

Manufacturing: The New Consensus

A Blueprint for Better Jobs and Higher Wages

June 2013



Contents

Acknowledgments

Executive Summary

Recommendations

Chapter 1: The Inquiry

- Introduction
- Terms of reference
- Chair, membership and meetings

Chapter 2: Manufacturing in New Zealand: contemporary structure and background

- Manufacturing in New Zealand: background
- The Contemporary Debate
- The Strategic Dimension
- The Global Future of Manufacturing

Chapter 3: Analysing the Submissions

- Passion and Commitment
- The Pressing Challenges
- The Broader Factors

Chapter 4: Ways forward and Recommendations

Bibliography



Acknowledgements

The Chair wishes to acknowledge the support offered to the Inquiry by many people.

The many submitters are to be congratulated for the time and effort involved in writing and presenting wide-ranging, informed and often passionate submissions.

The MPs, who constituted the Inquiry panel, or who participated during its hearings, devoted much time and effort to its successful conclusion.

The support staff, and, in particular, Richard Bicknell, who managed the logistics of the Inquiry and added greatly to the efficiency of its work.



Executive Summary

The message of this Inquiry and Report is simple: a strong and successful manufacturing sector is vital for improved export performance, better jobs and higher incomes in New Zealand. Moreover, we can do a great deal more to support a sector that has been marginalised for a generation and faces continuing pressure on many fronts. Whilst recognising that the primary sector will always play an important role in our economy, it alone cannot deliver the standard of living to which we aspire, especially as our population grows.

Submitters have described in great detail the challenges they face under current policy settings, especially in comparison with manufacturers in other countries. The primary concern is the value and volatility of the New Zealand dollar, and its impact on investment strategies, profitability, and the survival of manufacturing exports. Submitters have made it clear that the very survival of elaborately-transformed exports is at risk. Manufacturers believe that most politicians do not understand the long-term significance of this situation.

Manufacturers are clear that government could adopt policy settings that support manufacturing and contribute to improved economic performance and standards of living in New Zealand. The Inquiry believes that there are significantly better macro-economic tools available to government, which can be supported by a range of other policy settings.

The Inquiry believes that this report provides a realistic, informed, and comprehensive frame work for action. Urgent action as proposed in this report is necessary if we are to meet New Zealanders' aspirations.

The Inquiry has been given ample evidence of the passion, innovation, creativity and commitment to New Zealand that abounds in our manufacturing sector. It also understands the opportunities offered by the sector for rewarding, high-pay, high-skill, sustainable jobs. Many New Zealand manufacturers, especially in the elaborately-transformed sector, have established international reputations as leading-edge innovators. They see tremendous opportunity in the global economy in more sophisticated and clean manufacturing, with consequent benefits for the domestic economy.

The Inquiry offers a comprehensive range of policy settings designed to support a successful manufacturing sector able to sustain itself beyond a limited domestic market. The members of the Inquiry recommend the urgent adoption of these settings, and a long-term political commitment to their implementation.



Recommendations

Major recommendations

Recommendation 1: The government adopt macroeconomic settings that are supportive of manufacturing and exporting, including:

- a fairer and less volatile exchange rate through reforms to monetary policy;
- refocusing capital investment into the productive economy, rather than housing speculation;
- and lowering structural costs in the economy, such as electricity prices.

Recommendation 2: New Zealand businesses are encouraged to innovate. Research and Development tax credits, with a stronger emphasis on development, should be introduced as part of a package for innovative manufacturing, supporting exports and quality jobs.

Recommendation 3: The Government adopt a national procurement policy that favours Kiwi-made and ensures that New Zealand manufacturers enjoy the same advantages as their international competitors.

Additional recommendations

Recommendation 4: The tax system is used to boost investment in new technology and machinery. An accelerated depreciation regime should be implemented for the manufacturing sector.

Recommendation 5: A wide range of funding is available for manufacturers to invest in their business and employees. Measures to encourage the availability of venture capital and mezzanine funding should be continued, including government funds through commercial-managers.

Recommendation 6: Businesses are supported to achieve 21st Century organisation and practices. Policies such as NZTE's focus on Lean Management, and the work of the High Performance Work Initiative should be extended. Apprenticeship training support for the sector should be reviewed immediately.

Recommendation 7: Manufacturers are given a voice in FTA negotiations. From the outset of FTA negotiations the interests of manufacturing must be explicitly addressed. Negotiating teams must keep the sector informed.

Recommendation 8: Measures to encourage foreign direct investment in manufacturers should be consistent with the strategic direction of New Zealand's manufacturing and exports.

Recommendation 9: Government should lower compliance costs wherever they can be consistent with maintaining New Zealand's values including workers' rights, environmental standards, and product quality assurance.

Recommendation 10: Manufacturing's ability to create jobs and boost exports should be recognised in national, regional and industry policies.

Recommendation 11: Taskforces of government local government, businesses and unions, be established to assess and act on new business and job opportunities in the wake of major closures or restructuring in the manufacturing sector.

Further details on these recommendations are to be found on page 28 and following.



Chapter I: The Inquiry

Introduction

On 12 October 2012 the Labour Party, Greens, New Zealand First and Mana launched a parliamentary inquiry (the Inquiry) into the condition of New Zealand's manufacturing sector. The Inquiry reflected growing public discussion and concern about the manufacturing sector's performance, particularly on the one hand, in terms of concerns expressed by manufacturing exporters about the impact of the high dollar on their business performance, and on the other, around concerns about plant closures and job loss in the sector, and their implications for New Zealand's longterm economic performance.

Terms of Reference

The terms of reference of the Inquiry were:

“..... to ascertain the problems confronting manufacturing and policies that political parties can adopt to best deal with those problems. While each party will develop its own policy platforms for the next election, this inquiry aims to provide concrete ideas that can get manufacturing in New Zealand working again.

Specific questions that the inquiry will seek to answer will include:

- Why have a net 40,000 manufacturing jobs been lost in the four years to June 2012?
- Which industries and regions have been particularly hard-hit, and what specific factors have contributed to these jobs losses?
- How has government policy contributed to the crisis in manufacturing?
- What is the role of manufacturing in the economy?
- What are the opportunities for New Zealand of a revived manufacturing sector?
- What can government policy do to revive manufacturing? What roles can be played by:
 - Fiscal policy
 - Monetary policy
 - Economic development policy
 - Systemic business policies
 - Industry strategy
 - Regional development



- Regulatory reform
- Crown commercial activities (including SOEs)
- Innovation, education, and skills

The Committee will not be limited to answering only these questions, but may explore any issues that arise in relation to the aim of the Inquiry.”

Chair, membership and meetings

The Inquiry was chaired by Christchurch business leader, Cameron Moore.

The following MPs participated in the Inquiry:

Party Leaders:

David Shearer

Dr Russel Norman

Rt Hon Winston Peters

Hone Harawira

Committee Members:

Hon David Parker

Denise Roche

Andrew Williams

Dr Megan Woods

Other members who took part:

Hon Clayton Cosgrove

Dr David Clark

Phil Twyford

Andrew Little

Julie-Anne Genter

Gareth Hughes

The Inquiry received 128 submissions. Hearings were held in Wellington (28 January), Auckland (18 February), Christchurch (11 February) and Dunedin (11 March).

The Inquiry was also supported by an Expert Adviser and Report Writer, Professor Nigel Haworth, of the University of Auckland Business School.



Chapter 2: Manufacturing in New Zealand: contemporary structure and background

The current structure of New Zealand manufacturing is captured by the Reserve Bank in Figure 1. In the June 2012 Quarter, it constituted 13.6% of New Zealand's GDP, a figure reflecting a long decline in the significance of manufacturing in New Zealand. In 2007, about 40% of the sector's output was consumed domestically; another 40% was exported. Sub-sectors performed very differently in terms of this measure (see Figure 2). Sub-sector dependence on imports versus exports is found in Figure 3. Figure 4 indicates the destinations and sources of merchandise trade.

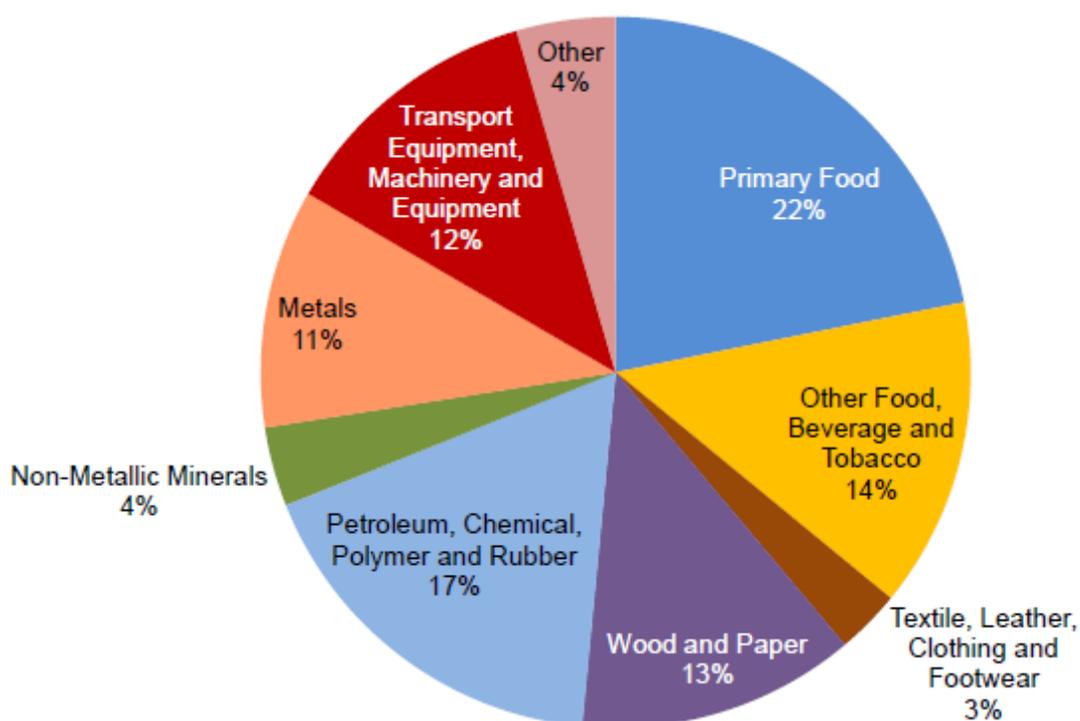


Figure 1. Manufacturing Real Shares to June 2012.

