



Speech by Sir Peter Gluckman at the New Zealand Mission to the European Community

Doing More with Less: Defining Strategic Priorities in a Small Advanced Economy - Sir Peter Gluckman¹ and David Skilling²

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Over the past couple of years, together with my colleague Dr David Skilling, we have been thinking, writing, and talking about the common challenges and opportunities that small advanced economies face in a globalising world, covering issues from economics and international affairs to science and innovation. Our argument is that the dimension of scale is far more important to national strategies than is often recognised, and for countries of less than 10 million in population, understanding this dimension of scale is critical.³

Small advanced economies face many similar challenges and opportunities in a global economic and political context that is changing rapidly and somewhat disruptively. In developing their economic and innovation strategies, small advanced economies have a particular set of factors to consider which may differ from those of the larger economies.

The small advanced economies have in general outperformed large economies in terms of economic performance and in terms of various innovation scores. “For example their share of global GDP has remained constant over some decades while that of the large advanced economies has fallen. They have export shares of GDP that are about twice that of large advanced economies, and have benefited greatly from an open, rules-based global system”.

Over 30 years they have sustained their contribution to global GDP whereas that of the larger economies has fallen. In recent rankings of innovation, they are disproportionately represented in the top countries. For example 4 of the top 5 and 8 of the top 10 countries in the global innovation index are small countries. It would appear that small advanced economies have an advantage in that they are able to be more nimble, innovative and responsive to changing conditions.

But equally they are more “exposed to the international economic and political environment because external developments can be more consequential than domestic events”. Further the consequences of error in a policy decision can be greater because of less buffering capacity from a larger and more diverse system.

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³ This speech draws from and in some places directly and extensively quotes from a series of background papers and notes on small economy issues that are available on David Skilling's website at www.landfallstrategy.com; in particular, a discussion paper that covers some of the issues in this paper is available at <http://landfallstrategy.com/discussion-papers/small-countries/>

“So how must they respond going ahead?

First, in a more competitive, turbulent world, they need to continue to invest in strengthening their competitive position. Many have been undertaking structural reform, investing in human capital and innovation, and developing new areas of competitive strength. And many have been in the vanguard of developing new economic relationships through trade agreements and the like.

Second, there should be increased focus on managing external risks. This may involve economic diversification so that the economy is not overly exposed to specific sectors or markets. And countries also need to ensure that risk is allocated efficiently to enable households to cope with a more turbulent economy; an efficient social insurance system is a key part of managing risks and building resilience in small open economies.

But given the seriousness of the emerging international challenges, small countries also need to step-up their engagement in global policy debates and this is a challenge. Although their size imposes some limitations on the ability of small countries to shape the global debate, ideas and concerted action from small countries can make a significant difference. This is too important to be left only to the large countries.”

Key to the success of many small countries seems to have been the ability of small country governments to adapt themselves to changing global economic conditions over the past few decades. But the global economic and political environment is becoming significantly more challenging for small countries.

“The current phase of globalisation is characterised by much greater competition from emerging markets for developed economies and their firms, as well as much increased cross-border mobility of people, capital, and firms. This creates a particular exposure for the small countries as they tend to rely on a few, globally exposed sectors to a greater extent than is the case for larger countries.

Small countries are particularly exposed to the likelihood of greater economic volatility, and tend to have less resilience in terms of buffers or internal diversification. Large economies can be better placed to absorb these shocks, because they have larger, intrinsically more diversified economies. And financial markets tend to regard larger countries as more secure, for any given level of economic fundamentals, such as the level of public debt.

Small countries have been significant beneficiaries of globalisation over the past few decades. One of the institutional features supporting the extension of globalisation has been the creation of multilateral institutions that embedded a rules-based global economy. But the multilateral approach on issues like international trade and climate change is struggling to deliver outcomes in a world with a greater diversity of large actors with quite different interests. It is creating a more complex and challenging international economic and political environment for small countries to navigate.

It is thus no surprise that small countries have been in the vanguard of developing regional and bilateral agreements, for trade and exchange rate arrangements, in response to the risks to progress on the multilateral track”.

As I have already noted small advanced economies have performed strongly on a range of economic measures over the past few decades, out-performing their larger country counterparts. However, there is variation in this performance – some small countries have

done well, others much less so. At an aggregate level, it is difficult to identify large differences between the groups of small and large countries. However, if we restrict our analysis to the countries at the top of the various innovation rankings, a slightly different picture emerges. Small economies are over-represented in the top 5 and top 10 of many of the various rankings on both economic performance and innovation, and this is unlikely to be a coincidence.

Science and innovation have been critical to the development of the small advanced economies, individually and collectively. Firstly it has built a brand/reputation and developed relationships with countries that may otherwise not pay too much attention. Secondly for many the innovation economy has been central to their on-going and disproportionate economic success – consider the Nordics, Singapore and Israel, and the resilience now appearing in the Irish economy.

