Prometheus, 2013
Vol. 31, No. 4, 387–398, http://dx.doi.org/10.1080/08109028.2014.933601

RESEARCH PAPER

New Zealand wine: a model for other small industries?

Andy Hira[a]* and Maureen Benson-Rea[b]

[a]*Department of Political Science, Simon Fraser University, Burnaby, Canada;* [b]*Management and International Business, University of Auckland, New Zealand*

New Zealand's remarkable transformation from a wool and meat producer to a highly diversified economy is one of the more remarkable economic stories of the post-World War II period. Part of this diversification is tied to New Zealand's development as a world-class wine producer, a remarkable feat given its small population. New Zealand's institutional arrangements provide an example for other small agriculturally-based producers wishing to move to higher value-added production. To supplement the existing literature, mail surveys, phone and Skype interviews were carried out by the authors in spring and summer 2012. In addition, the authors held several informative discussions with local experts during the AAWE Conference in Stellenbosch in summer 2013. Experts came from academia, industry and government, as one would expect with a study on the Triple Helix model. Several agreed to review the document for factual accuracy, though the interpretations are solely those of the authors. While New Zealand's institutions support the basic premise of the Triple Helix framework, that is, of the need for coordination of research, production and policy efforts, there are some important additional elements that are noteworthy for other small producers. Niche specialisation around a long-term strategy and a limited but strategic role for government are important, but the more remarkable feature is the ability to harness multinational investment towards local development. Yet, as we discuss, such approaches also carry with them their own vulnerabilities, requiring further strategy adjustments on the part of firms.

Introduction – a Triple Helix model for small wine producers

There are potentially large numbers of small country producers of quality wine in the world, from Georgia and Moldova to Hungary. Yet few have been able to achieve the quality levels within world wine markets at which returns per bottle become significant. As demonstrated in Table 2 of the first article of this special issue (Hira, 2014) New Zealand (NZ) went from no export production for world markets in 1961 to capturing 2% of the world market share by 2008, just behind Argentina and South Africa, a remarkable accomplishment for a nation of just 4.4 million, or about a tenth of the size of Argentina and even less compared with South Africa. Table 3 of the Introduction to this special issue (Hira, 2014) also shows that New Zealand's wine is of relatively high quality, with more than 17% of its wines reviewed receiving 90 points or higher from *Wine Spectator*, as opposed to bulk producers such as Greece, with only 2% of its wine recognised as being of premium quality. The success of NZ wine rests upon a strategy that could be followed by other small producers which are inevitably price-takers in world markets, namely

*Corresponding author. Email: ahira@sfu.ca

that of specialisation in a high value-added product through brand recognition for distinctive quality.

NZ therefore is a very interesting case of successful competitiveness, and the innovation system behind it deserves more attention than the limited coverage it has received in the literature to date. Based upon field research interviews and insights from local experts with in-depth knowledge of the case, we seek in this article to bring out the salient lessons from NZ's remarkable success for other small economies. The foremost question for this purpose is what adjustments small size requires of the Triple Helix (TH) model, an issue the TH literature has not yet broached. Unlike our other cases of success, such as Australia and some US states, small producers such as NZ cannot afford the costs of research, development or marketing to compete on a large scale. As we show in this chapter, on the one hand NZ has followed the lead of other competitors such as Australia in creating a national brand built around a varietal specialisation, in this case Sauvignon Blanc. On the other hand, the majority of NZ's wine production is dominated by multinationals. This is another area sparsely treated by the TH framework, which presupposes nationally-based research, industry and policy. Multinational investment, know-how and global retail reach are key ingredients of NZ's success, yet, what is more salient is how the organisation of NZ's TH institutions have guided the multinationals towards maximising local national benefit.

Background

Winemaking in NZ, like that of Australia, has roots going back to colonisation in the nineteenth century, and was guided by immigrant winemaking families producing on a small scale for domestic consumption during most of its early history. Most early wines were fortified, using sugar and heavy alcohol. As Barker *et al*. (2001) point out, few of these would have presaged the quality on which NZ would build its reputation as a winemaking power from the 1980s onwards. The emergence of the modern industry can be traced back to the 1950s–1960s when the highly-protected market began to see the introduction of new technologies, such as temperature-controlled fermentation. Alex Corban, a graduate of Australia's Roseworthy College and the University of Auckland, was a pioneer in introducing modern winemaking techniques to Corbans Wines, including using stainless steel fermentation tanks. The subsequent efforts of Peter Hubscher of Montana to produce world-class Sauvignon Blanc led to global awards in the 1980s. Sauvignon Blanc remains the standard-bearer for distinguishing local production on world markets. These advances were guided by the Winemaking Industry Committee of the New Zealand state. This institutional development allowed for the development of more knowledge-intensive production (Barker *et al*., 2001, pp.205–9).