(Price, G. (2012) Building a picture of NZ manufacturing. Reserve Bank of New Zealand Analytical Notes. Retrieved 15 Jan 2013, from http://www.rbnz.govt.nz/research/analytical/AN12_11.pdf)



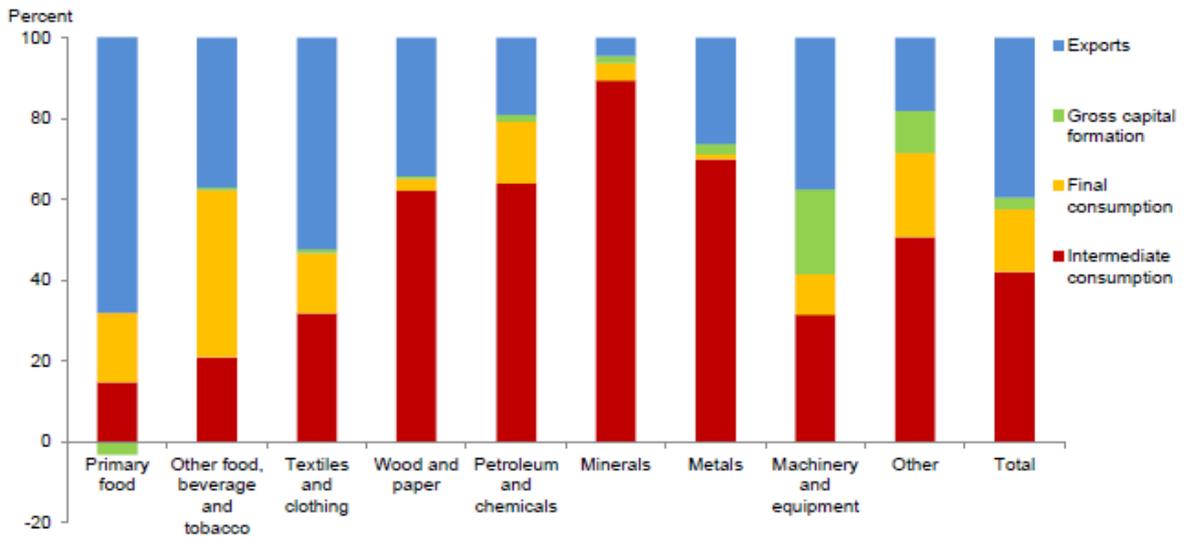


Figure 2: Uses of Manufacturing Output (year ending March 2007) (Ibid.)

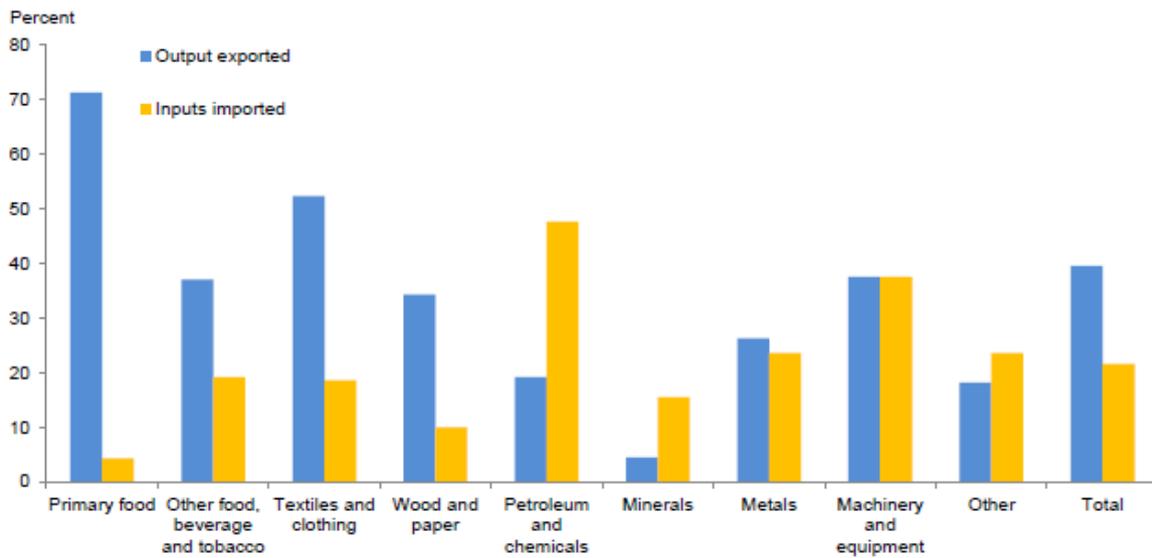


Figure 3: Manufacturing Exports and Imported Inputs (year ending March 2007) (Ibid.)



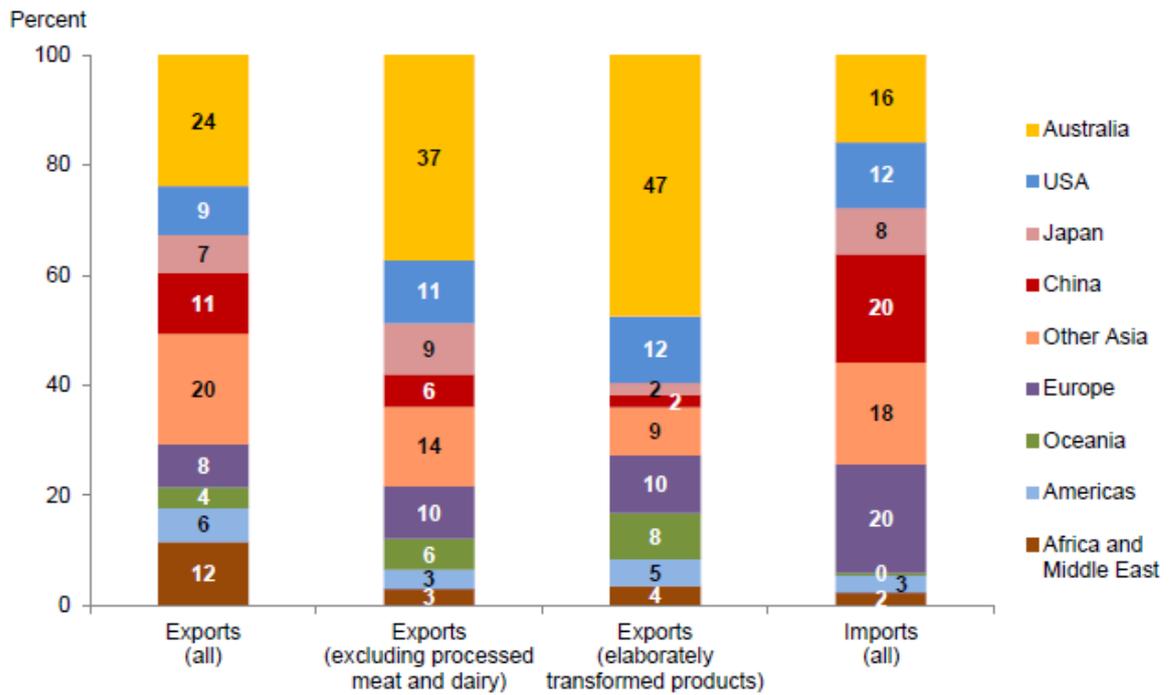


Figure 4: Destinations and sources of Merchandise Trade (year ended June 2007) (Ibid.)

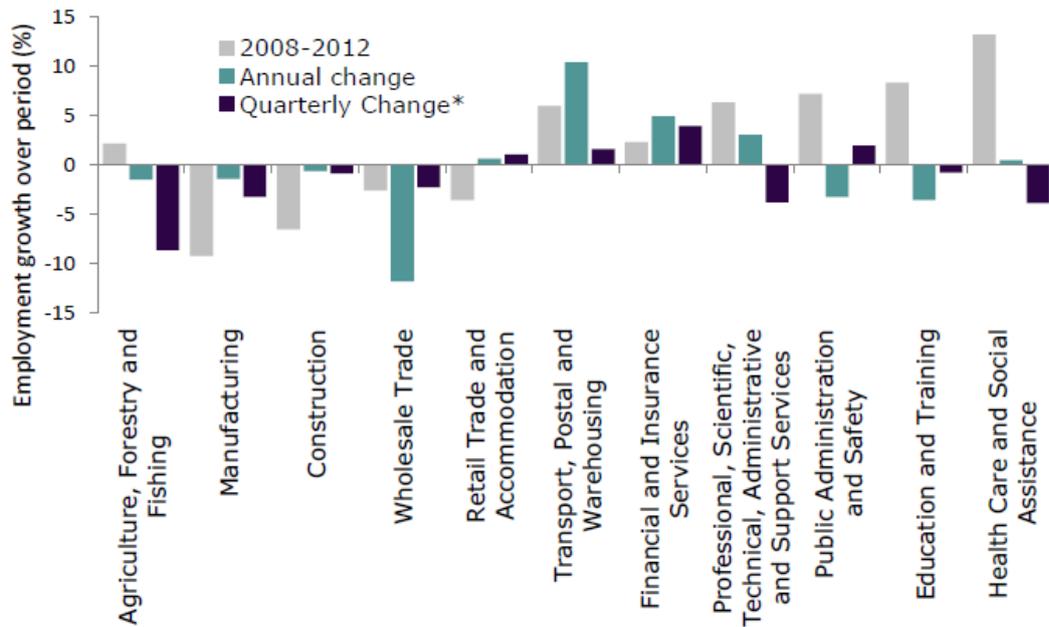
Looking at New Zealand's export profile for 2011, 33% were unprocessed primary products, 37% were processed primary products, simply transformed manufactures were 9%, and elaborately transformed manufactures were 16%. The presence of the primary sector in New Zealand's export performance is striking.

The manufacturing sector employs about 12% of the New Zealand workforce. Its performance in recent years is presented by the Reserve Bank in Figure 5. The recent employment performance of manufacturing compared with other sectors is shown in Figure 6.



Figure 5: Manufacturing Jobs and hours (Price, G. (2012). (ibid.)





Source: Statistics NZ; Ministry of Business, Innovation and Employment
 *Figures seasonally adjusted by the Ministry

Figure 6: Employment Shifts 2008-1012



Figure 7: Labour Productivity (real value per hour, seasonally adjusted)

(Price, G. (2012). Building a picture of NZ manufacturing. Reserve Bank of New Zealand Analytical Notes. Retrieved 15 Jan 2013, from http://www.rbnz.govt.nz/research/analytical/ANI2_11.pdf)

Flat or falling employment in manufacturing, coupled with what the Reserve Bank describes as “modestly rising output”, explains the moderate improvement in labour productivity evident in Figure 7.

The New Zealand Government maintains a modest suite of programmes to offer financial support and advice to the manufacturing sector, particularly through New Zealand Trade and Enterprise for exporters¹.

¹ These are summarized on the BUSINESS.GOV.T.NZ website at: <http://www.business.govt.nz/>



Manufacturing in New Zealand: background

New Zealand's manufacturing development was determined historically by two dominant factors: the long-established and continuing dependence of the New Zealand economy on primary production and exports, and, from the 1930s to the 1980s, an interventionist policy tradition promoting import substitution. The outcome was a manufacturing sector enjoying significant protection from international competition, a modest degree of diversification and, by the 1970s, incentives to promote improved export performance.

In the 1980s and 1990s, market liberalisation rapidly and comprehensively assailed the manufacturing sector. The harbinger of this change was the creation in 1983 of Closer Economic Relations (CER) with Australia, which proposed the rapid removal of tariffs and the removal of import licences and quotas. The policy shifts introduced by the Fourth Labour Government in 1984 included a speeding-up of the CER arrangements and the removal from manufacturing of export incentives. The effect of these changed circumstances was to drive many manufacturing concerns into closure, whilst others shifted production elsewhere. Manufacturing's contribution to GDP fell from 20% in 1987 to 13% in 2011.

In many ways, this parallels shifts occurring elsewhere in the global economy. Manufacturing's share of global GDP fell from 27% in 1970 to 16% in 2010, with a parallel decline in the manufacturing workforce. Many reasons can be offered to explain this decline – for example, the impact of globalisation, which has allowed the massive relocation of investment, often into economies exporting low-cost manufacturing products; the growth of the service sector; changing technologies and production systems. However, as discussed below, the importance of a strong manufacturing sector remains high. If there has been a decline in the GDP contribution of manufacturing over the last thirty years or so, the sector remains an important, even vital component of a dynamic, competitive economy, supporting many jobs, both direct and indirect.