The challenges for a small country's science and innovation system have some distinct features from those of the large economies. While many small nation science systems are simply stripped down versions of large nation systems, not all components can scale down well and the problems can manifest both in knowledge transfer to the private sector and in tensions in the expectations of the policy maker. It is not possible for public science systems in small nations to cover all areas of knowledge development in depth; yet, to support activities in the tertiary sector, it is necessary to fund some level of activity in all research fields. The problems of size lead to issues of critical mass, of institutional silos that paradoxically are more apparent in small nations, to problems in the operation of the science system and fewer opportunities for career development.

This issue of scale is a dominant concern – how to prioritise, and what to prioritise in the science system. In contrast to science in a large economy, the question of assessment of impact of public research funds becomes more acute to the policy maker when such decisions have to be made. Large countries can rely on the assumption on investment in science and innovation on a broader scale and with a broader range of implied objectives.

Further, publicly funded science has a broader range of objectives extending beyond innovation – for example for cultural/academic purposes, for assessing and managing natural resources and the environment, for understanding the public social sector and ensuring effective policy, and for broadly defensive purposes (public health, biosecurity, natural hazards, as well as military).

Increasingly, politicians and Ministries in small countries are desirous of having tools for assessing the impact of such research. Yet, assessing the impact of research directed at economic innovation is itself challenging and it is clearly much more difficult when one extends to other forms of research.

Because small countries cannot have major research activities or critical mass in every domain – yet they must fund academic activity in all domains to foster research excellence – there are some implied tensions. These tensions are aggravated by the issue of to what extent small nations should rely on imitative research to support firm-based innovation and to what extent they should undertake frontier research. Recent analyses suggest the latter is important for economic growth in the most advanced countries whereas imitative activity leads to growth in less developed countries. Thus it is not a viable policy position to ignore basic research in the small advanced economies.

The transfer of knowledge and IP from the public science to the innovation ecosystem is a challenge for every country and many different schemes have been developed – some may be more appropriate for larger nation contexts and others for smaller countries. Beyond this challenge is the concern of all small countries as to how to ensure retention of the value created from their investment in human and intellectual capital.

While the context is different in each country, the closer relationship between the public constituency and the policy maker/politician in small nations gives sharper focus to a number of public policy issues involving science, such as the assessment of new technologies (e.g. synthetic biology) or in communicating and managing risk. The inherently smaller capacity in such countries creates challenges in addressing issues of technology forecasting and risk assessment.

Let me expand a little on some of these issues.

The inherently more limited capacity of small nations creates some issues for administering public science. In general, the modern form of public science administration is derived from models developed in large countries, and they do not always scale down easily. How much funding should be focused on the institution, research area, project, and how much on the individual? What should be the balance between small project grants and larger ‘centres of excellence’ and programme grants or other forms of initiative such as a ‘Grand Challenges’ approach? As the competition for funding gets tougher, issues of the validity of peer review have emerged. Inevitably conflicts of interest exist even if they are subliminal. Indeed there is rising concern that the most common “committee approach” to peer review has a number of critical faults and that these are much more likely to lead to perverse outcomes in small countries such as funding decisions resulting in conservative/“me-too” rather than frontier research. It has been said that this is a recipe for spectacular mediocrity.

Much intellectual innovation arises at the boundary between disciplines; how then should public research funds be allocated? Dual assessment by each discipline disadvantages such research. Similarly when research is transnational, it may be impeded by the need for dual assessment processes.

A feature of small nation science and academic structures is that parochialism and institutional silos can be, paradoxically, far harder to address than in much larger systems. This was fostered by the intense competitive perspective of the public policy reforms common in many countries in the 1980s. This can lead to a number of distortions and engender lost opportunities – in some jurisdictions specific mechanisms such as virtual centres of excellence are being put in place to address these barriers.

A further problem for the public science system has been the massive expansion of tertiary education with a greater focus by Governments on increasing the number of graduates with advanced degrees. This is leading to relatively greater numbers of academics expecting careers in academic science and burdens on research funding. It may be time to retest the view held in some countries that all university education needs be conducted by active researchers. Certainly it must always be scholarship informed but that is different. Effectively this differential is readily accepted in the USA.

One side effect has been the explosion of academic science outputs and the reliance on academic performance measures which drive publications at the expense of consideration of other impacts of the research. In turn this has implications for whether rationalisation and differentiation should be more transparent in the tertiary sector.

A further issue is whether focus of contestable funding systems is primarily on the individual researcher or on the project. This has different emphasis in different jurisdictions and in different parts of scientific careers. The key must be more aggressive identification of the true intellectual entrepreneur at an early stage and building around them. Evidence suggests these individuals do produce the most impactful research.

