

Optimal Industry Policy

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Introduction

Thank you for the invitation to speak today, it is a pleasure to address the CSIRO Innovation for Impact Summit. The conference topic is of vital importance. After all, innovation and the diffusion of ideas are key drivers of improvements in labour productivity – output per hour worked.

And over the last decade, Australia's productivity growth has averaged just 1.1% per year – the slowest growth rate in 60 years. Over the year to March, productivity fell by 4.6%. These trends are concerning because in Australia, almost all sustained increases in real wages have been underpinned by improvements in labour productivity growth.

Real wages have been falling over the past year. Household budgets are being stretched, particularly when it comes to purchases of essentials. Our cost-of-living challenge is, in reality, a productivity challenge by another name.¹ And responding to many of the challenges highlighted by last week's Intergenerational Report – fiscal consolidation, an ageing population, inter-generational equity, and decarbonising our economy – will be assisted by a return to healthy productivity growth.

On a more positive but not unrelated note, our unemployment rate remains low at 3.7% – below many economists' estimates of full employment. While a low unemployment rate is obviously very welcome, it does present special challenges of its own – including for industry policy. Today I will discuss some recent developments in industry policy in Australia and around the world, and provide some remarks on the optimal design of these policies in light of these developments and Australia's ongoing productivity challenge.

Missions

The CSIRO is engaged in a program of mission-oriented innovation², and much of the conference has been devoted to this topic. It's an important discussion to have. As many of you would know, the idea is not new. Indeed, on one view it has been around for centuries.

For example, in ancient times a state of war helped to focus the minds of leaders and the population, providing a well-defined mission that sometimes encouraged innovation. A case in point is Caesar's innovation of the double wall encirclement of Vercingetorix in 52BC at the Battle of Alesia, which enabled the Romans to starve out the Gallic troops and prevent reinforcements from joining the battle. This mission-led innovation arguably changed the entire history of the

¹ Robson (2023).

² To the best of my knowledge, Ergas (1986) introduced the terms 'mission-oriented innovation' and 'diffusion-oriented innovation'.

Roman empire. More recently, some argue that the Longitude Prize in the 18th century was an early example of mission-led innovation.³

And we are all familiar with the example of the Apollo mission. The point is, the idea of carefully planning and coordinating innovation effort and resources around a well-defined problem, or directing those resources towards the achievement of a specific end goal – with all advantages and disadvantages that entails – has been around for quite a while, in both the private and public sectors.

Nevertheless, in the innovation space there are likely to be significant unexploited productivity gains from thinking carefully about the contours of the various tradeoffs involved with different organisational forms and models of coordination, and what mission-oriented innovation should actually look like in practice, as opposed to theory.

My own sense, based on limited knowledge of specifics, is that the terms of those tradeoffs probably vary quite a bit, and it is unlikely that a one-size fits all approach to missions is suitable for all forms of innovation.

But stepping back a bit, the question often encountered in the design of industry policy is: whose mission are we talking about? After all, in a market-based liberal democracy like Australia, everyone has their own mission: to pursue the best outcomes they can for themselves, their families, their friends, their neighbours and their community.

So the key policy question is: whose mission, and who does the planning – government, market participants, or some mix of both?

At one end of the industry policy spectrum, there are policies like the R&D tax incentive, which attempt to take advantage of individual decisions around innovation planning and execution, in what I will call market-led missions – where specific actions and innovation decisions tend to be guided by market prices and the desire to earn a profit and avoid losses.

Here it is important to emphasise, as the economist Ludwig von Mises did, that ‘the market is *not* a place, a thing, or a collective entity. It is a *process*, actuated by the interplay of the actions of the various individuals cooperating under the division of labor.’⁴

It all sounds very abstract, but a moment’s reflection suggests that a great deal of mission-oriented innovation probably takes place in this decentralised cooperative setting. Market-led missions can be huge in scope and bring together thousands of workers to co-ordinate their activities – such as how to export more than 80Mt of iron ore to China in three months.⁵

Or they can be small, micro-missions, such as small businesses adopting a new technology to achieve modest ends. Indeed, Australia has over 2.5 million businesses⁶, and, as outlined in our recent *Advancing Prosperity* report, 98% of them do *not* engage in new to the world innovation of the kind that CSIRO missions build on. Instead, they adopt and adapt the inventions of others to their own circumstances.