New Zealand's manufacturing's decline was exacerbated in the 1990s by economic downturn, state restructuring of major industrial assets, and further closures. For example, between 1987 and 1990, Northland lost 18% of its manufacturing capacity, Whanganui 20%, Horowhenua 18%, Wairarapa 25%, Central Otago and Clutha 35%. Manufacturing sub-sectors particularly badly hit in the restructuring of the 1980s and 1990s included petroleum, chemical, polymer, and rubber product manufacturing, food, beverage, and tobacco sectors and textile, leather, clothing, and footwear.

The benefits of the 1980s and 1990s deregulation were at best mixed for manufacturing. Manufacturing's contribution to GDP continued to fall through the 1990s and 2000s. It is in this period that the segmentation of the manufacturing sector becomes clearer, an important issue in understanding the sector's performance. One "line of fracture" lies between those manufacturers producing primarily for the domestic market, that is, they have been able to survive the period of deregulation and sustain a domestic market despite the limitations imposed by scale in the New Zealand economy and manufacturers focused on the export sector. As we shall see, they tend to have different interests in relation to, for example, the exchange rate, interests reflected in different institutional allegiances. Small domestic manufacturers often do not have the scale of operations to invest consistently in R&D, an activity seen as vital for successful exporters.

Another line of fracture lies between manufacturing that derives from the primary sector – food processing, beverages, wood processing, for example – that is, manufacturing, often for export, that relies on the traditional dependence of New Zealand on the primary sector; and manufacturing in sub-sectors that reflect the elaborately-transformed or "new economy" – in, for example, software and its applications, niche electronic goods, and in new materials. This distinction lies at the heart of a long-standing concern about New Zealand's over-dependence on the primary sector, a failure to diversify away from primary-related outputs, and a consequent decline in innovation, R&D and company development in new, high-value adding sectors. This failure is considered by many to be a major cause of our relative decline in standard of living.



Concern exists that the success of the former may obscure the vital, yet weaker, performance of the latter. In 2012, the primary food industry was, by value, about 22% of manufacturing. Other food, Beverage and Tobacco was another 14%, Petroleum, Chemicals, Polymer and Rubber 17%, and wood and paper 13%. The manufacture of primary resources is important in New Zealand, but tends to be focused narrowly on primary resource processing with little extension beyond the bounds of the sector. Moreover, there is concern that policy settings that meet the needs of primary sector-based manufacturing may not suit those of the elaborately-transformed sector, and vice-versa.

The 2008 Global Financial Crisis, presaged by drought in the New Zealand economy, hit exporting manufacturers hard. Most regions saw a decrease in manufacturing employment over the three years 2006-2009. Job numbers fell, hours worked decreased, and there have been a series of high-profile plant closures or cut-backs.

The Contemporary Debate

The contemporary state of New Zealand manufacturing has given rise to public debate about its viability. The intensity of the debate grew during the course of the Inquiry, in part as an effect of the visibility given to these issues by the inquiry's activities and surrounding media coverage.

The debate is often couched around two contending arguments.

The first argument, found to any extent in only one submission and oral presentation to the Inquiry, suggests that manufacturing in New Zealand is doing as well as might be expected and perhaps even better. This argument starts from the premise already noted, that globally the share of GDP accruing to manufacturing has been in decline for three decades or more. In this, New Zealand is simply following global trends. In this account, exchange rates may play a role, but are by no means the dominant or determining factor. Indeed, on the basis of data from the Economic Survey of Manufacturing it is suggested that, notwithstanding the high dollar, manufacturing output is, post-2011, increasing. Moreover, manufactured exports are growing at 2.3% annually since 2008 (1.1% if food processing is excluded), driven in part by the strength of the Australian and East Asian economies.

A further positive is seen in "added value" (measured by value of sales), productivity performance and employment (the latter two in terms of a suggestion that manufacturing is employing higher skilled people who are more productive, hence adding greater value to output).

To the extent that exchange rates are a problem, the first argument suggests that their current levels are an effect of low savings, consumption funded by borrowing, and our consequent dependence on overseas savings (thus fuelling the current account deficit). Orthodox thinking, such as that expressed by the Reserve Bank, argues that the use of orthodox tools may smooth the peaks of the exchange rate, but cannot "fix" a different level. Moreover, some of the "new orthodox" measures currently in discussion are likely to be ineffective in managing the exchange rate and also increase inflation and asset prices, and, eventually, interest rates. In this view, the answer to any challenges faced by manufacturing lies in improved productivity and the reduction of the current account deficit. Only then will a sustainable reduction in the exchange rate be achievable without serious collateral damage to the economy.

This view, expressed in a number of ways in recent months, may be expressed in two pithy statements: Manufacturing may be facing tough times, but is not in crisis, and current macroeconomic settings are the best hope for long-term manufacturing success in New Zealand.

The Inquiry heard a different view of the state of manufacturing from the majority of submissions. These will be discussed in detail below, but the essentials of this view provide a strong counterpoint to the preceding argument.



The second, dominant view presented to the Inquiry challenges the Orthodoxy's mildly positive view of manufacturing's recent performance. In the dominant view, whilst manufacturing sales have increased since 2011, they remain below the levels of 2006/7. Moreover, the reduced sales performance must be understood in terms of the dependency of the recent rise on the meat and dairy sectors. If these are excluded, sales fell 1.4% between the June and September 2012 quarters. Since 2007, all manufacturing volumes have fallen 4.4 %, but manufacturing excluding meat and dairy has fallen 13.5%. As several submissions noted, the rosier picture presented by the current macroeconomic orthodoxy hides serious problems in manufacturing sector performance, and a worrying dependence on the meat and dairy sectors. In particular, it either ignores or understates the impact of adverse exchange rate movements on manufacturing exports, especially those in the elaborately-transformed area.

The dominant approach, reflected in many submissions, rejects also the "added value", employment and productivity arguments. Using the industry statistics for GDP, it suggests that value added has fallen by 9.7% since 2007(or earlier), including a 1.5% fall in the September 2012 quarter. Value adding, it is suggested, is today flat-lining at a level significantly lower than in the 2004-2007 period. Of course, the high and adverse exchange rate is also a debilitating factor as it causes manufacturing investment to stall. In terms of employment, Quarterly Employment survey data suggest that since the 2008 crisis (on a December 2007-December 2012 basis), total employment in the economy fell 17,600, whilst manufacturing employment fell 37,900. Since 2008, the net loss of manufacturing firms in New Zealand has been 1640. In other words, whilst there may have been a secular shift downwards in manufacturing employment over many years, the contemporary employment performance of the sector is particularly poor. The sector's productivity performance is, in this view, at best patchy. It argues that sectoral productivity has been static and falling in the 2006-2010 period. Capital productivity has been static or falling since 1998, and multifactor productivity was rising slowly until 2006, but then began to fall.

A consistent theme across submissions was that there is little in the current policy settings or behaviours in the manufacturing sector likely to give rise to improved fortunes. In particular, a combination of declining output, poor value adding, reduced investment and R&D, and reduced employment, and its impact on manufacturing, was emphasised across a number of submissions.

The dominant approach posed, in different ways across many submissions, a different policy package in support of a stronger New Zealand economy and a stronger manufacturing sector. The essential elements of such a package were found in many submissions. They include measures to manage the exchange rate, investment patterns, and the current account deficit, as well as a move from dependency on the primary sector to increased exports of more sophisticated products derived from a sector driven by innovation, an improved R&D and investment performance, and a higher skilled workforce. Submissions pointed to international exemplars in all aspects of this package and in some cases argued that there was no alternative to this package if New Zealand is to halt its slide down the OECD rankings. Reflecting the dominance of the primary processing sector, the dominant view is strongly in sympathy with a position taken by NZTE:

"manufacturing has long been and remains at the core of New Zealand's economic wellbeing. And yet so much more is possible. Only a minority of products exported from New Zealand have significant value added to them beyond their raw material content."

(<http://www.sustainableenterprise.org/NZTE%20ManufacturingPlus.pdf>)

NZTE is also here identifying both the primacy of resource-based processing, and, implicitly, the opportunity open to New Zealand to develop further its elaborately-transformed manufacturing sector.



The Strategic Dimension

A number of submissions emphasised the strategic role of manufacturing in a nation's growth strategy. The Harvard economist, Dani Rodrik, was quoted, variously, as follows:

“Without a vibrant manufacturing base, societies tend to divide between rich and poor – those who have access to steady, well-paying jobs, and those whose jobs are less secure and lives more precarious.”

(<http://www.project-syndicate.org/commentary/the-manufacturing-imperative>)

and

“Manufacturing may ultimately be central to the vigour of a nation's democracy.” (Ibid.)

The OECD was quoted as follows:

“Bringing manufacturing back is an appealing proposition to policymakers for several reasons. Manufacturing in OECD countries boasts faster productivity growth than services, for instance, and generates well-paid jobs in a range of skills and professions and not just on the production side; in fact, many large manufacturing companies are also services companies in sales, design and so on. Factories plug into local businesses and drive services too. Crucially for any leading economy, manufacturing also drives technological change.... and can bolster export revenues.”

(http://www.oecdobserver.org/news/fullstory.php/aid/3803/How_manufacturing_can_create_value_and_jobs.html)

Many submissions addressing the strategic dimension also focused on the analysis provided by international expert, Goran Roos, particularly in the context of his visit to New Zealand in 2012. Several submissions emphasised the positive impact on the economy of a strong manufacturing sector as described by Roos (Roos, 2012):

- Manufacturing is the biggest investor in research and innovation in modern economies
- Manufacturing drives productivity improvement, innovations in work organisation and the application of technology, ahead of any other sector
- R&D and productivity advantages in manufacturing spill over into the wider economy
- Manufacturing is the biggest share of world trade and is crucial for export earnings
- Manufacturing creates jobs. A job in manufacturing creates between 2 and 5 jobs in the wider economy. These tend to be good jobs – skilled, relatively well-paid and stable
- Each dollar of turnover in manufacturing generates \$1.74 turnover in the rest of the economy
- Manufacturing drives the creation of high-end service jobs in particular, contributing to the upgrading of the service sector (the “servitisation” - or product=device and service model -phenomenon).

These positive impacts were associated with a contention that manufacturing's multiplier effect is striking:

In New Zealand, we estimate that the multiplier for output is 1.4 (that is for every dollar of manufacturing output, a further 1.4 dollars is produced elsewhere in the economy), and the multiplier for jobs is 1.7 (that is, a further 1.7 jobs created elsewhere for every manufacturing job). (NZCTU submission to the Manufacturing Inquiry)



Submissions frequently commented on the levels of support and encouragement received by the manufacturing sector in other economies. Examples were given – Germany, Scandinavia, Switzerland, for example – of economies in which modern, high value adding manufacturing was fostered. The German example illustrates this line of thinking.

