



**Asia-Pacific
Economic Cooperation**

**Advancing Free Trade
for Asia-Pacific Prosperity**

APEC Economic Policy Report 2015



**Asia-Pacific
Economic Cooperation**

2015 APEC ECONOMIC POLICY REPORT

Structural Reform and Innovation

**APEC Economic Committee
November 2015**

NOTE:

The terms “national”, “nation” used in the text are for purposes of this report and do not imply the “political status” of any APEC member economy.

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Preface

In 2014, APEC Leaders gathered in Beijing stressed that “the prospects for the shared prosperity of APEC will depend on *innovative development, economic reform and growth in the region*, which are complementary and mutually reinforcing”.

This 2015 APEC Economic Policy Report (AEPR) on Structural Reform and Innovation explores a question at the heart of this triad: How economies can stimulate innovation through implementing effective structural policies?

To prepare this work, each economy was asked to complete an Individual Economy Report providing overviews of their structural policy mechanisms (see Annexes A and B).

This economic policy report is divided into four chapters:

- 1.-The role of structural policies in innovation;
- 2.-Findings from Individual Economy Reports on Structural Reform and Innovation;
- 3.-Competition Policy and Innovation; and
- 4.-Conclusions and recommendations.

The 2015 AEPR draws valuable experiences and observations relevant to Regulatory Policy, Competition Policy, Corporate Governance, and Public Sector Governance in all APEC economies.

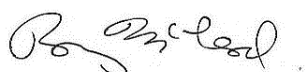
Structural Reform Ministers acknowledged in Cebu (8-9 September, 2015) the main conclusions and recommendations of this report, and instructed the Economic Committee (EC) to continue deepen and sharing with other relevant APEC fora its work on structural reform and innovation.

This publication is the culmination of contributions from all member economies, the APEC Secretariat, and the Economic Committee Chair’s Office.

I would like to express my gratitude, in particular, to New Zealand and the Philippines for their writing of the first and second chapter, and third chapter, respectively.

I am also grateful to all EC Delegates for their useful comments, and for their excellent work to coordinate and ensure the timely completion of the Individual Economy Reports.

Rory McLeod



Chair, APEC Economic Committee

2015 AEPR on Structural Reform and Innovation: Executive Summary

Innovation is key to economic growth and business productivity

Innovation is far broader than invention, technology or research and development. While innovation is widely acknowledged as a key driver of growth, the links between structural reform and innovation have yet to be fully explored. This year's APEC Economic Policy Report (AEPR) examines the links between structural policy settings and firm-level innovation across APEC member economies of varying levels of development, and explores the ways in which these economies harness the growth potential that innovation can provide through implementation of effective structural policies. Twenty Individual Economy Reports (IERs) were submitted by member economies providing overviews of their structural policy mechanisms.

Structural policies have a significant role in promoting firm innovation

Chapter 1 of the AEPR describes the key theories of innovation, the measurement frameworks for innovation, and the implications for structural policies.

Innovation is a dynamic process, and is also path-dependent on individual economies' capabilities. At the firm level, innovation has a major effect on productivity and therefore growth. Continued innovation is important to the ongoing survival of firms.

Structural policy settings matter because they can encourage or hinder innovation by influencing where and how much innovation occurs. In the context of the AEPR, structural policy refers to competition policies, regulatory policy (including ease of doing business), corporate law and governance, and public sector governance. While intellectual property is also important for innovation, it is not examined in this year's AEPR as there is already a wealth of well-established literature on this area, and it is largely outside the scope of the Economic Committee's work programme.

Governments can affect variables such as risk, market opportunity, and availability of funding, and therefore, the level of innovation in an economy. Governments need to identify and recognise the effects their policies have on innovation so that they can mitigate or remove impediments to firm-level innovation.

Chapter 2 of the AEPR summarises the key findings from the IERs and highlights interesting and emerging practices in each of the areas of structural policy.

Regulatory policy can stimulate innovation both directly and indirectly

Regulatory policy has direct links to innovation through areas such as technology standards and administrative simplification and indirect links through policy that improves competition, which in turn is associated with higher levels of innovation and economic growth.

Administrative simplification can directly improve innovation

All APEC economies reported using various good regulatory practices which will enable innovation although the precise details, and stages of development, varied from economy to economy. Programmes that emphasise administrative simplification and red tape reduction are almost universal. As economies develop beyond improving the transactional efficiency of their regulatory environment, technology will increasingly drive economies' simplification programmes for their engagement with business.

Regulatory impact analysis (RIA) is now widely used in APEC. As RIA systems become embedded within an economy, the focus should shift towards developing and strengthening specialised areas of

analysis, such as competition principles. Some economies also utilise the expertise of other departments when undertaking specialised areas of assessment, such as the competition effects of regulatory changes. This can increase the robustness of RIA.

Flexible regulatory approaches can promote innovation

A regulatory system which allows and encourages situation-specific regulatory initiatives (e.g. performance based standards or other flexible regulatory approaches) will support innovative regulatory practices. Innovation is directly enabled when the regulatory system is flexible enough to permit alternative technological solutions under prescriptive regulation, or performance-based standards. While some economies have taken the lead in requiring alternatives to prescriptive regulation to be developed, these approaches have yet to be fully adopted in other economies.