Earlier research on the regulatory influences on the NZ wine industry by Barker *et al*. (2001) argues that the high level of domestic market protection attracted early investment from foreign companies such as Seagram's investment in Montana. Such investment brought with it new techniques, equipment and marketing knowledge as well as pressure to structure the organisation of the industry. The creation of the Wine Institute of New Zealand in 1975, with levy powers granted in 1976, represented a fusion of state–industry interests to grow the industry. The foundation of this collective industry association laid the groundwork for the development of a concerted strategy for the sector (such as the 1981–86 Wine Industry Development

Plan) that set the background conditions for the export takeoff (Barker *et al.*, 2001, pp.213–14, 219).

What we see in the background to the NZ case mirrors the public sector-led development and guidance of innovation in other large country cases of late entry into the wine market, such as Australia and California. Yet NZ has a different element to its story, which we argue reflects the very small size of its domestic market. The dominant wine companies in the development of the New Zealand industry, including Montana, Corbans, Nobilo and Selaks (all of which have their origins in mostly Croatian immigrant families) are now owned by large foreign multinationals. Only one large winery, Villa Maria, is New Zealand-owned (Hayward and Lewis, 2008, p.134), though Delegat's, a publically-listed NZ wine company, is controlled by the NZ founding family of the same name. While the number of wine companies increased from 358 to 698 between 2000 and 2011 (NBNZ, 2012, p.3), the six largest companies in NZ account for approximately 55% of total production and 19% of grape production (Scandurra, 2011, n.p.). Overseas owners control an estimated 40% of NZ wine production (NBNZ, 2012, p.13), so that NZ's wine industry is partly a success story of national coordination, as implied by the TH, and partly a story of national institutions' successful accommodation of foreign capital.

There are reasons to be sceptical about the potential role of multinationals in a small commodity-based economy, a situation that typifies many of the poorest countries around the world. For many small commodity-based economies, local markets are too small to support world-class producers. Given the need for small economies to import many goods which can be produced more cheaply elsewhere, concentration in production is a likely outcome. In order to pay for those imports, small economies must develop an ability to produce exports for world markets based upon a natural or developed local comparative advantage. The question in the case of NZ wine, and that of many other small wine producers, is not about the ability to export but how export success can be translated into local benefit. In 2004, the industry achieved more export than domestic sales for the first time (Brodie *et al.*, 2008, p.4). Figure 1 shows that New Zealand relies largely upon three main export markets: Australia, the UK and the US, although exports to China are growing rapidly.

In the case of NZ, the phenomenal sustained growth of the industry and the dominant theme of quality are reflected in Table 1. As shown in Table 1, export value for the industry has risen substantially more than the volume of sales over the period 1990–2012. The numbers of new entrants and the production area have also grown substantially. The table further supports the quality story in the reduced average yield, indicating lower cropping levels with a focus on increasing the quality production of the vines. However, there was a worrying period for the industry during the recent global downturn (2008–12), in which over-supply in NZ and a slow-down in demand in its key markets brought a slower rate of growth in value, reflecting a potential cause for concern in the future. We return to this concern in our discussion of the future implications of the unique conditions of NZ's industry cooperation.

New Zealand is heavily reliant on its exports of Sauvignon Blanc. The 2011 New Zealand Winegrowers' annual report notes its importance, and reports that this one varietal accounted for 69% of all production, with Pinot Noir trailing at 10%, Chardonnay at 8%, Pinot Gris at 5% and Merlot at 3%. All of these facts point to potential vulnerabilities in regard to NZ's dependence upon exporting one product to a small number of large markets. So far, with the overall level of NZ's production