Germany generates from manufacturing nearly twice the proportion of GDP produced by New Zealand (about 24%). German manufacturing success in recent years has been based on the *Mittelstand* – small or medium-sized, often family-owned and run companies, operating at an appropriate scale in niches in which they deliver high-quality, high-price reliable technology snapped up especially by developing economies. These companies deliver not just the technology, but the associated services – training and maintenance, for example – and, often, packaged outcomes for the purchaser, not just the technology that contributes to those outcomes. This is the “servitisation” process, wherein a strong, modern manufacturing sector is sustained by its sophisticated integration with the delivery of associated services. Such a sector also requires strong traditions of R&D, high quality training, the effective use of industrial clusters, and modern work organisation practices.

Submitters also noted that manufacturing is a sector in which entrepreneurship prospers. It is, in their view, a sector in which technology, creativity and business acumen come together to the benefit of the economy as a whole, be it in terms of investment opportunities, high-quality jobs and / or high-value exports.

The Global Future of Manufacturing

A survey of contemporary thinking about the future of manufacturing in the global economy suggests some important trends across the global economy, relevant to the Inquiry. These include:

- The importance of innovation in manufacturing as the key differentiating factor in success. Innovation will be required throughout the manufacturing process – R&D, product materials, production arrangements, branding and marketing
- Human resources able to deliver innovation on the scale required will be vital and often in short supply. Access to “talent” may be the defining quality in success. Labour costs will rise as a result of competition for key human resources, in both developed and developing economies
- The extension of servitisation (that is, the product=device+ service equation) such that the share of manufacturing employment associated with services will surpass 50-60%
- The increasing complexity of manufacturing and the need for improved levels of customisation to meet highly differentiated demand
- Infrastructure challenges created by transportation costs and capacity limitations, and by the cost of energy. Clean energy strategies are already important and will become more so.
- Trade and currency-related challenges, in part driven by the recognition of manufacturing’s importance in economies leading to increased protection, in part driven by currency volatility
- Growing competition for Foreign Direct Investment (FDI) seen as crucial for manufacturing development in many economies
- Growing competition for rare or costly material and minerals, leading to, first, strategies to control and stockpile vital inputs, and, second, new science designed to overcome such blockages



- Good policy settings will play an important role in manufacturing success. Policy settings will have to reflect the sophistication of production, products and markets, be flexible and responsive to changing needs, responsive to new networking or knowledge opportunities, focused on quality infrastructure provision (especially in R&D and human resources contexts), and committed long-term to a strong manufacturing presence.

Of course, these are global trends and will not apply uniformly or even particularly to New Zealand's circumstances. However, the Inquiry recognises that there are profound shifts taking place in global manufacturing, which will have a significant impact on New Zealand's manufacturers.



Chapter 3: Analysing the Submissions

The submissions made to the Inquiry lend themselves to multiple interpretative frameworks. The Inquiry has adopted here a simple framework, which captures the substance of submissions:

- Passion and commitment
- Immediate, pressing challenges confronting Manufacturing
- Broader factors that create or exacerbate those challenges
- Ways forward for the sector

Passion and commitment

The Inquiry was offered many accounts of successful manufacturing firms, competing internationally, active in product and market development, engaged in R&D and extended supply chains, employing well-trained and valued employees, and ready to take their product or service a stage further. Submissions captured a deep pride in the successes that mark the New Zealand manufacturers, and a sense of the potential that might be achieved in changed circumstances.

There were some important common themes in the submissions:

- It is possible to create and grow successful globally competitive manufacturing firms in New Zealand
- New Zealand has the innovative capacity to succeed in global markets, which stands to be lost - perhaps forever - if we do not act now
- Manufacturing's involvement in elaborate transformation was vital for a dynamic economy
- Entrepreneurs are passionate in their drive for success, seeking to overcome adverse conditions such as exchange rate volatility
- Employees in manufacturing are a stock of committed, high skilled labour that can be lost forever if manufacturing continues its current decline
- The manufacturing sector is important in the New Zealand economy in many ways
- Nobody wants a "hand-out" from government as of right, but they want to compete nationally and internationally on a level playing field
- Manufacturers are inexplicably marginalised in national economic development thinking, especially in comparison with, for example, the primary sector
- Politicians have been less supportive of the sector than might have been the case, and appear not to understand its role or nature
- There is the potential for a "tipping point" to be reached where irreparable damage is done to the manufacturing sector, eventually permanently weakening the New Zealand economy

The Inquiry was given the strong sense by submitters that there is nothing inevitable about a decline in the size and importance of manufacturing. In the view of submitters, the future of the sector lies primarily in a combination of good business practice and sensible policy settings. A view was implicit in many of the submissions that the perceived marginalisation of the sector in political and policy thinking was perverse, and reflected historical circumstances that were no longer relevant.



The Pressing Challenges

Overvalued currency, exchange rate volatility and hedging

In the majority of submissions, the overvalued currency and exchange rate volatility was highlighted as the most pressing challenge faced by the manufacturing sector. The Inquiry was given numerous case studies of the impact of the rise of the New Zealand dollar, particularly against the US dollar (in which many firms trade, especially elaborately-transforming manufacturers). Submitters pointed to commentaries from the International Monetary Fund (IMF), the Reserve Bank and other commentators supporting the view that the exchange rate is substantially overvalued.

Dreadnought Machine Tools

Dreadnought is a large manufacturing company by New Zealand standards, with over 200 staff. It's been around for three generations. It's a firm with a strong commitment to innovation and the application of new technology. It has been the first mover in New Zealand in a variety of production techniques and product innovation. Its management team understand the competitive environment in which the firm operates, and think globally. It understands and applies Lean, and models itself on high performance systems. Today Dreadnought can match competitors anywhere in Australasia. It is a manufacturing success story, exporting to over thirty countries.

Dreadnought successfully competes internationally, on the basis of competitive pricing, high quality and reliability. It cannot simply "put up its prices" as the way out of exchange rate difficulties. Dreadnought sees such comments, and many others, as evidence of the lack of understanding amongst politicians and others of the competitive challenges facing manufacturers.

For Dreadnought, the exchange rate is everything. It is at the cutting edge of pricing, production sophistication and quality. Exchange rate pressures can be the make or break for the company. And this is how Dreadnought illustrates the challenges that it faces. Take the following example:

	\$US	\$NZ		
Exchange Rate		0.70	0.80	0.83
Selling Price	100	142.86	125.00	120.48
Material Costs	50	71.43	62.50	60.24
Production Costs		60.00	60.00	60.00
Profit Margin		11.43 (8%)	2.50 (2%)	0.24 (0%)

The simple truth is that, for companies like Dreadnought, adverse exchange rate movements will limit innovation, investment and growth. They may eventually destroy the firm. As Dreadnought puts it:

"The government wonders why productivity and wealth creation (are) simply not happening, but are unwilling to do anything about it. A policy of doing nothing, ignoring the facts and hoping for this to improve is insane. Government need to start finding the will to try something new, to adopt new techniques to address the long term manufacturing crisis."



The impact is even greater on those added-value, creative and innovative firms such as software designers relying on New Zealand inputs.

Software Exports Limited

One software firm gave an example of exchange rate impacts as follows:

Sales of exports (93% exported, mainly to US, UK and Australia):

2001 revenue index:	2.42
A week ago revenue index:	1.21
Today revenue index:	1.28

A number of submitters made it clear that their firms' survival was threatened at current exchange rates. Exchange rate pressures, and the expectation of exchange rate movements in the medium term, were variously seen as inhibiting investment, reducing R&D, causing job loss for skilled labour, reducing training commitments, promoting off-shoring, and dulling entrepreneurial vigour.

Several submitters alluded to the erosive impact over time of exchange rate volatility. Investment fell, returns fell, and the firm slumped towards crisis. Small companies are, it was suggested, often unable to leverage the import advantages of a high dollar for their inputs.

Submitters also suggested that a short-term solution for the problem of exchange rate volatility was a necessary but not sufficient condition for manufacturing success in New Zealand. In the medium-long term, a comprehensive package of measures would be needed to promote a sustainable, successful manufacturing sector. "Band aids" were not a long-term viable solution.

Several submitters were incensed at the advice offered from outside the sector to the effect that the answer to exchange rate challenges was greater efficiency. They made the point forcefully that their firms were often already at the forefront of efficiency-driven innovation. Government in particular was identified as not listening, or not understanding what the sector was doing, or might do.

Submitters also made the point that they were used to grappling with volatility, and were innovative in finding ways to overcome its impacts. However, extended periods of a very strong and rising New Zealand dollar were very difficult to deal with.

It was suggested that exchange rate volatility also made New Zealand unattractive to foreign direct investment, which might prefer a more stable and predictable exchange rate regime.

The ability of manufacturing firms to hedge against currency fluctuations was a common theme raised by submitters. Many firms had set in place effective hedging arrangements, even though it is often difficult for a firm with growing export potential to predict future hedging requirements. However, in some cases they were maturing and the costs of new protection were significantly higher. Hedging was presented in some cases as a necessary cost, brought about by the expectation that the currency would fluctuate, in contrast to other jurisdictions in which exchange rate volatility was less of a problem, and therefore less costly to manage. In some cases, it was suggested that hedging gives only short-term protection, on the three to six month horizon. The point was made that a firm "cannot hedge forever", as the costs eventually become too great. Hedging requirements were also seen to promote conservative business behaviours, and also have as serious impact on the capacity of firms to fund future capital expenditure. Submitters argued that hedging arrangements, count as a liability on the balance sheet, impacting substantially on the ability of a firm to expand. In some cases, the maturing of hedging arrangements might lead to company closure.



Marginalisation of manufacturing

Submissions argued that the situation facing the manufacturing sector needed to be given a priority hitherto lacking. Manufacturing was presented as the “Cinderella Sector” of the New Zealand economy. Submissions suggested that the sector was marginalised in political and policy debate particularly in comparison with the primary sector. Recognition of the challenges facing manufacturing was grudging or dismissive, and resulted in less effective and comprehensive interventions. Policy settings were generally described as inadequate and ill-informed, particularly lacking in international and comparative perspective, and in particular failing to understand the specific challenges and needs of the sector. Strategic thinking at sectoral level - for example - in terms of national manufacturing policies, was poor. Politicians were seen to be part of the problem, rather than the solution.

An important theme was the potential for firm closure or relocation overseas as an effect of the sector’s marginalisation, with the subsequent loss of important diversity and complexity in the economy. Relocation is, of course, relatively easy in the elaborately-transformed sector, but not easy at all in the resource-based sector. A common view suggested that there was no a priori reason for manufacturing firms to stay in an unreceptive environment. Dynamic sophisticated operations will find alternative locations, which provide better infrastructure and support for growth. Marginalisation will inevitably lead to off-shoring. As one submitter put it, “trying to stay in business in New Zealand” was a challenge. Another spoke of “running to keep on the same spot”. A third spoke of a “battered industry syndrome”.

Submitters referred to the perennial issue of the size of the domestic market in New Zealand, noting that a successful manufacturing sector, contributing strongly to New Zealand’s social and economic future, must trade competitively in international markets. Moreover, the New Zealand economy offers little “insulation” for an exporting firm facing adverse changes in the exchange rate.

Another theme raised in a number of submissions was economic sovereignty. The marginalisation and decline in the manufacturing sector fundamentally weakened the New Zealand economy, and, in turn, threatened to undermine national sovereignty, as a weakened economy would be more vulnerable to external economic pressures.