As regulatory institutions improve, arrangements to support innovative approaches are enhanced. Continuing to explore and tailor regulatory approaches to the specific challenges faced by an economy will support innovation.

Competition policy is an important driver of innovation

The pursuit of competitive advantage drives new ways of doing things. Introducing competition into less competitive markets can directly boost innovation. Increased competition drives innovation by encouraging firms to adopt improved technology and organisational arrangements, promoting the diffusion of innovations and encouraging resources to be invested in innovation.

Competition policies generally have comprehensive coverage and include technical efficiency

In order for competition to stimulate innovation, the coverage of competition policy should be as wide as possible, and also consider longer-term technical efficiencies from new technologies. In APEC economies the coverage of competition policy is generally comprehensive with limited defined exemptions such as for organised labour or industries that are directly regulated. There has also been increased recognition that competition policy needs to be able to respond to technological advances and technical efficiency gains, as well as allocative efficiency and consumer protection.

The focus of competition policy could be more strategic

To promote innovation, the design of competition policies and enforcement programmes should focus on making highly uncompetitive industries and monopolies more competitive. There were a wide range of responses on the focus of competition policy in APEC economies. The main gains in improving innovation and economic performance come from introducing greater competition into highly uncompetitive industries.

There is scope in APEC to further refine the focus of competition policy. Competition authorities in advanced economies are developing a more strategic focus in their competition policy to identify and improve inefficient markets. These economies are conducting market studies and accessing information held by other government departments to gather this sophisticated market intelligence. As economies develop, the challenge is examining whether their current competition policies, laws and institutions continue to be fit-for-purpose in the face of emerging new technologies.

Corporate law and governance frameworks enable innovation

Corporate law and governance play a key enabling role for innovation. The government's role is to establish the relevant corporate governance frameworks, including the rules around the formation, restructuring and wind-up of companies through corporate law, securities law, share market regulation, and insolvency and bankruptcy law.

APEC economies recognise the role of directors in ensuring good corporate governance

While competition in product markets helps to discipline poor managers, the role of directors in ensuring good corporate governance and shaping management's approach to innovation is also important. The most common mechanism in APEC economies is the director's duty to act in the interests of the company or its shareholders, coupled with the ability for shareholders to take legal action for breaches of directors' duties. All economies recognise that an appropriate balance needs to be struck between risk-taking and shareholder/creditor protection.

'Ease of Doing Business' programmes (in particular the priority areas of starting a business, getting credit, dealing with permits, enforcing contracts, and trading across borders) are widespread throughout APEC. They assist innovation by smoothing the transitions in the life cycles of businesses and improving the operation of corporate governance policies.

One promising practice is greater flexibility in financing start-ups

The forms of capital raising vary significantly at different levels of development, with advanced economies offering a greater range of options for capital raising. An emerging practice among these advanced economies is the development of legal mechanisms for raising capital by crowdfunding. This enables micro and small innovative enterprises to raise capital from the public to invest in their projects or ventures (providing an alternative means to banks and finance companies).

As economies develop, there appears to be increased focus on enabling a range of options for capital raising, particularly for new innovative firms. All economies recognise the need for incentives to ensure directors act in the long-term interests of shareholders, including by ensuring that adequate firm strategies for innovation are in place.

Public sector governance affects innovation capability

Good public policies that are effectively delivered are an important enabler for innovation. Governments can have a major impact on innovation by providing a stable and predictable legal framework, and through the specific national innovation system.

The quality of public institutions has a key role in setting the overall rules of the game

The quality of public institutions affects the overall capability of the national innovation system. The government has a key role in developing property rights and the rule of law applying to capital, labour and product markets. The stability and predictability of public sector institutions is important because innovation is inherently uncertain and risky.

Legal frameworks are widespread but the application of the rule of law is uneven across APEC. Many developing and middle income economies still struggle to achieve a stable and predictable rule of law regime, despite having the right legal frameworks in place.

As economies become more developed, the role of State Owned Enterprises (SOEs) in the economy declines. In advanced economies, the remaining SOEs generally operate on a level-playing field with private businesses so these SOEs can operate successfully in competitive markets.

Economies are continuing to experiment with improvements in the national innovation systems

Specialist non-market bodies play an important role in the national innovation system, being tasked with and capable of delivering innovation policy, knowledge infrastructure (universities and research institutes), and innovation infrastructure (provided by standards bodies, patents offices etc.). The

knowledge and innovation infrastructures within APEC economies are predominantly publicly owned and funded.

Across APEC, there is a lack of specialist non-market entities tasked explicitly with encouraging private sector innovation. While economies are continuing to develop and improve their national innovation systems, a recurring challenge is the lack of coherence and integration between the different parts of the innovation system.