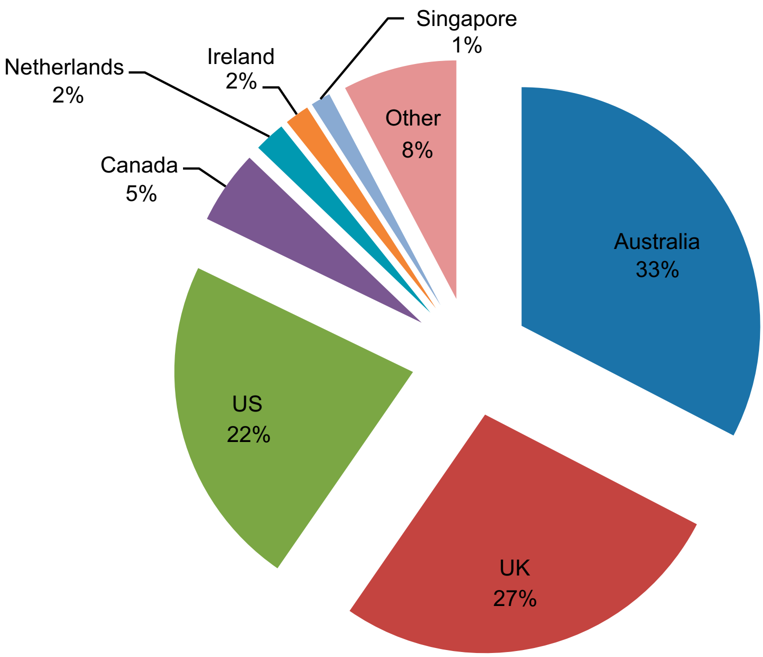

Figure 1. New Zealand wine exports by market, 2009
Source: New Zealand Winegrowers Statistical Annual 2009.

Table 1. NZ wine industry – key growth indicators

Indicator	1990	2012	Change
Number of wineries	131	703	437%↑
Producing area (hectares)	4880	33,428	585%↑
Average yield (tonnes per hectare)	14.4	8.1	–43%↓
Grape tonnage crushed	70,000	269,000	284%↑
Wine exports (million litres)	4	179	4,375%↑
Wine exports ($million)	18.4	1,094	5,978%↑

Source: NZ Winegrowers Annual Report, 2012; Benson-Rea *et al.* (2013).

being limited in volume, this has not proved a problem, but as we discuss below, it is an item for consideration in terms of the NZ wine industry's future strategy.

Triple Helix foundations for success

Industry pillar

As noted above, the TH framework must be adjusted for the case of NZ to understand the role of foreign capital as coordinated and guided by the state. NZ's export growth was enabled by foreign investment into three new areas for commercial wine cultivation: Gisborne in the North Island, Marlborough in the South Island, and the more established region of Hawkes' Bay on the East coast of the North Island in the 1970s. By 2002, 82% of NZ's vineyards were in these three regions, due to their favourable climate (Barton *et al.*, 2007, p.233). The first commercial vineyards in Marlborough date back only to 1973. Montana, with the capital injection from Seagram's, became a market leader in terms of vineyard management and new R&D. More importantly, it worked towards producing higher quality grapes that were suited for the local *terroir*, and became active in seeking international recognition through wine competitions (Barker *et al.*, 2001, pp.211–12).

The impetus provided by the growing wine companies was further developed by a NZ government programme to build export capability through its international trade promotion body, now New Zealand Trade and Enterprise (NZTE). That body provided a proportion of the set-up costs of the informal structures which built exports to NZ's first key wine market, the UK, and is helping it to build similar groups and positions more recently in newer markets such as the US and China. The grouping known as The Wine Guild (Wilson and Benson-Rea, 2004), was a user-pays grouping which set up joint visits and tasting events in the UK. The funding support received from NZTE was supplemented by contributions from the individual wineries. The success of this user-pays joint cooperation initiative led to the formal establishment of a representative office in London (the industry's first international office) and the example of the UK Wine Guild to grow the UK market was replicated in other markets, such as the US.