Relocation and survival

A number of submitters pointed to the pressures on them to off-shore business activities. The impact of exchange rate volatility was a powerful driver of off-shoring, but other cost advantages came into play (for example, labour costs). Firms were aware of standards issues that might arise from off-shoring, as several submissions identified variable production standards overseas as a problem (both in terms of off-shored production and inputs to domestic production sourced from overseas). An underlying theme of submissions was that the economic and policy conditions found in New Zealand are tending to drive manufacturing offshore, as seen in other well-known cases. Again, “trying to stay in business in New Zealand” is a challenge for many manufacturing operations.

As alluded to already, many submitters looked to recent closures in the manufacturing sector, the pattern of contraction of the sector over recent decades, and the current challenges assailing the sector, especially exchange rate volatility, and pondered on the survival of their own firms and of the wider sector. Cases were offered of firms, which had operated successfully and innovatively over many years, now facing relocation or closure. The idea of firms “hanging in” in the face of adversity was evident in many submissions, with many firms stalling their investment plans because of uncertainty. The question “does New Zealand want a strong, dynamic manufacturing sector?” was asked in different ways by submitters, including iconic local firms. In such circumstances, the idea of a “manufacturing crisis” gained weight, as did the cry from submitters that things had to change, new thinking was needed, including a challenge to current economic orthodoxies. Several submitters used the “tipping point” (or similar) metaphor to signal a possible irrevocable weakening



of manufacturing capacity and capability in New Zealand. The damage that might be done to long-term relationships in global supply chains as a result of closure was highlighted in one submission by a company with a strong track record in that area.

Jobs and communities

Submissions from both employers and trade unions emphasised the importance of a strong manufacturing sector for employment in high-skilled, high-paying jobs, and the adverse impact of firm relocation and closure on individuals and communities alike. Employers reported concern about the erosion of skill structures as an effect of manufacturing decline, and a consequent fuelling of skilled migration to Australia and elsewhere. They supported the widely-held view that manufacturing is a key component in a high-skilled economy. Some employers expressed concern about the potential impact of closures and relocation on their local communities. Trade unions took a similar position on the dangers for New Zealand of job-loss in manufacturing, also offering detailed case-studies of people and communities adversely affected by manufacturing restructuring.

The Broader Factors

Submitters suggested many wider factors that impinge on the fraught condition of manufacturing in New Zealand. They include:

Lack of vision

Directly and indirectly, submitters identified a lack of vision in New Zealand about the potential and status of manufacturing in a successful economy. The lack is historical as well as contemporary and is often associated with the priority given to the primary sector. It contributes to a loss of direction in the thinking about manufacturing's development. This lack of vision also reflects a gap in strategic understanding of the importance of a strong manufacturing sector. Causes include poor political assessments and poor policy development and implementation. One submitter offered the picture of policy makers and government simply "sitting on their hands", doing little or nothing useful.

Lack of scale

Several submitters suggested that a perennial problem for manufacturing in New Zealand is a lack of scale. This might inhibit domestic networking, R&D development, external marketing and branding, and also make relocation decisions more likely. Lack of scale in the domestic market pushes many promising firms into exporting early in the growth cycle, which is positive, but that environment is much riskier because of, for example, volatility in the exchange rate. Conversely, fear of the consequences of that volatility may well act as a brake on the movement into exporting by domestic companies, and on their ability to invest for the future.

Free Trade Agreements

Submitters identified, to varying degrees, free trade arrangements as sometimes a problem for the New Zealand manufacturers. One concern was a perceived imbalance in the outcomes of FTAs, wherein exporters to New Zealand from large economies benefited more than exporters from New Zealand. An associated issue is the adverse impact of non-tariff technical barriers to New Zealand exports. A second looked to conditions established in FTAs, which



inhibit domestic manufacturing development. A third concern is the impact of FTAs on domestic procurement arrangements (see below). A fourth is the potential for poor quality, non-compliant imports to come into New Zealand. This point reflects a broader concern about production standards in competitor economies, which not only impacts on imports, but also allows competitor economies to compete unfairly against standards-complying (and, therefore, more expensive) New Zealand products. Finally, submitters suggested that New Zealand's trade agenda was driven more by the requirements of the primary commodity export sector, and manifested scant interest in the needs of the non-primary manufacturing sector. Submitters were in some cases unconvinced by the orthodox arguments about free trade.

Poor policy settings

Much commentary emerged about the inadequacy of policy settings in New Zealand insofar as they help the manufacturing sector. Issues include:

- The marginalisation of manufacturing in policy setting: marginalisation has been addressed above, but a particular aspect is found in its manifestation in policy setting. Submitters variously suggested that manufacturing is an “optional” issue in policy setting, is a poor sister to other sectors, is unheard, is hectored about increasing efficiency by politicians and policy-makers, is misunderstood badly (especially about the sophistication of contemporary manufacturing), and is on occasion treated discourteously by ministers.
- Poor macroeconomic policy: this is a most important issue for the manufacturing sector. It is also a major issue for all our exporters. The Inquiry heard at length of the new thinking (the “new orthodoxy”) in the IMF and elsewhere, which challenges the current economic orthodoxy and which considers the opportunities for interventions to manage exchange rate volatility whilst also keeping inflationary pressures under control. The Swiss example of currency management was raised on several occasions, as were other mechanisms in countries such as Singapore. The image of a conservative government that “keep(s) doing the same things” was invoked critically. An explicit point was made that economic settings tend to favour asset-based business (as in agriculture), rather than innovation based on cashflow. Particular government institutions came under scrutiny, especially the Reserve Bank and its defence of economic orthodoxy. One submitter bluntly described “a loss of direction in national (manufacturing) policy”. Indeed, the Inquiry, in its discussions, wondered if there had ever been such a direction.

Submitters were clear that improved macroeconomic settings must be accompanied by more effective microeconomic support mechanisms, as outlined below:

- The lack of an integrated approach: submitters argued that a comprehensive, integrated package of support measures is needed for the manufacturing sector. Piecemeal actions are insufficient.
- The impact of the tax system: the Inquiry noted the view that the tax system operates in a way that drives investment away from manufacturing and into the speculative sector.
- R&D: R&D support is available but sometimes difficult to access and also inappropriately configured, especially in its support of the development dimension. Some hope was expressed in Callaghan Innovation, but equally, there is concern about the ability of that organisation (and other similar organisations, including universities and CRIs) to meet business needs in a timely, cost-effective and competent manner. R&D support for manufacturing was compared unfavourably with that offered to agriculture, and that offered in many competitor economies. The “Better by Design” model received some support. An R&D tax credit arrangement received significant support.
- Export Market Development: new exporters should be supported in terms of market



intelligence and tax incentives on initial export market development costs for a limited period

- **Export Guarantee Arrangements:** there was some support for a return to a system of export credit guarantees, in recognition of the reality that most New Zealand exporters are, in international terms, quite small firms.
- **Depreciation:** depreciation was raised in a number of ways by submitters. One was critical of recent changes in the regime covering depreciation on commercial buildings. However, the dominant issue raised in a number of cases was the desire to see the introduction of an accelerated depreciation regime on plant and equipment. The US depreciation model was reviewed positively by one submitter. Changes in the depreciation regime were seen as a way to overcome obsolescence, and as a gateway to improving national productivity, as well as reducing investment risk.
- **Manufacturing Strategy:** submitters made it plain that there was little interest on their part in further “talkfests” about the future of manufacturing in New Zealand, or about the need for a “Manufacturing Strategy”, requiring further extended discussion. The Inquiry recognised that the perspectives offered by the submitters came together in a clear and compelling statement of actions needed at national and regional levels.
- **Wilful neglect:** cases were offered to the Inquiry of important manufacturing centres being left to close, to the detriment of the national skill endowment, the regions in which they are located, and future opportunity for the manufacturing sector. The Inquiry heard, for example, of the circumstances which drove the closure of the Hillside Works in Dunedin, in the face of prima-facie evidence that its closure might be wrong.
- **Procurement:** the absence of an effective domestic procurement regime was raised in a number of submissions and ways. Recent Australian legislation on procurement received positive comment, as did Australia’s combination of federal and state interventions. Any restraint on effective procurement measures imposed by FTAs was a concern for some submitters. One submitter particularly highlighted the need for strong standards provisions in any procurement regime. Another gave a graphic example of short-term cost considerations leading to the purchase by government of an overseas product demonstrably inferior to the domestic product.
- **Compliance requirements:** submitters argued that compliance requirement associated with, for example, engagement with NZTE, are sometimes a disincentive. Examples were offered of time-consuming and costly filing requirements required by government support schemes. A common theme was the implications for small firms of excessive compliance costs.
- **Comparative experience:** New Zealand was variously compared unfavourably in terms of quality and scope of manufacturing support with Singapore, the Scandinavian economies, Thailand, South Korea, Canada, Germany and Switzerland, though the Inquiry was also warned about the dangers that arise from inappropriate comparisons.
- **Skills and training:** the capacity of New Zealand to provide and sustain an appropriately skilled workforce necessary for a sophisticated manufacturing sector was challenged by some submitters. Some ITO activities are viewed as successful, but general business conditions are blamed for a decrease in the number of apprenticeships in some firms. Improvements in, and support for, the apprenticeship system were seen to be necessary.
- **High performance work organisation:** Several submissions addressed the absence of a serious commitment to high performance work organisation in support of sophisticated manufacturing production.



Poor understanding of competitors' advantages

Mention has been made above of comparative experience. Submitters included firms with long experience in international supply chains, of international markets and of collaborations in international networks. They were able to comment knowledgeably on the range and depth of business support for manufacturing in a range of companies. For example, detailed commentary was offered on the scale of support for manufacturing exporters in Switzerland, a high-cost economy with a well-developed *mittelstand*. That support included significantly more financial support for firms which are iconic in Switzerland and choose to stay as part of the national identity. Similar comments were offered about the level of R&D, export and skilled workforce support received by firms operating in Germany and Scandinavia. Singapore's management of its economy was raised on several occasions as an example of macro-economic settings that provided a stable platform for manufacturing export success and also provided an attractive destination for FDI. Singapore was also praised for its fostering of innovation and creativity, especially through the links between research-led institutions and manufacturing firms. Australia's recent procurement legislation was brought up as were other jurisdictions' different schemes to support domestic manufacturing. Thailand was promoted as a more welcoming location for manufacturing than New Zealand by one manufacturer with experience in both countries.

Knowledge of the scope and depth of such provision elsewhere appears to exacerbate the feeling amongst some manufacturers that New Zealand simply does not care if its manufacturing sector survives or not. It is clear that, despite the positives mentioned in relation to, for example, NZTE's work, key play-makers in manufacturing are jaundiced about New Zealand's commitment to a strong manufacturing future.

Unhelpful financial institutions

Submitters pointed to a banking system in New Zealand, which is unsympathetic to the particular needs of the manufacturing sector, and sometimes appears more comfortable with the greater certainties of basic resource manufacturers. At the national level, the Reserve Bank was criticised by many submitters for its conservatism, orthodoxy, and unwillingness to act in support of the manufacturing sector. One theme was the unhelpful orientation of lending policies towards home ownership, rather than productive investment. Another theme was the concern felt by banks about exchange rate volatility and its impact on firm performance, leading to an unwillingness to lend on the part of financial institutions. One submitter proposed that the a key problem facing manufacturers was the prevalence of bankers and accountants in positions of authority in business, implicitly contrasting New Zealand with countries such as Germany, in which scientist, technologists and engineers are believed to have more influence.