Economies face different innovation challenges at different levels of development

The demands placed on an economy's structural policy frameworks will change as an economy moves through different stages of economic development. Once an economy establishes basic institutions, its focus will increasingly shift to developing the internal capability to support these institutions. As institutions mature, internal capability becomes a more important factor in driving ongoing success and creating an environment to foster innovation.

Economies at various stages of development will face different challenges in developing the right mix of structural reform policies to support innovation within their economy. There is no 'one size fits all' approach. Economies will need to tailor policy reforms to reflect their individual circumstances and challenges. In many instances, factors such as proximity to export markets, domestic market size or structure, and factor endowments will exert a significant influence on an economy's innovation ecosystem.

Given the complexity of some reform processes, economies may focus on reforms that address the largest impediments to economic growth and seek to build on them through further policy reform and capacity building initiatives.

An in-depth look at how competition policy can promote innovation

Chapter 3 consists of a case study by the Philippines on the links between competition policy and innovation. This follows the passage of the Philippine Competition Act in July 2015. Four elements of competition policy are seen as critical to promote innovation:

- It takes into consideration technical and dynamic efficiency.
- There is a broad coverage of the law.
- The competition authority is independent, accountable and transparent.
- There is coherence between competition policy and other economic policies such as sectoral regulation.

These elements are particularly challenging for young competition agencies. They may face difficulties in obtaining sufficient resources and expertise, as well as being impacted by a lack of awareness of competition issues among other government agencies, the judiciary and the public.

International forums provide opportunities for information exchanges between competition agencies, but the returns to APEC are likely to be greater if targeted initiatives to assist young agencies are pursued. Actions that APEC can take to build capacity of less experienced competition authorities include developing guidelines to help them assess competitive harm and evaluate potential dynamic efficiency gains from particular conduct, and undertaking a campaign to raise the level of understanding of competition policy in government agencies not directly involved in competition governance.

Economies are making progress in developing policies to support innovation

The AEPR concludes in Chapter 4 that firm innovation provides another lens through which governments can consider the impact of structural policies and examine areas where reform may be required.

While economies face different challenges depending on their level of development, it is crucial to focus policy and administrative improvements on the binding constraint to innovation so the structural changes introduced will make the greatest difference. It is also worth noting that the nature of firm innovation will differ depending on the level of development, whether this comprises faster rates of technological catch-up amongst developing economy firms, or pushing out technological frontiers amongst developed economy firms.

The AEPR reaches three further conclusions. Firstly, it is clear that there is significant diversity even between economies at the same levels of development. Secondly, structural policies have a critical role in supporting the development of high performing national innovation systems tailored to each economy's unique circumstances. Thirdly, all economies, no matter their level of development, face capability challenges in developing the policies and institutions that will improve firm innovation outcomes. It is important for all economies to be realistic about their capability needs and to have strategies in place that will allow them to build capability over time.

Recommendations

It is recommended that the Senior Officials' Meeting (SOM) recommend that APEC Ministers:

- (a) Endorse the 2015 AEPR on Structural Reform and Innovation;
- (b) Instruct the Economic Committee to take account of the findings of this Report in developing its structural reform work programmes, particularly in the Renewed APEC Agenda for Structural Reform (RAASR) and Ease of Doing Business (EoDB); and
- (c) Instruct the Economic Committee to transmit and discuss the contents of this report with other APEC bodies with an interest in structural reform and innovation.

1. The role of structural policies in innovation¹

1.1. Key themes

1.1.1. Innovation is key to economic growth and business productivity²

Innovation – in products, processes, designs, marketing and organizational approaches – is a key source of economic growth.³ Innovations unlike other finite resources accumulate and can be utilized simultaneously by a number of producers. Studies suggest that at the national level technological growth alone is responsible for more than half of the observed rise in labor productivity and national income. In a business context, innovation relates to the hard graft of learning and achieving efficiency gains over time. At the firm level innovation has a major effect on productivity and hence growth of firms. Investment in innovation is critical for enhancing firm level productivity. Continued innovation is very important to the ongoing survival of firms. It is innovation at the firm level that is the focus of this report.

Box 1 Firm level innovation – key findings

BIS (2011: page 12) reports cross-country OECD data supports a strong relationship between:

- broad investment in innovation (not simply R&D) being linked to sales of innovative products
- labour productivity and product innovation
- larger firms were more likely to engage in innovation but spent proportionately less than smaller firms
- cooperation with other firms and public financial support were linked to higher innovation spending
- firms closer to the technology frontier spend more on innovation.

1.1.2. Innovation is bigger than invention or technology

Investment in innovation is not limited to R&D. Innovation can take a variety of forms based on quite different patterns of activities. Firms invest in a wide range of tangible assets such as design assets, formal intellectual property such as software, as well as intangible assets including product

¹ This chapter is based on a paper prepared by Derek Gill Principal Economist, New Zealand Institute of Economic Research (NZIER) for the New Zealand Ministry of Business, Innovation and Employment.

² This chapter particularly draws on the 2011 United Kingdom Department for Business Innovation and Skills (BIS) Economics Paper No 15 *Innovation and Research Strategy* https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32445/11-1386-economics-innovation-and-research-strategy-for-growth.pdf, the work of Roger Procter at MBIE on innovation, productivity and growth, and previous work by NZIER staff Chris Nixon and John Stephenson.