New Zealand Winegrowers: the mediating institution between local producers, the state and MNCs

The key to understanding how multinational investment in the NZ wine industry has contributed to the growth of the national industry, with wider national benefits, lies in the industry's institutional configuration, at the heart of which is the central coordinating body. That body is New Zealand Winegrowers (NZW), the national organisation that represents all wineries and grape growers in the country. It was established in 2002 as a peak association through the merger of the NZ Grape Growers Council and the Wine Institute of New Zealand (WINZ, the body representing wine companies). According to insiders who were interviewed for this study (see the Acknowledgements section), there was a growing recognition of the overlap of both functions and interests among the Grape Growers Council and the Wine Institute. For example, both had been conducting research, lobbying and monitoring on behalf of the industry. In addition there was a growing realisation of the need for a new industry strategy. The development of a unified institution 'has vastly reduced coordination problems', according to industry sources. An in-depth survey of member opinion is conducted on a regular basis which consistently finds support for both the organisation and the company levies on the sale of grapes and wine which fund it. Users also pay for additional activities, such as joint marketing initiatives, in-market visits and trade shows and other sponsored events (as discussed above). It deals with an array of industry issues, from research to legal to marketing issues, including export promotion. As Barker *et al.* state, WINZ was the most important institution:

> a formative institution, … a pivotal agent of co-ordination and integration in the industry's recent growth. WINZ plays a key role in mediating international, national and local regulatory and market influences for its membership. It has conducted strategic planning for the industry and acted to establish an industry position … WINZ represents the most explicit link between the industry and state through its legislated nature and is accepted by the state as the voice of the industry … It informs its members of

> legal issues, organises research and runs a national wine competition. WINZ has assumed management of 'Brand New Zealand Wine' and the collective interests embodied in it, and it promotes and protects the brand. (Barker *et al.*, 2001, pp.217–18)

The interesting element in this case, in terms of our enquiry into how the TH works in practice in the global wine industry, is that it appears that the NZ state does not play the central role. Rather, a local public institution creates both vertical integration with grape growers and mediates among the state's minimal policy apparatus, domestic producers and multinationals. So, the most important question for this case is how TH coordination can be achieved in the context of potentially widely opposing interest groups?

In answering this question it is important to recognise that the authority vested in NZW comes primarily from its recognition by the state as the peak organisation for guiding the industry, granting it the public authority it needs to succeed. Rather than being absent, then, the state plays a complementary role in corporatist-type fashion as a partner in the effort. Governance of NZ Winegrowers operates on the basis of a consensus system. According to insiders, members of its board and committees are voted in, but candidates are chosen informally to represent the different interests throughout the industry, including small, medium and large companies (defined by sales volumes[1]), as well as by region. The board of 12 directors includes seven from the Wine Institute and five from the Grape Growers Council. The body's Wine Research Committee helps to set the strategic direction and funds R&D projects for the sector. These are funded by the system of members' levies and are usually contracted out to local universities as we discuss below. In addition there are committees in the different regions, which receive a proportion of the levies. There is some contention over the relative allocation of the regional amounts (author interviews). This may not be surprising as New Zealand occupies a large geographic area in relation to its small population, with two main islands that have quite different production profiles. In this sense, the issues seem to be similar to those in Australia and California in terms of industry concentration in certain areas, with the possible neglect of emerging or more remote ones.

One of the keys to NZ's success is that the state has promoted a national brand, rather than relying purely on the efforts of multinationals, thus benefitting locally-owned producers as well. NZW runs international offices in the UK, the US, Australia and Canada, and there are discussions about opening an office in China. Industry insiders see the role of these offices as crucial to promoting the national brand. The offices mount wine events and promotions, as well as entering wines into international competitions on behalf of wineries, on a user-pays principle. NZ Winegrowers occasionally hires consultants to produce market intelligence reports and to test the national brand in key markets. Beyond this is the fact, as we discuss further below, that the focus on producing some of the highest quality Sauvignon Blanc in the world brings the focus of the different players, the multinationals, local industry, the state and researchers, together. Thus, we would argue that NZ has a varietal brand as well as a national one.

Research institutions

One of the dimensions the TH framework lacks is a sense of financial flows among the different spheres of action. Yet financial resources are the prime catalyst of research and marketing activity, as we see in the accompanying cases. In successful cases such as Australia and Oregon, there is a steady flow of reliable resources, while in cases where parts of the industry struggle, such as South Africa and New York, resource provision is concentrated and/or less reliable. As in the other success stories, a well-functioning levy system is at the heart of NZ's success. NZW imposes levies on the basis of the number of bottles sold (NZ$2.50/bottle) and the volume and value of grapes sold (7.5% of the value). Members vote every six years on whether to continue the levy. The NZW Board of Directors allocates percentages of the levy to the different functional areas, namely, research, marketing, regulation (lobbying) and sustainability. These allocations are then ratified by the two constituent member bodies, the Grape Growers Council and the NZ Wine Institute. The democratic decision-making and participatory approach in creating these financial flows appears to be another feature NZ shares with the other success stories, an aspect again neglected so far in the TH framework, which presupposes cooperation.