More generally, submitters recognised the difficulties faced by manufacturing SMEs seeking capital for development and expansion. The incidence of potentially very successful firms being bought out by overseas buyers was in part attributed to these difficulties.

Politicians and policy-makers

The Inquiry heard that despite some positive commentaries on, for example, NZTE, manufacturers were deeply disillusioned about the quality of thinking displayed by many politicians and policy-makers. Commentaries were at times vehement, at others simply baffled by the insouciance of politicians and policy-makers in the face of manufacturers' concerns. The Inquiry observed the anger, already noted above, of manufacturers when told by politicians to be more efficient, sell at higher prices, hedge, or simply accept the load imposed by exchange rate volatility. Ministerial interventions, or lack thereof, in cases such as the closure of the Hillside Works, were highlighted in submissions. Government's fascination with the film industry was contrasted with its lack



of interest in the challenges facing manufacturing. Government's failure to create a strong procurement policy, or industry and regional policies, was mentioned by several submitters. As one submitter put it, he'd "given up on polities".

Fragmentation of business associations

A small but important institutional factor was brought up on several occasions in the course of the Inquiry. The division between the New Zealand Manufacturers and Exporters Association (NZMEA) and Business New Zealand was presented to the Inquiry as an important fissure between manufacturers who were primarily exporters, and those who cater primarily for the domestic market. Such a division would, of course, suggest quite different attitudes to a high New Zealand dollar. Whilst the inquiry has little to say on this essentially organisational and political issue, it notes that a model such as that proposed by Dr Bollard for a post-2008 recovery in the New Zealand economy – a model predicated on export growth on a more productive basis – is unlikely to be given priority by business fractions benefitting from a high New Zealand dollar and relatively unconcerned about its impact on exports.

Culture

The Inquiry noted reference made in several submissions to the enduring matter of New Zealand's "culture", that is, the impact on our business performance of the complex social and political beliefs and behaviours that fundamentally define who we are in New Zealand. Such was the passion and commitment displayed by submitters, the Inquiry finds it difficult to believe that there are insuperable cultural barriers to a strong and successful manufacturing sector in New Zealand. To the extent that there are barriers, the Inquiry believes that they are not a fundamental blockage, but superable challenges that can be met by a combination of effective government support working alongside a dynamic manufacturing sector.



Chapter 4: Ways forward and recommendations

The Inquiry has reviewed the submissions carefully and has determined that far more can and must be done to ensure that New Zealand maximises the potential of an export-led manufacturing sector.

The Inquiry found that there is incontrovertible evidence in technical analysis, and in the experience of competitor economies, which supports the view that successful economies require a strong, export-orientated, “servitised” manufacturing sector, drawing on the innovative and creative qualities found in the sector and its attendant R&D.

That evidence was amply, consistently and vigorously supported by submissions to the Inquiry. Submissions were passionate, articulate, informed by deep experience, and permeated with concern about poor policy settings and the marginalisation of manufacturing from national policy making.

Submissions also established that New Zealand produces innovative, creative and successful manufacturing firms achieving notable successes in global markets. The Inquiry concluded that there is nothing inherent in the New Zealand situation that prevents the emergence of a far stronger export-orientated manufacturing sector.

The Inquiry recognised that current policy settings do not support the further development of a strong manufacturing sector, and, indeed, inhibit such progress. Moreover, it concluded that New Zealand has over many years failed to create an infrastructure for such a development through the political cycle. That failure, believes the Inquiry, as a significant factor in New Zealand’s slide down the OECD rankings.

The Inquiry accepted that the impact of a traditional reliance on primary sector production has produced a path-dependent imbalance in manufacturing between more mature sub-sectors based on food processing, and those in leading edge, often niche, technologies upon which competitor economies base their economic success. It took the view that a successful manufacturing future does not lie in an “either/or” outcome. For the foreseeable future, there will be a strong role for primary sector-based manufacturing in New Zealand. However, that role must be complemented by growth in other sub-sectors, especially those in leading edge sectors based in, for example, technology, materials and sophisticated engineering, creating sustainable value-based jobs.

The Inquiry also took the view that there must be an effort undertaken to create a political consensus around this model of balanced development in manufacturing. Settings to support such a development cannot be subject to chopping and changing through the three year political cycle. Constant shifts in policy create uncertainty and a loss of confidence in investors and innovators, and can only exacerbate existing pressures for closure or relocation.

The Inquiry found that analysis of the submissions and associated materials supported a sea-change in thinking about manufacturing in the New Zealand economy, and a consequent qualitative shift in policy settings. The key elements of that transformation are described below.

A strategic approach to manufacturing

The Inquiry recognises that successive governments have promoted the vision, in rhetoric and in terms of support measures, of a strong, diversified, export-led manufacturing sector in New Zealand. That vision has at best been partially achieved, and the weight of the submissions suggests that, on the whole, such manufacturing success as has been achieved has been primarily due to the effect of business acumen and perseverance, despite the policy settings in which it has taken place.

The Inquiry accepts that the success of manufacturing in New Zealand in the future will lie



substantially in the hands of entrepreneurs, scientists and technologists and the sector's skilled workforces. However, as international experience indicates, the context in which that success will be achieved can be made more supportive. It can contribute to the "level playing field" sought by manufacturers as they compete internationally. It can overcome institutional and regulatory blockages that limit manufacturing development. It can provide a partnership between government and manufacturing that increases the pace of change in the sector.

The Inquiry has identified many constructive policy settings, which we believe will grow the New Zealand economy and also provide high-value, high productivity workplaces and jobs. Amongst those settings are:

Key Policy Settings for a Successful, Export-based Manufacturing Sector

Submissions proffered many suggestions about changed settings that might be included in a Manufacturing Strategy. Those suggestions were supported in general by measures found to work in other economies with strong manufacturing sector. Important measures include:

Major Recommendations

Recommendation 1: The government adopt macroeconomic settings that are supportive of manufacturing and exporting, including:

- **a fairer and less volatile exchange rate through reforms to monetary policy;**
- **refocusing capital investment into the productive economy, rather than housing speculation;**
- **and lowering structural costs in the economy, such as electricity prices.**
- The Inquiry received detailed, informed submissions about the emerging "new orthodoxy" in economic thinking, especially in the IMF, in which orthodox arguments about the trade-off between exchange rate controls and inflation have been strongly challenged. It also received various commentaries on international experience of managed exchange rates in countries such as Switzerland and Singapore.
- The Inquiry also heard passionate criticism of current government macro-economic policy settings, captured in the "sitting on hands" metaphor offered by one submitter.
- Whilst the Inquiry was not established to conduct an analysis of New Zealand's macro-economic performance, the latter's importance for the future of the manufacturing sector was a focal point of submissions. A strong consensus across submissions rejected a "there is no alternative" approach to economic settings and implored government to seriously consider other settings. The Inquiry accepts that a re-assessment of macro-economic settings in New Zealand is long overdue, and that the "new orthodoxy" offers an alternative policy framework in which the manufacturing sector is more likely to prosper.



Recommendation 2: New Zealand businesses are encouraged to innovate. Research and Development tax credits, with a stronger emphasis on development, should be introduced as part of a package for innovative manufacturing, supporting exports and quality jobs.

- R&D and tax credits: R&D was addressed by many submissions. Two key arguments were presented. First, there should be better integration of manufacturing R&D requirements with research-based institutions (especially CRIs and universities). The Inquiry noted regular attempts over recent decades to increase the relevance and timeliness of applied research, and to bring firms and research institutions together more effectively. The Inquiry believes that there is a need for improved targeting of existing R&D funding, which will markedly improve the firm-research interface.

Second, a system of tax credits against R&D expenditure is vital, and parallels international practice. Submitters recognise that there may be “gaming” of a tax credit provision, and were in some cases comfortable with stringent assessment to reduce the possibility of such behaviour. The Inquiry strongly supports the introduction of a R&D-related tax credit arrangement. This would clearly place the R&D decision with firms, where it rightly belongs.

Recommendation 3: The Government adopt a national procurement policy that favours Kiwi-made and ensures that New Zealand manufacturers enjoy the same advantages as their international competitors.

- Procurement: an important theme in submissions was the international experience of national procurement regimes, which ensured a “fair deal” for domestic manufacturers and, in particular, protected the consumer against poor production standards. Canada, the US, Australia and other countries were canvassed as exemplars to which New Zealand should look. The Inquiry accepted that this was an important area for action, noting that any new procurement regime should be comprehensive, including, for example, a “whole of life” approach.

Additional Recommendations

Recommendation 4: The tax system is used to boost investment in new technology and machinery. An accelerated depreciation regime should be implemented for the manufacturing sector.

- Depreciation: a major theme in submissions was the poor configuration of the depreciation arrangements that affect manufacturing firms. Submissions called for a revision of arrangements to permit accelerated depreciation, which brings benefits to the firm at no cost to the Revenue. The Inquiry supports this measure, believing that it will lead to more timely re-investment in capital, leading to higher productivity levels, with reduced development risk.

Recommendation 5: A wide range of funding is available for manufacturers to invest in their business and employees. Measures to encourage the availability of venture capital and mezzanine funding should be continued, including government funds through commercial-managers.

- Financial institutions: submissions raised the perennial question of a poor fit between the manufacturing sector’s funding needs and the priorities of financial institutions, particularly banks. The Inquiry took the view that improved macro-economic settings, coupled with effective policies for manufacturing, will, in the long run, bring together the banks and the sector in an improved relationship. The Inquiry also accepted that, in the short term, government measures on venture capital and mezzanine funding may be required, particularly in the early stages of firm development.



Recommendation 6: Businesses are supported to achieve 21st Century organisation and practices. Policies such as NZTE’s focus on Lean Management, and the work of the High Performance Work Initiative should be extended. Apprenticeship training support for the sector should be reviewed immediately.

- High performance and skilled workforces: submissions showed manufacturing firms to be committed to modern productivity-orientated measures, including state-of –the-art work organisation systems and a powerful focus on skilled, and reskilled, workforces. Skill shortage, exacerbated by the decline in the sector, is a major concern for manufacturing firms. The Inquiry believes that there is a need to further support the sector’s focus on high performance, high-skill production, including an assessment of the performance of ITOs associated with the sector.

Recommendation 7: Manufacturers are given a voice in FTA negotiations. From the outset of FTA negotiations the interests of manufacturing must be explicitly addressed. Negotiating teams must keep the sector informed.

- Free Trade Arrangements: submitters were not, on the whole, opposed to free trade arrangements. They were, however, worried that their concerns (for example, in relation to procurement and standards) may be down-played or marginalised in negotiations focusing on, for example, the needs of other sectors in the economy. Again, the implications of FTAs for the standards of imported products are also an issue for some manufacturers.

Recommendation 8: Measures to encourage foreign direct investment in manufacturers should be consistent with the strategic direction of New Zealand’s manufacturing and exports.

- Foreign direct investment: submitters were, in general, comfortable with more FDI in New Zealand, where such investment brought clear advantage to New Zealand. The Inquiry was concerned about the “buy-out” model, which brings little long-term advantage for New Zealand. A sub-text in some submissions was the need to promote FDI that complements domestic manufacturing development, a model akin to that adopted by, for example, Singapore. The Inquiry felt that the encouragement of FDI that is in tune with New Zealand’s long-term manufacturing interests is an important policy matter.