³ The Oslo Manual for measuring innovation defines four types of innovation: product innovation, process innovation, marketing innovation and organisational innovation. Product innovation is when a 'good or service that is new or significantly improved. This includes significant improvements in technical specifications, components and materials, software in the product, user friendliness or other functional characteristics'. Process innovation is a 'new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software.' Marketing innovation is a 'new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing'. Organisational innovation is a 'new organisational method in business practices, workplace organisation or external relations'. <http://www.oecd.org/site/innovationstrategy/defininginnovation.htm>.

development management capability. Thus innovation is multifaceted and extends beyond R&D to intangible organizational capabilities. An innovation is a product, process, or marketing method that is new to a firm – it need not be new to the economy.

Innovation used to be portrayed as a linear life cycle that begins with the discovery or idea creation phase, followed by a period of development, testing and demonstration before it comes to market i.e. deployment. In some areas, scientific developments lead to technology developments such as biotechnology. In others, science and technology essentially played no role (for example, the development of steelmaking and steam power). In fact, causality ran the opposite way, since the development of steam power assisted in the creation of the field of modern thermodynamics. Thus, innovation can be theory-led or trial-and-error led development that is later explained scientifically.

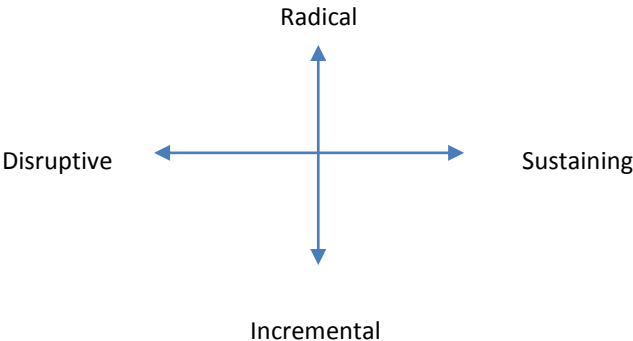
1.1.3. No unified general theory

However, there is no general unified theory of innovation. What the drivers are and how quickly innovations will spread are very context dependent. But generalizations are possible. The United Kingdom’s Department for Business Innovation and Skills observed:

“Innovation activity is pervasive across industries, collective in character (involving interactions of many actors), cumulative over time, risky and uncertain and often rests on national and regional specialization.....Above all innovation performance rests not simply on entrepreneurial actors but is powerfully shaped by the innovation system.” (BIS: 2011: page 2)

Innovations can be usefully classified by the kind of impact on businesses and wider society. For business innovations can be incremental – involving a small departure from existing products, processes and organizational approaches or more radical. Innovation’s effect on society can be sustained relatively easily or more disruptive to the way people live their lives. These impacts can be placed in a diagram with the two dimensions shown in figure 1.

Figure 1 Classifying innovation by potential impacts



Source: NZIER

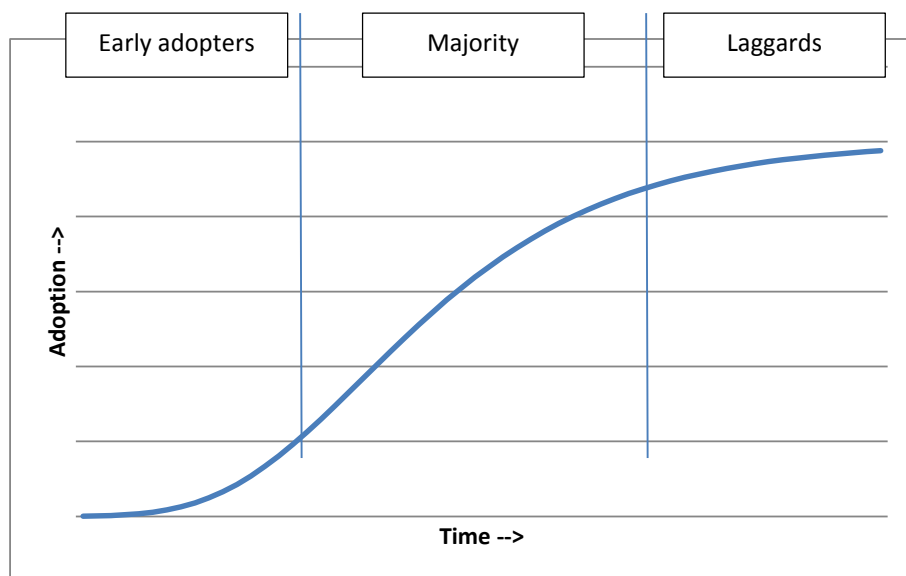
1.1.4. Adoption of innovations is a dynamic process

One common approach to thinking about the timeframe for the take up of innovations is the adoption curve, shown in Figure 2. It shows a sigmoid curve in which adoption of an innovation starts slowly and then builds momentum as it reaches the majority. At some point, the rate of adoption slows. In the last phase, adoption is a slow process. Figure 2 divides adopters into three categories (other analyses use more categories): early adopters who are in the minority and keen to adopt; the majority, who are the bulk of adopters; and laggards, who adopt and innovate slowly and only after

most people have already adopted. The adoption curve shows that adoption is a non-linear process and that it can take a while to build acceptance of an innovation.