But the productivity gains from this diffusion – involving millions of market-led innovation missions – are likely to be significant. Indeed, it has been argued that the distinguishing feature of some of the world’s most successful economies – including the German speaking and Nordic countries – is

³ Mulgan (2018).

⁴ Von Mises (1949), p. 258.

⁵ <https://www.bloomberg.com/news/articles/2023-07-18/rio-tinto-s-second-quarter-iron-ore-shipments-decline-1>

⁶ ABS Cat. No. 8165.0.

less a commitment to radical innovation than long-established excellence in adapting and diffusing incremental innovation (Ergas 1986).

In this respect, as we also discussed in our recent *Advancing Prosperity* report, there is an important role for government in removing barriers that might be preventing the diffusion of best practice. And, with respect to the role of market prices, competition policy settings and policies around market dynamism and openness are critical.

After all, market prices ‘are a signal wrapped up in an incentive’⁷, conveying important information to producers and consumers regarding changes in preferences, opportunity costs and relative scarcity. Prices act as important coordination devices and a clearing-house of decentralised knowledge.⁸ If market prices are distorted, businesses and consumers will get the wrong signals and engage in the wrong market-led missions.

At the other end of the spectrum are those commentators – notably Professor Mariana Mazzucato of the University College London – who have argued that we should extend the concept of highly planned mission-oriented change to the entire economy.

In her book *Mission Economy*, Mazzucato advocates a top-down approach to whole-of-society problems, where government defines grand social missions and attempts to put the whole economy on a guided trajectory, providing ‘systemic directionality’ for an extended period of time.⁹

The scope for failure and spectacular waste under this approach seems great – and this historically proven to be so – but Mazzucato seems to view this as a feature rather than a bug. Mazzucato also seems to downplay the possibility of government failure.¹⁰ Moreover, even when it has succeeded, this has relied on an economic context in which markets work well, both assisting in the mobilisation of resources and in rapidly spreading any resulting innovations into commercial activity.

The Commission sees substantial risks in the approach Mazzucato advocates. While there may be a place for more micro-mission-oriented approaches to specific innovation challenges – of the kind that the CSIRO is pursuing – the case for adopting more of a macro-mission-oriented approach to address broader social and economic problems is not strong. And waste in the name of a mission is still waste.

How, then, to think seriously about national industry policy?

The Productivity Commission has its own mission:¹¹ we are the Australian Government’s independent research and advisory body on a range of economic, social and environmental issues affecting the welfare of Australians. We apply robust, transparent, and consistent frameworks to our analysis of public policy issues, and we adopt a community-wide perspective when doing so.

Our independence is underpinned by the *Productivity Commission Act 1998* and our processes and outputs are open to public scrutiny and are driven by concern for the wellbeing of the community as a whole. If you want to do national industry policy, or mission-based policies, we have the tools to understand and analyse those issues, and we have been doing that at the national level for a long time.

⁷ Cowen, T. and Tabarrok, A. (2015), p. 120.

⁸ Hayek (1945).

⁹ For critiques of the Mazzucato thesis, see Chakraborty (2021) and Mingardi (2021).

¹⁰ Shuck (2014), Glazer and Rothenburg (2001), Winston (2006), Wolf (1993).

¹¹ Productivity Commission *Corporate plan 2022-23*, p. 4.

The Trade and Assistance Review

So, what do we mean by industry policy? A recent paper by leading researchers provides a useful definition:

Those government policies that explicitly target the transformation of the structure of economic activity in pursuit of some public goal. The goal is typically to stimulate innovation, productivity, and economic growth. But it could also be to promote climate transition, good jobs, lagging regions, exports, or import substitution. Since industrial policy targets structural change, a key characteristic is the exercise of choice and discretion by the public authorities: ‘we promote X but not Y,’ though the later part of this statement is typically left implicit.¹²

This is broad but fully consistent with the way the Commission approaches the topic. Under s. 10 of the *Productivity Commission Act 1998 (Cth)*, we have a statutory obligation to report annually on the effect of assistance on industry and on the economy as a whole. Our Act defines government assistance to industry as:

... any act that, directly or indirectly: assists a person to carry on a business or activity; or confers a pecuniary benefit on, or results in a pecuniary benefit accruing to, a person in respect of carrying on a business or activity.