Recommendation 9: Government should lower compliance costs wherever they can be consistent with maintaining New Zealand’s values including workers’ rights, environmental standards, and product quality assurance.

- Compliance review: a number of submissions were concerned about burgeoning compliance costs in a context where firms were under pressure and matters of survival were important. The Inquiry noted this concern and accepted that compliance requirements on the manufacturing sector be reviewed.

Recommendation 10: Manufacturing’s ability to create jobs and boost exports should be recognised in national, regional and industry policies.

- A renovation of regional and industry policies: submissions established that the manufacturing sector operates in defined sub-sectors and also in particular regional configurations. This is true in competitor economies, and speaks to the need for support measures to reflect that differentiation. A differentiated approach to sub-sectors and regions will require careful specification, and is best undertaken on a sector-up basis, in which firms are encouraged to identify regional and sub-sectoral activities, which will meet their needs.



Recommendation 11: Taskforces of government local government, businesses and unions, be established to assess and act on new business and job opportunities in the wake of major closures or restructuring in the manufacturing sector.

- Task forces: the Inquiry heard of specific cases of manufacturing closure, which might have permanent adverse impact on skill levels in manufacturing, or on local communities, or on the critical mass of the sector in New Zealand. The Inquiry accepted that while restructuring and closures are part of the business cycle, there are occasions when short-term considerations must be set against long-term impacts. The Inquiry proposes that, where such cases are identified, a project-based Task Force model involving local and national government, representatives of the sector and affected workers, supported by appropriate analytical skills, be used to assess the full impact of significant closures or restructuring.

The question of culture

The Inquiry properly makes no recommendation about “culture”. However, it concludes firmly that there is nothing in New Zealand’s cultural norms and practices that are antithetical to the creation of a strong manufacturing sector. Indeed, there is much evidence in the submissions that we are an entrepreneurial, creative, innovative population, fully able to match the manufacturing performance of other, similar small, developed economies. The invocation of “culture” as an explanation for any weakness in that performance is, in the view of the Inquiry, confusing and misguided. The capacity to create a strong manufacturing sector rests in our hands. We are free to choose whether we grasp the opportunities that are open to us, or languish as a result of inaction and indifference.



Submitters

The Inquiry received 128 written submissions in total. Oral submissions were made by:

New Zealand Manufacturers and Exporters Association

John Walley, CEO, NZMEA
John Holm, Director, Holm Group
Keith Whiteley, Managing Director, CWF Hamilton
Gordon Sutherland, Managing Director, A W Fraser

Selwyn Pellett, CEO Imarda Limited

Mike Eggers, Managing Director, Mike Eggers Limited,

David Bennett, Managing Director, Pacific Helmets (NZ) Limited

Dennis Rose, Academic and consulting economist

Bill Newson, General Secretary, NZ Amalgamated Engineering, Printing & Manufacturing Union

Bruce Moller, CEO Howard Wright Limited

Sue Hamill, Positive Money NZ

Earth, Sea Sky Ltd

Elastomer Products Ltd

Proactive Software

Gelita New Zealand

Contex Engineers

Talbot Technologies

Mr Ainslie Talbot

AW Fraser

Service and Food Workers Union Nga Ringa Tota

Solvent Rescue Ltd

Les Ingram, former RMTU Hillside Branch secretary

Leave It To Me Limited

Rail and Maritime Transport Union

FIRST Union – Representing former employees of Summit Wool Spinners Oamaru

NZ Amalgamated Engineering, Printing & Manufacturing Union Inc. – Representing employees of NZ Aluminium Smelters

Rarpz Designs Limited

McLean Angling (NZ) Limited



Selected Bibliography

Berger, S. (2011). Why Manufacturing Matters. MIT Technology Review. Retrieved 6 Dec 2012, from <http://www.technologyreview.com/news/424554/why-manufacturing-matters/>

Cohen, S. S., & Zysman, J. (1987). Manufacturing Matters: the Myth of the Post-Industrial Economy. New York: Basic Books.

Delbridge, R., & Lowe, J. (1998). Manufacturing in Transition. London: Routledge.

Ernst & Young. (2012). Why manufacturing matters. Retrieved 7 Dec from <http://performance.ey.com/2012/04/02/why-manufacturing-matters/>

How manufacturing and create value and jobs. (2012). OECD Observer, 292 (Q3). Retrieved 10 Dec 2012, from http://www.oecdobserver.org/news/fullstory.php/aid/3803/How_manufacturing_can_create_value_and_jobs.html

Manufacturing matters: why it is important for an economy to have a manufacturing base. (2012, July 24). The Conversation. Retrieved 7 Dec 2012, from <http://theconversation.edu.au/manufacturing-matters-why-it-is-important-for-an-economy-to-have-a-manufacturing-base-8404>

Mazzarol, T. (2012, July 24). Manufacturing matters: why it is important for an economy to have a manufacturing base. The Conversation. Retrieved 18 Jan 2013, from <http://theconversation.edu.au/manufacturing-matters-why-it-is-important-for-an-economy-to-have-a-manufacturing-base-8404>

McKinsey Global Institute (2012) Manufacturing the Future- the Next Era of Global Growth and Innovation. Retrieved 18 Jan 2013, from http://www.mckinsey.com/insights/mgi/research/productivity_competitiveness_and_growth/the_future_of_manufacturing

OECD Observer (2012). How manufacturing and create value and jobs. OECD Observer, 292(Q3). Retrieved 15 Jan 2013, from http://www.oecdobserver.org/news/fullstory.php/aid/3803/How_manufacturing_can_create_value_and_jobs.html

Roos, G. (2012). Is Manufacturing in Decline? EPMU/CTU Workshop, Auckland, 29 June.

Thompson, R. (2011) Why manufacturing matters- Harvard Business School. Retrieved 6 Dec 2012 from <http://hbswk.hbs.edu/pdf/item/6664.pdf>

Wessner, C.W. (2010). Why Manufacturing Matters. ACS Presidential Symposium. Retrieved 7 Dec from <http://www.ccrhq.org/userfiles/file/members/presentations/wessner.pdf>

World Economic Forum Report (2012). The Future of Manufacturing Opportunities to Drive Economic Growth. Retrieved 11 Jan 2013, from <http://www.deloitte.com/assets/Dcom-BruneiDarussalam/Local%20Assets/Documents/The-Future-Manufacturing.pdf>

National Manufacturing Strategies

Atkinson, R. (2011). Key elements for a manufacturing strategy. Presentation at NIST VCAT Meeting. Retrieved 6 Dec 2012, from <http://www.nist.gov/director/vcat/upload/Key-Elements-for-a-Comprehensive-Manufacturing-Strategy.pdf>

Ezell, S. J. & Atkinson, R. D. (2011). The case for a national manufacturing strategy. Retrieved 6 Dec 2012, from <http://www2.itif.org/2011-national-manufacturing-strategy.pdf>

Roos, G. (2012). Manufacturing into the future. Adelaide Thinker in Residence 2010-2011. Retrieved 10 Dec 2012, from <http://www.thinkers.sa.gov.au/roosreport/files/inc/194455830.pdf>



The Government's Manufacturing Strategy. Retrieved 6 Dec 2012 from <http://www.bis.gov.uk/files/file25266.pdf>

Manufacturing Strategy Cases

Lindberg, P., Voss, C.A., & Blackmon, K. L. (1998). *International Manufacturing Strategies: Context, Content and Change*. Netherlands: Kluwer Academic Publishers.

Manufacturing Works (2012). *A strategy for driving high-value manufacturing in South Australia*. Government of South Australia. Retrieved 10 Dec 2012, from http://www.southaustralia.biz/manufacturing_and_innovation/manufacturing_works

OECD

Freeman, R. (2008) Labour productivity indicators. OECD. Retrieved 10 Dec 2012, from <http://www.oecd.org/employment/labourstatistics/41354425.pdf>

OECD (2007) Moving up the value chain- staying competitive in the global economy. Retrieved 10 Dec 2012, from <http://www.oecd.org/industry/industryandglobalisation/38558080.pdf>

OECD (2011a). Services-manufacturing linkages. OECD Science, Technology and Industry Scoreboard 2011. OECD Publishing. Retrieved 10 Dec 2012, from http://www.oecd-ilibrary.org/science-and-technology/oecd-science-technology-and-industry-scoreboard-2011/services-manufacturing-linkages_sti_scoreboard-2011-56-en

OECD (2011b) Total employment in manufacturing (Years 2002-2009). Retrieved 10 Dec 2012, from http://www.oecd-ilibrary.org/industry-and-services/total-employment-in-manufacturing_20743882-table1

OECD (2012). Hourly earnings in manufacturing. MEI Original release data and revisions: OECD. StatExtracts. Retrieved 10 Dec 2012, from <http://stats.oecd.org/Index.aspx?querytype=view&queryname=214#>

Pilat, D., Cimper, A., Olsen, K., & Webb, C. (2006) The changing nature of manufacturing in OECD economies. STI Working Paper 2006-9. OECD. Retrieved 10 Dec 2012, From <http://www.oecd.org/science/innovationinsciencetechnologyandindustry/37607831.pdf>

New Zealand

Beard, C. (2012, Dec 20). The new face of NZ manufacturing. Idealog. Retrieved 15 Jan 2013, from <http://www.idealogue.co.nz/blog/2012/12/new-face-nz-manufacturing>

BusinessNZ (2005). *Manufacturing Perspectives*. Retrieved 7 Jan 2013, from <http://www.businessnz.org.nz/file/897/MANUFACTURING%20PERSPECTIVES.pdf>

Corbett, L. (1998) Benchmarking manufacturing performance in Australia and New Zealand. *Benchmarking for Quality Management & Technology*, 5 (4), 271 – 282.

Deloitte (2011) Taking a closer look- NZ high value manufacturing and services value proposition report. Prepared for NZTE. Retrieved 15 Jan 2013, from http://business.newzealand.com/media/504597/high_value_manufacturing_services_value_proposition_report.pdf

Department of Labour (2012). *Manufacturing Sector Action Plan to 2013*. Retrieved 7 Jan 2013, from <http://www.dol.govt.nz/whss/sector-plans/manufacturing/action-plan.pdf> (with industry stats)



Henderson, J. (2012). A vision for manufacturing. The Standard. Retrieved 10 Dec 2012, from <http://thestandard.org.nz/a-vision-for-manufacturing/>

Hunter, I. (2010, 26 Nov). Manufacturing – an overview - Early manufacturing. Te Ara - the Encyclopedia of New Zealand, retrieved 7 Jan 2013, from <http://www.TeAra.govt.nz/en/manufacturing-an-overview/1>.

Johnston, H., Ward, R., & Hunn, N. (2012). High value manufacturing and services. A sector profile prepared for the Ministry of Science and Innovation. Retrieved 15 Jan 2013, from <http://www.msi.govt.nz/assets/HVMS-Sector-profile.pdf>

New Zealand Statistics (2012) Economic Survey of Manufacturing- September 2012 quarter. Retrieved 10 Dec 2012, from http://www.stats.govt.nz/browse_for_stats/industry_sectors/manufacturing_and_production/EconomicSurveyofManufacturing_HOTPSep12qtr.aspx

NZTE (2012). Make the Smart Choice: Invest in High Value Manufacturing and Services in New Zealand. Retrieved 15 Jan 2013, from <http://business.newzealand.com/vBNPZSA/media/1062756/make-the-smart-choice.pdf>

Performance of Manufacturing Index (2012). ManufacturingNZ. Retrieved 10 Dec 2012, from <http://www.manufacturingnz.org.nz/resources-and-tools/benchmarking/performance-of-manufacturing-pmi>

Price, G. (2012). Building a picture of NZ manufacturing. Reserve Bank of New Zealand Analytical Notes. Retrieved 15 Jan 2013, from http://www.rbnz.govt.nz/research/analytical/ANI2_11.pdf

Samson, D., & Ford, S. (2000). Manufacturing practices and performance: Comparisons between Australia and New Zealand. International Journal of Production Economics, 65 (3), 243-255.