Research for the NZ industry is directed in close coordination with the public research institution, Plant & Food Research, run as an independent company and institute, which coordinates research contracts with universities, following the strategy set by NZ Winegrowers. In 2010, NZ Winegrowers announced the renewal of a 2004 grant in the form of a $12 million, six-year government-funded research grant focused on Sauvignon Blanc and awarded to Plant & Food Research, the Marlborough Wine Research Centre (also public), the University of Auckland and Lincoln University. A new similar effort has begun on Pinot Noir. According to insiders, the general approach to research prioritises learning and contracting-out to acquire state-of-the-art knowledge for the industry from elsewhere, since NZ's capacity is limited. Lincoln University's Centre for Viticulture and Oenology is a key R&D centre and includes extension and business research as its priorities. It offers a Bachelor's degree in Viticulture and Oenology. The University of Auckland runs a Wine Science programme at the postgraduate level, the Wine Industry Research Institute, with 16 faculty members, and a major science-based research programme through the School of Chemical Sciences. As in other clusters, there are various other diploma and certificate programmes. The NZ Society for Viticulture and Oenology has the mission to disseminate technical information to the wine industry. A voluntary membership organisation with eight board members, it runs conferences and supports research. The Society's activities appear to be surpassed now by the annual Romeo Bragato Conference that is run by NZ Winegrowers for the industry, as well as workshops and conferences by the universities and institutes (author interviews).

The industry body has a research database to enable dissemination of technical knowledge. According to insiders, agricultural extension is a challenge that has been recognised in recent years as deserving more attention. The industry is trying to set up a system whereby measurable outcomes, generally industry growth and income, can be traced to activities on the ground. Hence there is a growing recognition of the need to have intermediaries who are good communicators and can translate scientific research (including that conducted internationally) into usable results for farmers and winemakers (author interviews).

Policy pillar

While industry is the dominant partner in the NZ Triple Helix, as noted above, the state has played an important complementary role, not only through funding and running public research institutes, but also through the NZ Ministry for Primary Industries' regulation of quality certification. Here again, the state provides more of the element of public authority for what is largely a self-enforced industry system. While imports were liberalised during the period 1986–90, Barker *et al.* (2001) contend that efforts to improve quality through regulatory and industry efforts date back to the 1950s. In fact, they suggest that protectionism led to a surge of foreign investment during the 1960s and early 1970s. The Wine Maker's Levy Act of 1976 empowered the Wine Institute of New Zealand, and the Wine Maker's Act of 1981 made membership by wine producers compulsory. Whilst state-backed research led the quality revolution in wine in the 1980s, this has reduced and indeed the government's role in other sectors, such as kiwi fruit, has been considerably more active.

Strategic concerns

Ultimately, NZ's national strategy for wine rests upon the high quality production of a niche product. NZ does not rely upon a regulated *appellation* system or on explicitly defined quality levels to distinguish its wines. All exports must pass a taste test run by NZ Winegrowers to ensure that the wine is fault-free, however, this is not a quality measure. NZ clearly specialises in Sauvignon Blanc, which constitutes 51% of its production in 2009, while Pinot Noir (14%) and Chardonnay (12%) are far behind (NZ Winegrowers, 2012). NZ is widely considered to produce some of the world's best Sauvignon Blanc, and it focuses efforts to improve knowledge about both the *terroir* and winemaking techniques around it. Global wine industry sources point to the unique and identifiable character of NZ (especially Marlborough) Sauvignon Blanc and there are now some initiatives to put more effort into Pinot Noir as well. From the 1980s, on the basis of clonal material imported from France, NZ pioneered the production of affordable Pinot Noir in the two key regions of Central Otago and Martinborough. It remains to be seen whether diversification into this new, relatively price and demand inelastic varietal can succeed on a larger scale.

As is the nature of such embedded phenomena, and in common with our other cases, it is hard to identify definitively the sources and persistence of the consensual approach in NZ. As with the Australian wine institutions (see accompanying article), the key NZ institutions for the wine industry are all housed in the same building in Auckland, and not far from regulatory bodies, allowing for the development of strong personal networks. Personal ties are a key feature of the industry (author interviews) and institutional co-location, together with the small size of the NZ population and the resulting social proximity of elites, reinforce the wine-related networks in NZ.