We fulfil our statutory obligation by publishing an annual *Trade and Assistance Review (TAR)*. In contrast with much of our other work, the TAR does not make recommendations to government. Nor does it undertake a detailed economic assessment of the desirability or otherwise of particular policies.

Governments often engage in industry policy for a variety of reasons, including – but not limited to – those related to conventional static notions of market failure¹³, such as the provision of pure public goods, or subsidising the production of private goods and services that have positive spillover benefits or which are regarded as merit goods.

Whatever the reasons, it is clear that industry policy very deliberately involves interventions which:

- Tend to be *selective* or *discriminatory* in their treatment or promotion of certain sectors.
- Usually involve the exercise of *discretion* or *choice* by policy makers

From this, two further points follow.

- By definition, in a world of scarce resources, making selective choices about which sectors to support involves incurring an *opportunity cost* – the net gain of the next best alternative (for example, support could have been provided to a different sector). It is useful for policy makers and the public to know what those costs might be.
- In an open economy, depending on their design, selective industry policy choices can affect our trading position vis-a-vis the rest of the world. And the industry policy choices of our trading partners can affect us. Given Australia’s reliance on trade as a source of prosperity, it is important to have some idea of these trends and their impacts.

Thus, the primary task of the TAR is one of transparency. It sheds light upon – and quantifies the financial costs of – assistance to industry, in the form of tariffs, direct spending and tax

¹² Juhasz et al (2023) p. 4.

¹³ See Salanie (2000) for a thorough overview.

concessions. And it presents a thorough overview of recent trade outcomes and policy developments in Australia and around the world.

Sometimes the TAR gets criticised. And it is true that it is not always perfect – in certain cases, due to the complexity of policies, estimates of assistance can involve more art than science. For example, the TAR has historically identified the ‘motor vehicle and parts’ sector as being amongst the most assisted sectors in the history of Australian industry policy, ranging from tariffs, to grants, concessional finance, procurement mandates, local content rules, and export incentives. And that was without counting all forms of assistance, and not counting assistance from State governments.

A previous Industry Assistance Commission Chair Bill Scales noted that ‘Assistance for the industry was so high that even the Industry Assistance Commission (a predecessor to the Productivity Commission) did not have the tools to measure the stratospheric effective rate of assistance to the sector from this complex labyrinth of protective assistance measures.’

The most recent edition of the TAR – our 49th – was released in July and covered the 2021-22 period. Several key points emerged from our analysis:

- Total Commonwealth government industry assistance was an estimated \$13.8 billion (in nominal terms) in 2021-22, an increase of \$460 million from 2020-21.
- Similar to previous years, budgetary assistance – spending and tax concessions – accounted for the vast majority of this assistance.
- Relative to their size, primary production and manufacturing attract the largest shares of budgetary assistance.
- Industry assistance in Australia and overseas no longer principally takes the form of the ‘at the border’ quotas and tariffs as it has in decades past. Instead, it is increasingly implemented in less visible forms ‘behind the border’ – subsidies, tax concessions, tax credits, budget spending on favoured sectors, concessional finance, domestic reservation policies, and local content rules.
- Finally, around the world, industry policy and trade protectionism are on the rise.