Statistic New Zealand (2010). New Zealand Official Yearbook 2010. Retrieved 7 January 2013, from http://www3.stats.govt.nz/New_Zealand_Official_Yearbooks/nz_official_yrbk_2010.pdf.pdf

Top tech, manufacturing firms faring well (2012). Stuff.co.nz. Retrieved 15 Jan 2013, from <http://www.stuff.co.nz/business/industries/7862506/Top-tech-manufacturing-firms-faring-well>

Treasury NZ (2012). New Zealand Economic and Financial Overview 2012. Retrieved 7 January 2013, from <http://www.treasury.govt.nz/economy/overview/2012/nzefo-12.pdf>

Denmark

Denmark Statistics (2012). Manufacturing Industries. Retrieved 11 Dec 2012, from <http://www.dst.dk/pukora/epub/upload/16251/10man.pdf>

Johansen, J., Madsen, O., Jensen, H.V., & Vestergaard, A. (2010) Manufacturing 2025: Five Future Scenarios for Danish Manufacturing Companies. Centre for Industrial Production and Department of Mechanical and Manufacturing Engineering, Aalborg University. Retrieved 11 Dec 2012, from http://www.manufuture.dk/digitalAssets/15/15567_manufacturing-2025_download.pdf

Finland

Asplund, R. (2001). Mobility and earnings- an analysis of Finnish manufacturing and services. European Low-Wage Employment Research Network: Working Paper Number 8. Retrieved 11 Dec 2012, from http://www.uva-aiaa.net/uploaded_files/regular/08Asplund.pdf



Hirvonen, T. (2004) From wood to Nokia: the impact of the ICT sector in the Finnish economy. Economic Analysis from the European Commission's Directorate-General for Economic and Financial Affairs, 1(11). Retrieved 11 Dec 2012, from http://ec.europa.eu/economy_finance/publications/publication1417_en.pdf

IRMA Project (2008?). Analysis of Manufacturing Engineering in Finland. Retrieved 11 Dec 2012, from <http://www.irmaproject.eu/results/AMESC/fin.pdf>

Laido, A. (2011). Cost –focused mass manufacturing. BIT Research Centre. Retrieved 11 Dec 2012, from http://ek.multiedition.fi/oivallus/fi/liitetiedostot/Oivallus-seminaari_Valmistava-teollisuus_Aalto-yo_Aki-Laiho.pdf

Sweden

IRMA Project (2008). Analysis of the Swedish Manufacturing Engineering Sector. Retrieved 11 Dec 2012, from <http://www.irmaproject.eu/results/AMESC/sw.pdf>

Lind, D. (2005) Manufacturing productivity in Sweden- an international perspective since 1960. International Productivity Monitor, 11(Fall), 47-56. Retrieve 11 Dec 2012, from <http://www.csls.ca/ipm/11/IPM-11-lind-e.pdf>

The National Board of Trade (2010). Servicification of Swedish Manufacturing. Retrieved 11 Dec 2012, from <http://www.kommers.se/upload/Analysarkiv/In%20English/New%20reports/Report%20Servicification%20of%20Swedish%20manufacturing.pdf>

Singapore

Loong, L. H. (2002). The pursuit of competitive advantage- value manufacturing in Singapore. Report to the Economic Review Committee: Sub-committee on Manufacturing. Retrieved 11 Dec 2012, from http://www.mti.gov.sg/ResearchRoom/Documents/app.mti.gov.sg/data/pages/507/doc/22%20ERC_Manufacturing.pdf

Statistics Singapore. (2012). Manufacturing. Retrieved 11 Dec 2012, <http://www.singstat.gov.sg/pubn/reference/yos12/statsT-manufacturing.pdf>

Yue, C. S. (2001) Singapore- towards a knowledge-based economy. In S. Masuyama, D Vandenbrink, C. S. Yue (Eds.). Industrial Restructuring in East Asia: Towards the 21st Century, pp. 169-208. Singapore: Institute of Southeast Asian Studies.

Statistical Sources

The World Bank (2012a) Country Data: Manufacturing, value added (% of GDP). Retrieved 11 Dec 2012, from <http://data.worldbank.org/indicator/NV.IND.MANF.ZS>

The World Bank (2012b) Country Data: Manufacturing, value added (Annual % growth). Retrieved 11 Dec 2012, from <http://data.worldbank.org/indicator/NV.IND.MANFKD.ZG> (NO NZ DATA)

The World Bank (2012c) High-tech export as % of manufacturing exports. Retrieved 11 Dec 2012, from <http://data.worldbank.org/indicator/TX.VAL.TECH.MF.ZS/countries?display=default>



Australia

- Australian Bureau of Statistics (2013a). Employment in Australian industry. Yearbook Australia, 2012. Retrieved 11 Jan 2013, from <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1301.0~2012~Main%20Features~Employment%20in%20Australian%20Industry~241>
- Australian Bureau of Statistics (2013b). Manufacturing. Yearbook Australia, 2012. Retrieved 11 Jan 2013, from <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1301.0~2012~Main%20Features~Manufacturing~31>
- Australian Bureau of Statistics (2006). 100 years of change in Australian industry. Yearbook Australia, 2005. Retrieved 11 Jan 2013, from <http://www.abs.gov.au/AUSSTATS/abs@.nsf/lookup/1301.0feature+article212005>
- Australian Business Foundation (2011). Manufacturing Futures. Retrieved 11 Jan 2013, from http://www.nswbusinesschamber.com.au/NSWBC/media/Misc/Policy%20Documents/NBC-515_Manufacturing_Futures_Paper.pdf
- CSIRO (2011). What Does Sustainable Manufacturing Mean to Australia? A Thought Smarter. Retrieved 11 Jan 2013, from http://www.csiro.au/~Media/CSIROau/Files/PDF/What%20is%20Sustainable%20Manufacturing_ThoughtStarter.pdf
- Department of Innovation, Industry, Science and Research (2011). Trends in Manufacturing to 2020. Retrieved 11 Jan 2013, from <http://www.innovation.gov.au/Industry/FutureManufacturing/FMIIIC/Documents/TrendsinManufacturingto2020.pdf>
- Department of Business and Innovation (2011) A More Competitive Manufacturing Industry. Retrieved 11 Jan 2013, from http://www.dbi.vic.gov.au/_data/assets/pdf_file/0004/386797/Manufacturing-statement.pdf
- Government of South Australia (2012). Manufacturing Green Paper: Setting Directions for the Transition of Manufacturing in South Australia. Retrieved 11 Jan 2013, from www.southaustralia.biz/files/473_ted299manufgreenpaper_05.pdf
- Green, R., & Toner, P. (2011, Aug 30). Does manufacturing have a future in Australia? The Conversation. Retrieved 11 Jan 2013, from <http://theconversation.edu.au/does-manufacturing-have-a-future-in-australia-3098>
- Kennedy, N. (2012, Oct 26) Why Australian manufacturing is alive and well. Business Spectator. Retrieved 11 Jan 2013, from <http://www.businessspectator.com.au/bs.nsf/Article/manufacturing-sector-South-Australia-pd20121024-ZD4FE?OpenDocument&src=sph>
- KPMG (2012). Manufacturing Competitiveness in Australia: A Framework for Government Policy and Industry Action. Retrieved 11 Jan 2013, from <http://www.kpmg.com/AU/en/IssuesAndInsights/ArticlesPublications/Documents/manufacturing-competitiveness-in-australia.pdf>
- Krupp, J. (2013). Global uneasiness hinders Aust manufacturing. Stuff.co.nz. Retrieved 15 Jan 2013, from <http://www.stuff.co.nz/business/world/8137510/Global-uneasiness-hinders-Aust-manufacturing>
- Manufacturing Skills Australia (2011). National Statistics for Manufacturing in Australia. Retrieved 11 Jan 2013, from <http://www.mskills.com.au/DownloadManager/Downloads/National%20statistics%20for%20manufacturing%20in%20Australia.pdf>
- NZTE (2012). Manufacturing in Australia: Market Profile July 2012. Retrieved 15 Jan 2013, from <http://www.nzte.govt.nz/explore-export-markets/market-research-by-industry/Specialised-manufacturing/Documents/AUSPAC%20-%20Manufacturing%20in%20Australia%20-%20July%202012.pdf>



Prime Ministers Manufacturing Taskforce (2012). Smarter Manufacturing for a Smarter Australia. Retrieved 11 Jan 2013, from <http://www.innovation.gov.au/Industry/Manufacturing/Taskforce/Documents/SmarterManufacturing.pdf>

The Department of Industry, Innovation, Science, Research and Tertiary Education (n.d.). Manufacturing Industry. Retrieved 18 Jan 2013, <http://www.innovation.gov.au/Industry/Manufacturing/Pages/default.aspx>

IMF

Anand, R., Mishra, S., & Spatafora, N. (2012). Structural transformation and the sophistication of production. IMF Working Paper 12/59. Retrieved 12 Jan 2013, from <http://www.imf.org/external/pubs/ft/wp/2012/wp1259.pdf>

Hunt, B. (2009). The declining importance of tradable goods manufacturing in Australia and New Zealand. IMF Working Paper 09/16. Retrieved 12 Jan 2013, from <http://www.imf.org/external/pubs/ft/wp/2009/wp0916.pdf>

IMF (2011). Changing Patterns of Global Trade. Prepared by the Strategy, Policy, and Review Department. Retrieved 12 Jan 2013, from <http://www.imf.org/external/np/pp/eng/2011/061511.pdf>

World Bank

Lin, J.Y. (2011). From flying Geese to leading Dragons: New Opportunities and Strategies for Structural Transformation in Developing Countries. World Bank Policy Research Working Paper 5702. Retrieved 12 Jan 2013, from http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/06/22/000158349_20110622143522/Rendered/PDF/WPS5702.pdf

World Bank (2012a). Australia Trade at a Glance. Retrieved 12 Jan 2013, from http://info.worldbank.org/etools/wti/docs/Australia_taag.pdf

World Bank (2012b). New Zealand Trade at a Glance. Retrieved 12 Jan 2013, from http://info.worldbank.org/etools/wti/docs/New%20Zealand_taag.pdf

World Bank (2012c). World Development Indicators. Retrieved 12 Jan 2013, from <http://data.worldbank.org/sites/default/files/wdi-2012-ebook.pdf>

ILO

ILO (2010). Global Wage Report 2010-11. Retrieved 12 Jan 2013, from http://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_145265.pdf

Jansen, M., Peters, R., & Salazar-Xirinachs, J. M. (2011). Trade and employment: from myths to facts. ILO. Retrieved 12 Jan 2013, from http://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_162297.pdf

manufacturinginquiry.org.nz

Authorised by David Parker, Parliament Buildings, Wellington