We have noted throughout this analysis the importance of state authority for enabling industry collective action (public) institutions to function well. Yet, it is important not to conclude that the state alone can (and does) mandate such coordination. Indeed, industry insiders state that consensus formation preceded the creation of NZ Winegrowers. NZ wineries were originally (and some continue to be) run largely by families who have historically cooperated intensely in the process of learning how to improve quality. The entry of the multinationals in the 1980s occurred at a time of domestic industry crisis, and provided much needed financial investment for expansion of production as well as global distribution channels. According to some interviewees, the multinationals have been deferential at times in their approaches, working gradually at changes in the industry, and aiming for cooperation with local producers.

Given the apparent importance of personal and tacit ties underlying the successful building of coordination and consensus, one could question whether the breaking of such ties could undermine institutional effectiveness. Benson-Rea *et al*. (2013) have suggested that: 'Offshore ownership of New Zealand wineries reduces the availability of social capital among industry players' and indeed the influence of a broader network of social and economic institutions on industry strategies is potentially a rich area for further research (Benson-Rea *et al.*, 2013). In fact, some interviewees questioned whether this might occur as a new generation of winemakers takes over, including the replacement of the pioneering scions and, in some cases, key local management and winemakers with foreigners. Since there is a national brand, however, even the foreign multinationals have a stake in the reputation of local production and quality. Their success in international markets as well as their buying power domestically has helped the multinationals to gain the trust of local industry players. Industry insiders, however, reinforce the view that the real formula for NZ's success can be related to the governance system, which allows for representation by size and region on the one hand, with a duty to protect the national brand interest alongside private ones on the other. As interviewees universally pointed out, behind all of this are long-standing personal relationships.

In sum, there are clearly major challenges for NZ. If consumer tastes in the key export markets such as Australia move away from Sauvignon Blanc, there could be serious consequences. Moreover, NZ's high exchange rate has created issues for exporters, though the exchange rate with Australia has been favourable. From approximately 2008 to 2012 there was an oversupply of grapes in NZ, with the number of hectares devoted to wine grapes growing from 10,197 in 2000 to 33,428 in 2010, an increase of 228%. Wine grape production increased 15% between 2010 and 2011 alone (Scandurra, 2011, n.p.). Grape contracts are completed on the basis of individual negotiations between growers and wine companies. The 2011 Winegrowers Annual Report notes that the average bottle price stayed strong at \$8.73/litre, but this understates the growth in bulk exports which have developed alongside NZ's packaged wines and branding as a high quality producer of Sauvignon Blanc. Bulk wine exports went from 9% of the total in 2008 to about 28% in 2010 (Scandurra, 2011, n.p.), with much being shipped via the multinationals for bottling elsewhere and the rest being sold under NZ labels. According to company sources, grape growers have had flat profits, particularly in Marlborough, and a few have gone out of business. Simply put, the costs of production are higher in NZ, by one estimate 3.5 times higher than South Africa, for example (NBNZ, 2012, p.10). Bulk wine does not contribute the same level of revenues. Smaller producers have seen large declines in per case revenue from 2007 to 2011 (NBNZ, 2012, p.5). Meanwhile, land prices have declined over the past year, raising questions about possible effects on borrowing (since land is used as collateral) (Deloitte, 2011, pp.13 and 15).

The dangers of the current situation are well-reflected in a 2011 article highlighting Peter Hubscher's (a pioneer of the industry and former CEO of NZ's largest wine company, Montana) views on the matter (Du Fresne, 2011). Hubscher points to the 'short-sighted' views of the multinationals that increased Sauvignon Blanc production so much over the preceding five years that it risks becoming a 'commodity' item, with overproduction fuelling bulk exports and undercutting price points. The article notes that the takeover of Montana by French multinational Pernod Ricard in 2006 led to the sale and eventual downgrading in the quality of Lindauer, formerly NZ's leading brand of sparkling wine, as Pernod found production of sparkling wine cheaper in Australia. Hubscher contends that 55% of NZ wine is now sold for less than \$10/bottle and 97% for less than \$15, potentially contradicting the long-term NZ strategy of a high quality niche focus. NZ wine companies have managed their wine production to await the return to balance in the supply of and demand for grapes. More drastic action may be needed in future.