Innovation is a dynamic process that plays out over time. Innovation can occur because of changes in the innovation system, firms may adopt new processes, governments may change their approaches to policy, and researchers working with end users may shift their research priorities.

Figure 2 Innovation adoption curve



Source: NZIER

1.1.5. Innovation is path dependent as it depends upon capabilities

Capabilities cover a whole range of attributes that lead to a competitive advantage of a nation or region. These capabilities include the web of social and business relationships, climate, and a myriad of other attributes that contribute to improved innovation. Without such capabilities, a country or a region can struggle to overcome the hurdles to durable growth. The capabilities needed to produce any product in the modern economy are myriad, highly specific and co-evolving. These capabilities evolve organically with the other capabilities, becoming increasingly sophisticated and specialized over time. As a result of capabilities, countries' economic development is highly path dependent: what you can produce today depends on the capabilities you had yesterday, and what you produce tomorrow depends on the capabilities that you have today. As a result, we find apparently similar economies produce quite different things.

1.1.6. Geographic specialization and concentration in clusters persist

Innovations require capabilities which often develop in clusters of interconnected businesses, suppliers and associated institutions. These specialized clusters build up over time and are hard to change or replicate. Clusters traditionally have been horizontal regional clusters but increasingly they are vertical global value chains.

1.1.7. User led demand-side dynamics also matter

While the extent of user led innovation varies across industries, user demands are an increasingly important driver of the innovation system. A key question is what is the nature of the group,

audience, or market for which the innovation is being developed? Some demand-side considerations are:

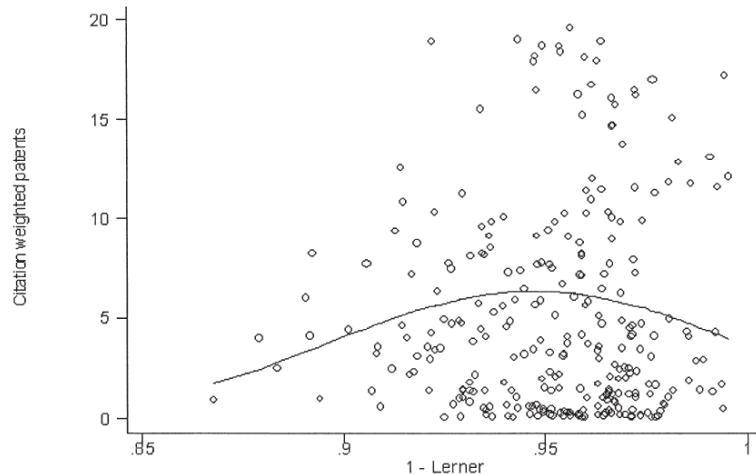
- the size and scale of the problem or market – either domestically or internationally, depending on the focus or transferability of the innovation
- trends – whether increasing or decreasing, and the rate of change
- key drivers of demand – how those drivers are changing and the potential flow-on impacts
- how close to the market the innovation occurs
- absorptive capacity – the market, communities, institutions or targeted end-users must be able absorb the innovation; constraints on capacity are important to understand.

1.1.8. The link between industry structure and innovation is concave⁴

There is an on-going debate in economics about the kinds of business structures that maximize innovation. The debate has centered on the relative merits of productive efficiency and portfolio effects that large firms can generate through scale, versus the (market) dynamic innovation exhibited by small firms in the form of nimbleness and flexibility. There is some evidence that there is a concave relationship between structure and innovation. This suggests, as shown in Figure 3, that moderately competitive markets generate the most innovation while both monopolies and highly competitive markets have less innovation.

Figure 3 Product market competition and innovation

Using measured competition (x axis) and citations of patents as a proxy for innovation (y axis).



Source: OECD (2014) based on Aghion et al (2005)

Competition is an important determinant of innovation because the pursuit of competitive advantage drives new ways of doing things. Firms which operate inside the technological and productivity ‘frontier’ of their industry will tend to focus on cost reduction strategies to remain profitable, rather than innovations. Studies show firms closer to the technology frontier spend more on innovation. These firms invest in innovation to sustain their competitiveness with the rest of the industry and pursue additional ‘rents’ that can come from innovation.

⁴ Drawn from OECD (2014) Factsheet on how competition policy affects macroeconomic outcomes.