The Global Rise of Industry Policy and Protectionism

It is worth focusing on this last point in a bit more detail. What is driving the global rise of industry policy and protectionism? At the risk of offering a penetrating glimpse of the obvious, five factors are key:

- An increase in mercantilist and protectionist sentiment over the last decade.
- Growing concerns about economic resilience and vulnerable supply chains, particularly in light of the COVID-19 pandemic.
- Growing geopolitical and geostrategic tensions, including Russia’s invasion of Ukraine – but also in other parts of the world.
- The enormous challenges posed by policy responses to climate change, including most notably decarbonisation of energy systems.
- Recent policy responses by major economies, which tend to evoke responses from other countries.¹⁴

On this last point, the *Made in China 2025* initiative provides large subsidies to domestic industries to increase self-sufficiency. And as outlined in this year’s TAR, the recent US Inflation Reduction Act (IRA) includes tax credits for businesses and consumers for clean energy purchases – benefitting solar equipment manufacturing, batteries, electric vehicle (EV) manufacturing and

¹⁴ On the return of industry policy see Kalish and Wolf (2023); Rodrik et al. (2023); Juhasz et al. (2023); and Irwin (2023).

energy-intensive manufacturing. Subsidies are also provided to the hydrogen and nuclear energy sectors.

Most notably, the IRA introduces a system of local content-related 'bonus' tax credits – additional subsidies for investments in clean energy technology based on where those investments are made, where inputs to production are sourced from, and where final production occurs. These are a good example of trade-distorting industry policy: they are effectively trade barriers, created not by directly imposing taxes on imported goods, but by providing additional subsidies for the purchase of goods produced in certain locations.

Similarly, the US CHIPS and Science Act is aimed at increasing US manufacturing of advanced microprocessors. And, partly in response to concerns that some European manufacturers might shift to the US to benefit from the IRA's provisions, the EU has proposed similar local content rules.

In summary, the resurgence of major economy industry policy has sparked an increasingly hidden global trade war.

How should Australia respond?

The question for Australia is how to best respond to these developments. Given the size of major economy industry policies, it should come as no surprise that the TAR concludes that attempting to compete with major economy industry policy is likely to prove a net negative for small open economies like Australia.

We do not have the fiscal resources and it would be like bringing a slingshot to a tank battle. And even if we did engage directly in this trade war, we would need to think very carefully about the signal it would send to our trading partners and what it might suggest about our ongoing commitment to the rules based international order – something which has benefitted us greatly in the trade arena.

Instead, living standards in small open economies like ours will be best served by continuing to focus where they are best placed to fit within global production patterns. In other words, we should continue to focus on our comparative advantages and think carefully about new sources of comparative advantage that are likely to emerge.

But we should avoid turning inwards and using trade and other policy measures to encourage the domestic production of manufactured goods as a replacement for lower-cost manufactured goods imported from abroad. Some commentators claim that such import replacing measures would constitute a 'new' approach to industry policy.

There is nothing new about it. It is the very essence – indeed the exact definition – of *import substitution industrialisation* (ISI): an ancient idea which was last fashionable in some developing countries in the 1950s and 1960s.¹⁵ Seventy years ago, a strong manufacturing base was regarded as a sign of economic strength and success in advanced economies.¹⁶ Indeed, between 1901 and 1950, the GDP share of manufacturing in Australia doubled, from around 10% to 20%.¹⁷

¹⁵ See Waterbury (1999); Irwin (2020a, 2020b); The Economist (2020).

¹⁶ Krueger (1997) sets out the evolution of economic thinking on import substitution.

¹⁷ Maddison Project Database 2020.

Many developing countries, particularly those in Latin America and Africa,¹⁸ looked at these trends and attempted to emulate them via import substitution industrialisation. Their goal was to address balance of payments problems, reducing demand for foreign currency and dependence on other markets.

These inward-looking policies failed badly, and were abandoned in favour of more outward looking export promotion strategies, leading to some success in South East Asia in the second half of the 20th century. The extent to which these policies contributed to this success is highly contested. And, in any case, they were far from successful elsewhere in the world – and the Australian economy of 2023 is very different from these case studies.

Given this history and our current level of economic development, it should go without saying that it would be highly inadvisable for Australia to go down the import substitution path.