There are some concerns by interviewees that the bulk wine sales will hurt the overall quality reputation of NZ wines. As a result, NZ Winegrowers recently commissioned a study by Price Waterhouse Coopers (PwC, 2011) to examine whether price erosion had resulted from the oversupply or reductions in consumer perceptions of NZ wine. While the study concluded that oversupply was the cause, there are still concerns about the need to continue improving quality. However, one of our interviewees noted that the real issue is for mid-range price producers. High-end producers have brand recognition, but middle-range price points could be tainted if they are relying solely upon a national brand. They also point out that timing matters: the flood of investment into the industry in the 1990s raised land prices, so late entrants, especially those on a small scale who are highly leveraged, may be the most vulnerable.

NZ challenges to the Triple Helix model

What we see in the case of NZ as a small producer is that the niche strategy of specialisation can lead to a TH system focused on that one product, and able to thereby compete in world markets. Yet we also must recognise the dangers of such an over-concentration of efforts, even given the overall limited production quantity that a smaller producer puts on the market. If NZ wine's reputation for excellence rests on continuing demand for Sauvignon Blanc, and it goes out of fashion, a major adjustment process not only on the production side but also in the TH would be required, thus revealing yet another factor missing from the traditional TH framework, namely the dynamics of the flexibility or adaptability of the innovation system.

Recognising these issues, New Zealand's industry has attempted to move consumer recognition beyond the type of wine it produces, to also promote a national brand around sustainability and associations with the natural beauty of the country. According to insiders, the idea of sustainability gained momentum in the mid-1990s around the outbreak of agricultural health issues such as 'mad cow' disease. These issues led to the argument that it was in the industry's long-term interests to pursue sustainable viticulture and winemaking practices. The initial programme focused on improving vineyard practices, but has widened over time. The 2003 Wine Act allows for the regulation of standards in winemaking including separate standards for export licences. Winemakers must have in place a registered wine standards management plan. In 2007, NZ Winegrowers developed a new strategy, Sustainable Winegrowing New Zealand (SWNZ), to promote sustainable practices including independent environmental audits, throughout the industry. The goal is to reach 100% membership of SWNZ by 2012, and currently around 95% of NZW members have been accredited. NZ Winegrowers requires SWNZ compliance for participation at its events, and the certification allows wineries to use the SWNZ logo.

The sustainability strategy is crucial for a number of reasons. According to industry insiders, there is consumer preference for the principle but not necessarily willingness to pay a price premium for it. In North America, there is sometimes an association of organic wine with low quality wine, which presents another barrier. However, NZ insiders believe that UK and Japanese consumers in particular value this characteristic. Moreover, the movement in demand appears to be based on the personal values of the consumer, rather than price points. Some industry insiders also see it as a 'defensive strategy', which anticipates the further development of regulations around sustainability, particularly in Europe. Since these could require the indication of the product's carbon footprint – transport being a key factor given NZ's geographic isolation – it is hoped that this would be offset by the other sustainability standards the industry is building. In strategic terms, some see this as essential to maintaining NZ wine's premium high quality positioning, whilst others see it as the new threshold capability, as new components which raise the quality bar once again.

Conclusion

Overall, NZ provides a strong case to support the view that quality institutions are behind economic and business success. However, other aspects stretch the Triple Helix concept further through its application to the New Zealand case. As one insider put it, simply copying NZ's model would not make sense for other countries, as the informal institution's influence on the local culture enables coordination and cooperation that underlie formal institutional success. NZ demonstrates that specialisation in a certain varietal (or two) can allow even a relatively small industry to create a global reputation, provided that a long-term plan backed by a coherent set of institutions reinforces the production of high quality, mid- to high-priced wine. Thus, the Triple Helix works precisely because specialisation enables consensus around a long-term strategy, in turn enabling coordination around a common understanding of the aims. Moreover, it shows that the strong multinational presence need not lead to the over-riding of local interests. Hubscher (Du Fresne, 2011) summarises this most aptly by stating that wine industries succeed when they have a long-term vision, but 'Constructing a long-term vision is slow, systematic, and expensive'. Finally, NZ also shows the continuing vulnerabilities of small economies. Even if they should succeed in capturing global market share in a niche product, they must be perpetually vigilant for the need to adjust their strategy to meet changing demand. If strong institutions are at the heart of competitive success, as this special issue contends, then flexibility in those institutions is equally important.