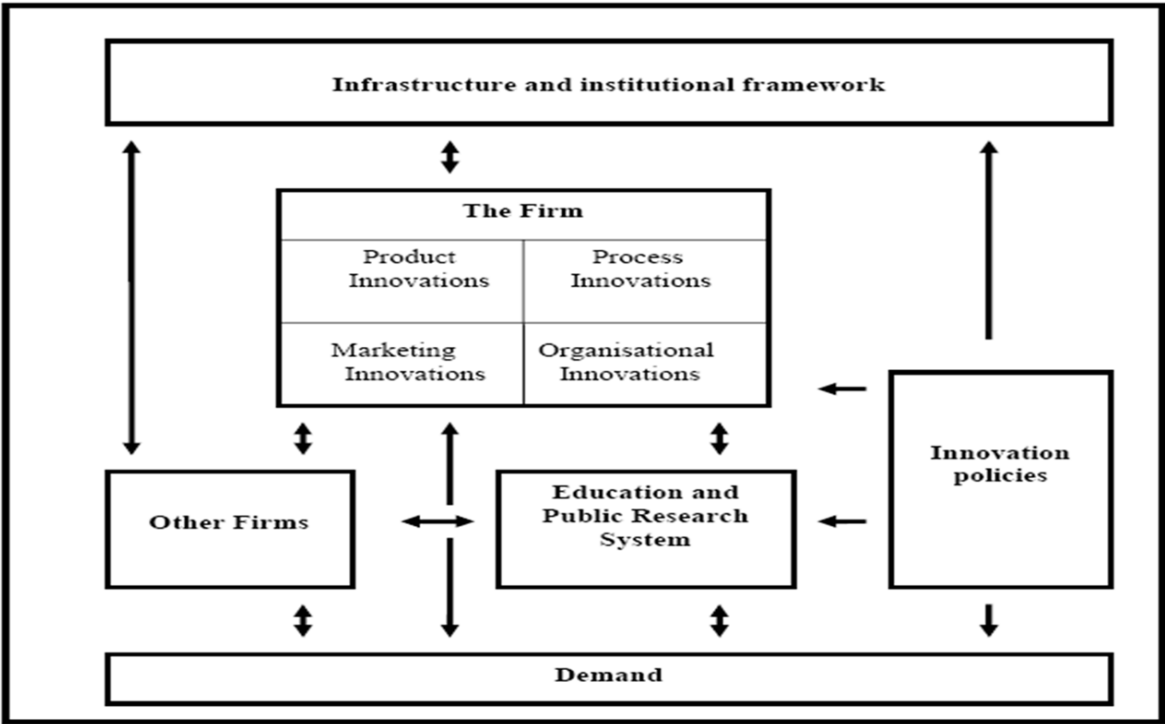
Competitive barriers that encourage monopolies can inhibit innovation. Barriers to entry can reduce the number of new and young firms which are an important source of innovation, in part, because they often pursue innovations overlooked by larger firms.

1.1.9. Innovation in firms depends on the wider innovation system

While competition has a major role in encouraging technological advances by firms, it has been long understood that publicly-funded basic research also has an important role to play, especially when the knowledge is disseminated widely throughout the economy. In addition to supporting scientific and technological breakthroughs through investment in research, it is also important to strengthen the connections for sharing and dissemination of knowledge within the national innovation system shown in Figure 4.

Innovation is a joint process involving a wide range of actors and is not confined to the entrepreneur in a firm. Instead innovation occurs within a wider system that includes customers, other firms, science providers within the education and public research system and the innovation information infrastructure (standard setters, patent offices, geophysical information providers etc.). Figure 4 shows the OECD innovation system measurement framework. In an open system the strong feedback loops are required in order to sustain innovative developments and these loops are reflected in the complexity of the system.

Figure 4 OECD innovation system measurement framework



Source: OECD, Oslo Manual

A key challenge for policy makers is how well the overall innovation system is operating as a system. As well as looking at businesses and markets, it looks at supporting organizations and linkages between them including international linkages and supporting institutions. Successful innovation systems deal with all the following problems: identifying innovation opportunities; accessing, creating and distributing knowledge capabilities; business development and business financing; managing risk and uncertainty; and providing both physical and knowledge infrastructures. Structural

policies have an important role to play in supporting the development of high-performing national innovation systems where:

- regulatory policies stimulate rather than stymie innovations
- the enforcement of competition policies is focused on highly uncompetitive industries
- the laws on corporate and public sector governance create an environment within which risk taking can occur and innovations are developed.

1.1.10. The quality of public institutions matters

The stability and predictability of public sector institutions is important because innovation is inherently uncertain and risky. The quality of public sector governance influences the overall capability of the national innovation system and has an important role in setting the overall rules of the game. Governments can have a major impact on innovation by providing the broad legal framework and the specific national innovation system, as well as conceiving of and undertaking innovation themselves.

1.1.11. The level of technological and economic development matters

Levels of productivity differ significantly between firms but also markedly across economies. In some developing economies, a large number of low productivity firms survive and persist, while in some developed economies, the gaps between productivity leaders and followers is much less. The discussion to date has highlighted how innovation is a vital contributor to economic growth and has the potential to provide a path that avoids the middle income trap. The focus has been on all countries' economies as many of the links between structural policies and productivity and innovation apply equally to both OECD and non-OECD economies alike. But the discussion also highlighted the role of specialized capabilities.