As discussed at length in our recent report entitled *Advancing Prosperity*, the epoch which equated manufacturing with overall economic strength has long since passed, going the way of Paul Keating's Morphy Richards toaster, the Qualcast mower, the Astor TV, and the AWA radiogram.¹⁹

Manufacturing as a share of value added has been declining in Australia for several decades, falling from over 20 percent of GDP in 1950 to just 5.8% last year.²⁰ Services now comprise 80% of Australia's GDP, and account for 90% of employment, and a large service sector is a feature of a mature and prosperous economy.²¹ Over the same period, income per capita experienced a nearly fivefold increase.²² These structural trends – with some notable exceptions – are common among advanced economies.²³

This is not to say sectors like agriculture, mining and manufacturing are not important sources of Australia's prosperity. On the contrary, they are. Indeed, agriculture and mining are our two most productive sectors. Manufacturing employs nearly 1 million Australians.²⁴ And many services can only be delivered via manufactured goods (think of the lightbulb; the iPhone, the personal computer, the electric vehicle).

The point is that while manufacturing is an important source of jobs and income for many Australians, times have changed since the 1950s: the size of the manufacturing sector as a share of output is no longer an indicator of *overall* economic strength. What matters more is the extent to which our individual manufacturers can improve their productivity – working smarter, not harder or longer – remain competitive, and exploit existing and emerging comparative advantages.

And this leads me back to opportunity cost: the revealed preference of most Australian consumers and workers seems to be that they increasingly prefer an economy dominated by market and non-market services: retail and wholesale trade; financial and other services; transport services; housing services; digital services and telecommunications; education, and finally the care economy – aged care, healthcare, and disability support.

¹⁸ Waterbury (1999).

¹⁹ Keating, PJ (1992), 27 February: <https://australianpolitics.com/1992/02/27/keating-blasts-liberal-party-fogies.html>

²⁰ Maddison Project Database 2020 and ABS Cat. No. 5204.0.

²¹ Productivity Commission (2021a), p. 1.

²² Maddison Project Database 2020.

²³ The OECD average share has declined from 18% to 13% over the last 25 years. Declines have been experienced in many OECD members, including Japan, Germany, France, the UK, and the US. Korea is a standout exception, maintaining a share of around 25% over the period.

²⁴ ABS Cat. No. 6291.0.55.001, Labour Force, Australia, Detailed, Table 4.

We see headlines every day noting shortages of many of these workers – particularly in education, health care and aged care where there are genuine fears of overwork. More generally, business has legitimate concerns about skill shortages.

In some ways this is a nice problem to have. Australia’s economy is characterised by full employment and high-capacity utilisation, and the vast majority of workers are employed in services – where they are desperate for more workers. But under these circumstances, any industry policy that seeks to direct resources into other sectors and wishes to be taken seriously must confront two basic (but potentially very uncomfortable) questions:

- From which sectors are the additional workers going to be drawn? And, as a follow up,
- Which of the services sectors would you therefore like to shrink?

Conclusion: Towards an Optimal Industry Policy

Questions like this lie at the heart of opportunity cost and comparative advantage. Given the selective choices that are inevitably involved in industry policy and the opportunity costs involved, what is the best way forward? How *should* Australia respond to current developments? We cannot avoid risks. We can only manage them.

While it is obvious that we should not go down certain paths, there will often be a role for individual policies. What is best way to manage the risks? What are the policy interventions that will maximise the difference between benefits and costs?

Oddly enough, *only a cost-benefit analysis can tell us the answer.*

The Commission’s statutory obligations, our mission and our framework for assessing policies compels us to consistently apply a transparent, well-articulated, rigorous and evidence-based framework that takes into account economic, social and environmental factors from a community-wide perspective, noting that Australia is an open, market-based economy, and noting that certain policies may have different distributional impacts across the community.

Some have argued that this cost-benefit approach reflects old thinking. Others might counter that in the post-truth era and the dearth of hard-headed rigorous policy thinking, conventional cost-benefit analysis based on sound reasoning and carefully gathered evidence is actually a refreshing counter-culture, hitting back against a woolly-minded policy establishment. It’s an interesting debate for another time.

My own view is that the cost-benefit approach reflects – and is consistent with – the very best thinking in modern economics and the statements of Australian governments over many decades. For example, our framework is consistent with the Government’s own recently updated *Guide to Policy Impact Analysis* (OIA 2023)²⁵ which asks:

- What is the problem you are trying to solve and what data is available?
- What are the objectives, why is government intervention needed to achieve them, and how will success be measured?
 - What policy options are you considering?
 - What is the likely net benefit of each option?
 - Who did you consult and how did you incorporate their feedback?
 - What is the best option from those you have considered and how will it be implemented?