Acknowledgements

The authors would like to thank Genome Canada, Genome BC, Simon Fraser University, and the University of British Columbia for their financial support of this project. Field research was conducted via email and Skype in spring 2012, and in-person interviews in New Zealand in June 2012. The University of Auckland's Wine Industry Research Institute and the Wine Business Research Group and New Zealand Winegrowers were especially helpful.

Note

1. Small: annual sales <200,000 litres; medium: annual sales between 200,000 and 4 million litres; large: annual sales >4 million litres (www.nzwine.com).

References

Barker, J., Lewis, N. and Moran, W. (2001) 'Reregulation and the development of the New Zealand wine industry', *Journal of Wine Research*, 12, 3, pp.199–222.

Barton, J., Gwynne, R. and Murray, W. (2007) 'Competition and co-operation in the semi-periphery: closer economic partnership and sectoral transformations in Chile and New Zealand', *The Geographical Journal*, 173, 3, pp.224–41.

Benson-Rea, M., Brodie, R.J. and Sima, H. (2013) 'The plurality of co-existing business models: investigating the complexity of value drivers', *Industrial Marketing Management*, 42, 5, pp.717–29.

Brodie, R., Benson-Rea, M. and Lewis, N. (2008) 'Generic branding of New Zealand wine: from global allocator to global marketing', *4th Annual Conference of the Academy of Wine Business Research*, Siena, Italy, 17–19 July 2008.

Deloitte, (2011) *Vintage 2011: New Zealand Wine Industry Benchmarking Survey*, Deloitte, Auckland.

Du Fresne, K. (2011) 'The grapes of wrath: the man largely responsible for making Montana the jewel in New Zealand's wine crown is alarmed at how an industry with so much promise has been placed at risk', *New Zealand Listener*, 19 February, available from http://www.listener.co.nz/commentary/the-grapes-of-wrath [accessed January 2014].

Deloitte, 2011, *Vintage 2011: New Zealand Wine Industry Benchmarking Survey*, Deloitte, Auckland.

Du Fresne, K. (2011) 'The grapes of wrath: the man largely responsible for making Montana the jewel in New Zealand's wine crown is alarmed at how an industry with so much promise has been placed at risk', *New Zealand Listener*, 19 February, available from http://www.listener.co.nz/commentary/the-grapes-of-wrath [accessed January 2014].

Hayward, D. and Lewis, N. (2008) 'Regional dynamics in the globalising wine industry: the case of Marlborough, New Zealand', *The Geographical Journal*, 174, 2, pp.124–37.

Hira, A. (2014) 'Mapping out the Triple Helix: how institutional coordination for competitiveness is achieved in the global wine industry', *Prometheus*, 31, 4, pp.271–303.

National Bank of New Zealand (NBNZ) (2012) *NBNZ Agri-Focus*, March, Report.

New Zealand Winegrowers (2011) *Annual Report*, New Zealand Winegrowers, Auckland.

Price Waterhouse Coopers (PwC) (2011) *New Zealand Winegrowers: Strategic Review*, New Zealand Winegrowers, Auckland.

Scandurra, L. (2011) *New Zealand Wine Report 2011*, GAIN Report NZ1104, 18 March, USDA, Washington DC.

Wilson, H. and Benson-Rea, M. (2004) 'Coopers Creek and the New Zealand wine industry' in Johnson, G., Scholes, K. and Whittington, R. (eds) *Exploring Corporate Strategy: Text and Cases*, 7th edn, Prentice Hall, London.

Industry websites

Lincoln University, Centre for Viticulture and Oenology: http://www.lincoln.ac.nz/Research-at-Lincoln/Research-centres/Centre-for-Viticulture-and-Oenology/.

New Zealand Food Safety Authority: http://www.foodsafety.govt.nz/index.htm.

New Zealand Plant and Food Research: http://www.plantandfood.co.nz/.

New Zealand Research Database: http://nzresearch.org.nz/index.php/search/results?query=wine&x=0&y=0.

New Zealand Society for Viticulture and Oenology: http://www.nzsvo.org.nz/.

New Zealand Winegrowers Association: http://www.nzwine.com.

The University of Auckland, Wine Business Research Group: http://www.business.auckland.ac.nz/uoa/home/about/our-research/bs-research-groups/wine-business-research-group-wbrg.

The University of Auckland, Wine Industry Research Institute: http://www.winescience.auckland.ac.nz/uoa/home/about/our-research/wine-industry-research-institute-wiri.