Economic growth comes from creating and exploiting sources of competitive advantage that grow over time and are difficult to replicate. The difficulty of replication arises because of spill overs, increasing returns, and the use of sophisticated capabilities. As a result, the economic development route that a particular economy follows is highly path-dependent.

Economies differ in their starting point, paths and levels of economic development, and government capabilities. Different economies face different imperatives. Looking at public sector governance, for some the priority is getting the basic building blocks in place to underpin a national innovation system. For others the priority is to refine how the system is operating and focus on removing bottlenecks.

A recent study of levels of technological and economic development in ASEAN member states (AMSs) concluded that "ASEAN runs the entire range of technological development, from the basic initial conditions to the frontier of knowledge and technological development".⁵ It suggests the wide gap in innovation capability among AMSs reflects the different stages of technological development. Accordingly the emphasis of innovation policy needs to be related to the level of economic development. Using Rasiah's⁶ framework, ERIA suggests some AMSs are in the 'Initial Conditions' where the focus should be on political stability and basic infrastructure as well as integration with the global economy. Others are in a 'Learning Phase' dominated by learning from doing and imitation, expanding tacit social institutions to formal intermediary organizations for network cohesion and integration in global value chains. Middle income AMSs are in the 'Catch Up' phase with smooth integration of basic infrastructure, high technology infrastructure, network cohesion and global

⁵ ASEAN Rising: ASEAN and AEC Beyond 2015 Ponciano Intal, Yoshifumi Fukunaga, Fukunari Kimura, Phoumin Han, Philippa Dee, Dionisius Narjoko, and Sothea Oum, Jakarta: ERIA, 2014 p200

⁶ Rasiah, R. (2013), frames the phases or stages of technological development in terms of four key pillars of (a) basic infrastructure, (b) high technology infrastructure, (c) network cohesion, and (d) global integration. 'Stimulating Innovation in ASEAN Institutional Support, R&D Activity and Intellectual Property Rights', ERIA Discussion Paper 2013-28, Jakarta: ERIA.

integration. Singapore is at the ‘Frontier Stage’, with R & D laboratories creating new knowledge, connected to world nodes of knowledge creation.

1.2. Implications for structural policies

This section examines the link between structural policy settings and innovation in more detail. Structural policy settings matter as they strongly influence where and how much innovation occurs. By structural policies, we include competition policies, regulatory policy (including ease of doing business), corporate law and governance, and public sector governance. Intellectual property law is also important for innovation but there is a well-established literature on this subject and intellectual property is not the focus of this AEPR.

1.2.1. Regulatory policy has direct and indirect links to innovation

Regulatory policy can have *direct* linkages through technology standards, stretch targets and administrative simplification. Regulatory policy (including ease of doing business) that improves the quality of regulation also has *indirect* links through improving competition which in turn is associated with high innovation, productivity and economic growth.

Innovation is directly enabled when the regulatory system is flexible enough to permit the use of alternative approaches and solutions under outcome/performance-based or prescriptive input based regulation. Performance-based regulation tends to be more amenable to innovation than prescriptive input-based standards. Government procurement can assist in speeding the diffusion of new technologies but is less likely to have an effect on discovery.

Innovation can be spurred by regulations which set stretch targets or alter relative prices in the market. This helps to create demand for new technologies or practices. Setting regulatory stretch targets such as emission standards which are beyond current technical capabilities creates incentives to innovate and perform.

Administrative simplification through ease of doing business and ‘red tape’ reduction programs can assist innovation by removing barriers that slow the speed of innovations to markets. Administrative simplification programs can also be linked to programs to reduce corruption. Regulation can also affect the value of new knowledge by enabling or discouraging social and economic change. The OECD (2003) found, for example, that the speed of take up of information technologies in the 1990s was negatively related to the stringency of regulatory regimes. The implication is that regulation which inhibits change inhibits innovation. This includes inhibiting organizational innovation needed to make productive use of new production technologies.

In addition to these direct effects there are also *indirect* mechanisms by which improved regulatory policies can facilitate innovation. For example, innovation often relies on tacit knowledge held by skilled people. Immigration can place barriers on the movement of skilled people between economies and occupational regulation imposes barriers on movement within economies between firms. By encouraging competition for the market (not just in the market), regulatory policies can indirectly encourage innovation.

Competitive barriers also inhibit innovation, for example, by creating barriers to entry to new and young firms which are important sources of innovation. Regulatory regimes also can create barriers to innovation by restricting conduct once entry has occurred. One means of counteracting these barriers is strengthening the regulatory development process. This can encourage the choice of the most effective policy that minimizes any adverse impact on competition by explicitly requiring the identification of the effects of specific regulation on competition.

1.2.2. Competition policy has an important role to play

An earlier section discussed the concave relationship between market structure and innovation whereby moderately competitive markets generate the most innovation while both monopolies and highly competitive markets have less innovation. Policy settings and enforcement actions by competition authorities that focus on highly uncompetitive industries can therefore boost innovation. Increased competition through the presence of rivals can increase innovation through a number of mechanisms:

- within firm adoption of improved technology and organizational arrangements
- reallocation of employment and output to higher productivity firms
- improved efficiency in the investment of the rents from market power in undertaking innovations
- promoting more effective diffusion and adoption of innovation.

