



Inquiry into the Australian Innovation System **Supplementary Materials**

An essential missing element in Australian innovation policy is value chain forging strategies

Innovation policy must focus not just on national research and human capability development, but on Australia's position in global value chains. Prior research shows that there is increasing concentration (or lower competition) at bottlenecks in global markets (often in retail and distribution, but also in entertainment and media industries and mining/metals). Firms that are located bottlenecks in global value chains have incredibly high bargaining power when interacting with small and medium enterprises (SMEs) that are located at high risk and highly competitive segments of the value chain. This is a significant problem for equipment, technology and knowledge service SMEs in Australia that are supplying global multinational corporations (MNCs).

Many Australian SMEs are located in the high risk, highly competitive end of global value chains. Arguably these Australian SMEs are making a significant contribution to value creation through the application of human skill and the development of new technologies. However, it is very difficult for SMEs to appropriate the value they have created in their negotiations with global multinational corporations located at highly concentrated points in the global value chain (Parker and Cox 2013; Parker, Thompson and Cox 2014).

If Australian innovation policy only pays attention to the research sector and to commercialisation and start-ups, it will fail to address the dynamics of global value chains which create barriers to firm growth and value appropriation.

Policy to support firm growth

In order to address this problem, Australia's innovation policy needs to support the growth of large diversified Australian multinational firms. The growth of large knowledge and technology intensive Australian multinationals is important because such firms have stronger bargaining power in global value chains and are better able to appropriate value from global markets associated with the application of Australian skills and technologies. There are some examples of success, such as GHD and ORICA, but there is also evidence of much greater potential for the growth of Australian multinational firms than has been realised.

A range of initiatives are required to support the development of Australian technology and knowledge intensive multinational firms. These include:

- facilitating links between the finance sector and industrial sector to better educate the finance sector about opportunities in particular industry sectors, to facilitate deep



- engagement between the banking sector and industrial firms in Australia and to improve the opportunities for Australian firms to access debt financing
- the provision of business advisory programs which support technology firms in the acquisition of managerial and marketing skills necessary to diversify and globalise their business.

Value chain forging policy

The role of government has become critically important in order to balance the very substantial power of global lead firms that are able to increasingly benefit from local resources and capabilities and which have unequal bargaining power relative to small firms operating in competitive segments of global markets. The Australian government should consider the strategies adopted in other nations to work with MNCs to provide incentives for them to springboard Australian firms into global markets. Governments provide significant resources to foreign MNCs (access to Australian resources, Australian government procurement, skilled labour, infrastructure, R&D, tax incentives), and should consider the option of negotiating returns for Australian SMEs in that process that enable Australian SMEs to grow and prosper in global value chains. In doing so, Australia should look to the many international examples of government policy in this area.

Some examples of government initiatives of this kind:

- Ponte (2014) shows that Brazil, US and EU all enacted deliberate industry development or ‘value chain-forging’ policies (p. 353) in the development of bio-commodities industries (particularly biofuel) although they did so for different reasons at different times (environmental/climate change considerations, energy security concerns and/or the pursuit of rural development and diversification opportunities). In Brazil, a range of government policies included investment in research and engineering to support the scientific and technical basis for industry development, financing logistics, capital goods and innovation. In the US, the government supported the industry through Federal government procurement and subsidized loans to farmers (Ponte 2014: 363), tax credits and incentives for feedstock research and renewal of production facilities. In the EU, government supported the development, commercialisation, and scaling-up of ‘next-generation’ technologies (Ponte 2014: 364).
- In 2005, the Chilean government’s development agency, CORFO, sponsored a ‘dialogue’ between government and industry actors aimed at developing a strategy to intensify the effects of mining development along the mining value chain in Chile. A major objective of the policy initiative was to strengthen relationships between mining companies and Chilean suppliers. As part of the process, BHP Billiton established a new initiative to develop “World Class Suppliers to the Global Mining Industry” in Chile (OECD 2013).
- In Norway, the development of technology and knowledge suppliers in the oil industry arose from



government action by which “local content requirements were incorporated into all oil licenses to encourage the development of the infant petroleum industry” and the requirements were monitored/overseen by a government organisation (Hunter 2014: 121). Local content requirements are used widely throughout resource rich countries in order to ensure that ‘resources, as initial assets, can be transformed into broader-based development by promoting cross-sectoral linkages and diversification’ (Bastida 2014: 73). In Bastida (2014: 77) it is reported that McKinsey (2013) has estimated that 90 percent of resource-driven economies use different forms of local content regulation. While WTO requirements need to be complied with, the Australian government should consider whether it is possible to develop oversight of a general recommendation for preferential treatment for local suppliers in particular knowledge intensive and technology intensive segments of the supply base (Bastida 2014). Careful research into the approaches adopted by governments elsewhere that are similarly bound by WTO requirements is necessary to determine potential options for Australia.

- The original senate submission provides further examples of such initiatives including the Brazilian government’s development of the consumer electronics industry and the development of the liquid crystal display (LCD) industry in South Korea.

Additional References

1. Organisation for Economic Co-operation and Development [OECD] (2005). *Guidelines for Collecting and Interpreting Innovation Data*. (3rd ed.). Retrieved from: <http://www.oecd.org/innovation/inno/oslomanualguidelinesforcollectingandinterpretinginnovationdata3rdedition.htm> Accessed 30/03/2015.
2. Ponte, Stefano (2014) “The evolutionary dynamics of biofuel value chains: from unipolar and government-driven to multipolar governance” *Environment and Planning A*, 353-372
3. Bastida, A (2014) “From extractive to transformative industries: paths for linkages and diversification for resource-driven development”, *Mineral Economics* (2014), 27: 73-87
4. Hunter, T (2014) “Law and Policy frameworks for local content in the development of petroleum resources” *Mineral Economics*, 27: 115-126
5. McKinsey Global institute (2013) Reverse the Curse, Maximising the potential of resource-driven economies, available at http://www.mckinsey.com/client_service/metals_and_mining

Professor Rachel Parker
Assistant Dean (Research)
QUT Business School