Beyond that we need to think about the reality that more and more doctoral graduates will have their home in the private sector without doing a postdoctoral fellowship. This will have major implications for the shape of a PhD degree and again some countries such as Denmark are taking innovative steps in this regard.

A further issue is the inherent conflict between a traditional University's idea of what merits academic advancement and the increasing expectation of private sector engagement in academic research. This tension is flowing through to the academic publishing sector and creating a potentially increasingly adversarial future.

The challenge of promoting technology transfer is recognised in every jurisdiction. A range of incentive systems and structural solutions exist. They are very varied – for example technology transfer offices of academic institutions may have a weak or strong role, IP may or may not be owned by the institution, and funding of academic institutions may be linked to technology transfer.

A particular challenge can be the resistance of the academic institution to recognise its expanded role as part of a broader innovation system; this can manifest in issues related to promotion and how grant applications are assessed. Another challenge is that different kinds of research may face different kinds of transitional barriers and opportunities. Thus models and expectations developed for life-sciences research are very different to those for engineering, but this can be lost in small systems desiring a homogenous approach.

A further set of issues arises because there may be fewer opportunities for career development in a small country. Scientists may be less willing or able to move between academia and the private sector and the narrow focus of the academic CV is inhibitory to that flow of people in a very contestable environment. If there is to be a more effective interplay between the science and innovation ecosystems this structural impediment may need addressing.

What are the roles of public sector versus private sector-owned incubators, public pre-seed and seed funds etc? Different countries have taken very different approaches to managing spin-out activity and its relationship to founder organisations and scientists. A common and recurring concern in small countries is retention of human capital development and IP generation – small companies can be readily exported with a loss of return on the national investment in science. What strategies can be used to reduce this loss?

Small countries tend to have a large number of SMEs and a variable presence of MNCs. But these are very different companies and different tools are needed to incentivise their route to research-based innovation. Indeed MNC policy is highly variable across the small economies, although the evidence suggests their criticality to a vibrant innovation ecosystem in a small country.

Small countries often can interact in science and innovation with each other in a different way to large countries or how large countries interact with small countries. In science, there can be a problem of recognition of small country activity from academia and business in the big economies.

Examples of novel synergies exist in discovery and applied research – they are less apparent in the innovation space except when driven through MNC activity. Trans-national collaboration may be a way for knowledge-based SMEs arising in the small advanced economies to get to scale quicker.

It is widely appreciated that science and technology are playing a greater role in addressing major challenges, many at global scale such as climate change and food security. Governments increasingly need scientific advice on many matters involving the adoption of new technologies and this is linked to issues of risk assessment. Traditionally the small countries have relied heavily on the larger scientific academies to support such assessments as the issues of competency and potential vested interest can be more acute in a small population.

In turn the major economies are looking to manage the international science agenda in more structured ways. There is a risk that small economies could get squeezed as such developments proceed. Agendas may be set largely in groupings such as the EU, the Carnegie group, G20 or by the important roles of China and the USA. It is not clear what structures will emerge or whether the cost of engagement will inhibit small country engagement. Additionally there is the challenge that some technologies will transcend national boundaries either intentionally or accidentally, and yet how these will be managed either at official level or because social license is needed is unclear. Examples might include synthetic biology and geo-engineering.

A related concern is the rapid change in the nature of tertiary education. We are seeing the increasing projection internationally of electronic education from the top-ranked US institutions. The potential for this to harm research-based higher education and talent retention in smaller countries such as NZ over coming years is real. Major change appears certain over coming decades in the shape of the research universities in small countries; sadly they are likely to be slow to respond and likely will not until the marketplace shows the consequences of not doing so.

Final remarks

The small country group is a varied group – by geography, history, income levels, economic structure, and so on. There is no small country policy template; small countries have economic strategies and policy approaches that vary on many dimensions. And there is variation in performance. However, there are several classes of common features which make small countries a valuable organising device.

Small countries are deeply exposed to, and deeply engaged with, the global economy. To this extent small countries face a similar set of challenges and opportunities. And these exposures are much more acute than is the case for large countries, where the international dimension to policy is less pronounced. Small countries are the canaries in the mine of the global economy, and face similar issues.

Partly because of this different exposure, policy debates in small countries focus on different types of issues than is the case for most large countries. Small countries are not simply

scaled down versions of large countries, but have to think differently about policy issues such as fiscal policy and other macroeconomic settings.

Although specific policy settings differ across the group of small countries, many small countries frame the strategic question in a similar way. Small countries are not a homogenous group, but there are some shared characteristics across the group with a degree of overlap of interest and perspectives. This suggests that scale may be a more important unit of analysis in thinking about national policies than is often considered. There is much for small countries to learn from each other.

Thank you.

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