²⁵ See also Cth of Australia (2006a, 2006b).

- How will you evaluate your chosen option against the success metrics?

As I said earlier, the *Trade and Assistance Review* does not undertake such cost-benefit exercises and makes no formal recommendations. But we welcome the Government's recent commitment to rigorously measure the costs and benefits of industry policies.²⁶

A good cost benefit analysis of industry policies should account for economic, social and environmental factors and, given the recent global developments I have spoken about today, it should – where relevant – also incorporate analysis of risks related to supply chain resilience, geopolitical developments and national security concerns.²⁷ Such analysis should be clear-eyed, transparent and forward looking in its assessment of such risks.

While cost-benefit analysis should not be the final determinant of policy choices, in my experience it is a vitally important input into the policymaking process and a powerful decision-making tool, particularly when it sets out unintended consequences and conducts sensitivity analysis.

In the context of cost-benefit analysis, there are a range of questions which we believe – given what is at stake – policymakers should ask when thinking about different industry policy options:

- What are the prospects of additionality, per dollar spent?
- Is the proposed sector one that has a reasonable chance of being self-sustaining over the medium-to-long run, (for example because we expect world prices to rise over time)?
 - If so, why aren't investors jumping on board?
 - If not, it is important to note that the costs of the initial industry assistance are likely just the beginning – the sector could be expecting taxpayer support in perpetuity.
- More generally, international trade is actually just another form of technology.²⁸
 - Why is it necessary for the industry to be located in Australia, when Australia could import the same product from overseas?
 - Is it because it's a 'charismatic' industry and we like the idea of it being located in Australia?
 - Is that really a sufficient reason for taxpayers to fund it?
- If there is a concern about supply chain disruptions, would the good be identified by a data-based approach to assessing supply chain vulnerabilities (such as that undertaken by the Commission in its *Vulnerable Supply Chains* report²⁹). And if so, would the same conclusion still apply in, say, 5 or 10 years time? (Recognising that major economy industry policy is already diversifying global sources of goods judged to be 'critical'.)
- On the other hand, if a domestic production capacity was established in that good, what would stop the domestic producer of that good from simply exporting the good to take advantage of higher prices during periods of supply chain disruptions?

In other words, why do we think that domestic production of a globally traded good would safeguard Australia from global supply chain disruptions (a domestic gas production capacity did not safeguard Australia from global energy supply disruptions).

- What exactly is the shock we are concerned about?

²⁶ Hartcher (2023).

²⁷ There is a significant literature on the economics of conflict, trade and conflict, provision for adversity and self-insurance. See, for example, Garfinkel and Skaperdas (2007), Skaperdas et al (2022); McGuire (2000), Ehrlich and Becker (1972).

²⁸ Robson (2022).

²⁹ PC (2021b).

- How many times would the supply of a good need to be disrupted, and for what length of time, to justify the additional costs of domestic production?
- Would there be another way of insuring against supply chain disruptions, such as pursuing alternative supply chains with trading partners, or maintaining a stockpile of that good?
- What other supply chain vulnerabilities and risks are we exposing ourselves to by insisting upon domestic production?
- If the policy goal is to address uncompensated negative externalities, such as those associated with climate change:
 - Why isn't possible to import the technologies and goods that address these externalities?
 - And if we cannot import some of those technologies and goods, would the costs of establishing and maintaining a domestic production capacity be lower than alternative ways of addressing those externalities?
- Finally, is the industry policy goal to transition Australia workers out of sectors in decline? If so, in a full employment economy, why do industry policy proponents think that workers in affected sectors in decline will be unable to transition to new sectors? Why do we regard establishing and maintaining a domestic production capacity in a particular good as preferable to retraining for sectors that will naturally grow and emerge over time?

These are big questions, and there are many others. The Commission very much looks forward to thinking further about these issues and contributing to the policy debate.

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