2, Total SO2, residual sugar, malic acid, lactic yeast count, microbiological count, among others.

Reverse osmosis services intervene in must (grape juice before being fermented) aimed to lower its sugar content.

Tangential filtering services remove fine particles suspended in the wine through a tangential filter.

Traceability and certification services ensure food safety and trace the origin of the grapes and the wine in a bottle. It is usually inserted into a global quality certification program in which a company participates.

Treatment of liquid industrial waste: procedures adopted to manage liquid industrial waste.

Wine experiments: are trials in the winery aimed at elaborating wines with different characteristics or changing production methods.

Winery production management systems (such as Kupay and Red line): are software that allows the online monitoring of the complete winemaking cycle. These systems store current and historical information on grape receipts, blending, cellar operations, manufacturing status, barrel lot tracking, bulk wine receipts, supply chain and shipments, quality control and lab analyses.

4. Logistics

Bottling in destination markets. process through which the wine is introduced into bottles and capping in the destination market.

Export certificates and documentation: chemical analysis should be performed by an outside laboratory duly accredited, which is required for the wine to be exported.

5. Distribution and marketing

Advertising in mass and specialized media are activities aimed at attracting the attention of consumers about a brand. These activities include those conducted through print, TV, radio, social networks, roadside posters, placements, promotional mailings are, etc.

Hospitality and lodging: in-house visitor activities that seek to retain customers with a brand through generation of consumer experiences and personal attention that links them emotionally to a brand.

Label design: process through which a label is added to bottled wines, which contains, in addition to distinctive design elements of the brand, all legal information required to be marketed in the target market is incorporated. This work can be done immediately after bottling (entry level wines, varietals) or after the wines have finished their pre-sale aging process (higher grade wines).

Product development: process through which the product specifications are defined, including brand, varieties, qualities, formats, packaging, legal requirements, etc.

Promotion: is activities intended to publicize a country, region or type of product appeal to international consumers. These activities mainly target market is called "gate-keepers", such as: importers, distributors, wine critics and press. These activities include wine fairs, wine festivals, wine competitions, trade shows and road shows.

Public Relations are activities that seek to engage the target audience with the brand through generating events that can be converted into news. They improve knowledge about the target audience and the impact of the product, while at the same time they provide feedback on marketing strategies that enable future improvements in this area.

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