There is also growing evidence of the positive link between innovation and the openness of an economy to trade and investment.

The concave relationship between market structure and innovation suggests the potential for a very positive role for competition policies. This is because the focus of competition policies is on making highly uncompetitive industries and monopolies more competitive. Resources for enforcement of competition policies are not generally focused on making already competitive markets hyper-competitive. The focus on making protected industries more competitive has the potential to increase innovation. Achieving this potential benefit from competition policy will depend on the quality of the competition policy settings and whether the competition authority has the mandate and capabilities required.

Comprehensive coverage of competition policy is important not only to ensure competition in specific markets but also competition in downstream markets. A balance needs to be struck in competition law itself that favors longer term technical and dynamic efficiency (efficiencies from new technologies) rather than just focusing on allocative efficiency and consumer protection in the short term. Competition policy needs to be able to respond to changes in market structure and technology. This requires that competition authorities have both the legal authority and the capability to move beyond black letter of the law approaches (deemed unlawful per se) and subject the cases to fact-based rule of reason analysis.

1.2.3. Corporate governance affects innovation and productivity growth

Arguably the greatest invention of the mid-nineteenth century was the limited liability joint stock company where the state enabled the legal form that allowed for the separation of management from investor owners. The state continues to have key enabling roles in corporate governance. In short the state has a key role at birth, change of life and at the death of corporations. These roles include corporate or companies law, securities law, share market regulation and insolvency and bankruptcy law.

Corporate or companies law plays a key enabling role for innovation by establishing the relevant corporate governance frameworks. There is a wide range of corporate forms including publicly listed companies, privately controlled firms, publicly owned businesses (state owned enterprises). They all have to grapple with the problem of the separation of management from investor owners to allow good management to be rewarded and poor management to be disciplined. While competition in product markets helps discipline poor managers, those (such as Directors) responsible for corporate governance also have an important role. Corporate governance also affects the type of investments that management makes. The mix and level of investment firms make is critical for innovation.

Securities law, by enabling capital raising from the public, allows investment in innovation. These investments can take a variety of forms including venture capital funds and direct capital raising from

the public. This can include introducing flexibility into public equity markets, for example, by allowing a second board on the stock exchange where the cost of listing is lower.

The legal framework provides the means for new firms to be created and once they mature to enable changes in their corporate governance. For example, the framework can enable family or closely owned firms to take on private equity partners or go public.

Insolvency and bankruptcy laws enable innovation by allowing entrepreneurs to take risks even if these can lead to failure. However, these laws may also allow poor managers the opportunity to repeatedly start businesses that fail, with losses to shareholders and creditors.

In summary, the state can play a positive role at the birth, change of life and at the death of corporations. Administrative simplification through ease of doing business programs can assist innovation by smoothing these transitions in the life cycle of businesses. While competition in product markets helps discipline poor managers, directors' role in corporate governance is also important. Studies suggest "poor management practices are more prevalent when product market competition is weak and/or when family-owned firms pass on control to the eldest sons".⁷

1.2.4. Public sector governance matters

Good public policies that are effectively delivered are an important enabler for innovation. The state has a key enabling role in establishing the corporate governance frameworks discussed above. It also has a pivotal role in development of property rights and the rule of law applying to capital, labor and product markets. The rule of law implies that every citizen is subject to the law, including law makers themselves. Lack of the rule of law occurs because of neglect or ignorance of the law, corruption, or lack of corrective mechanisms for administrative abuse, such as an independent judiciary. In addition to role of *regulation* in establishing general governance frameworks discussed in the previous section, there are three types of public policy tools: *spending, taxation and ownership*.

Specialist non-market bodies play an important part of the overall national innovation system. There are two parts to the public innovation infrastructure that are predominantly publicly owned and funded – the knowledge infrastructure of universities and research institutes and the innovation information infrastructure provided by standards bodies, patents offices etc. The quality of public sector *spending* and governance influences the effectiveness of the public infrastructure and hence the overall capability of the national innovation system.

The *taxation* regimes that apply also can shape the returns on innovation. Innovation takes a variety of forms of which investment in R&D is often relatively minor. Taxation can unintentionally distort the allocation of resources because of the different treatment of investment in R&D, establishing patents, process redesign, and organizational improvements. The tax system also can include explicit tax incentives for R&D spending aimed at increasing overall innovation.

The *ownership* role includes SOEs and specialist non-market bodies tasked with and capable of delivering: (a) an innovation policy, (b) a knowledge infrastructure and (c) an innovation infrastructure. SOEs, which produce and sell their outputs into commercial markets, often form a large part of a developing economy. Like private firms when SOEs are excessively sheltered from competition, innovation is reduced both in the immediate and in downstream markets. Sometimes, however, SOEs play a positive role as they are explicitly tasked with encouraging private sector innovation.

1.3. Measurement of Innovation

While the links between innovation and productivity and economic growth are well established at both the firm and the economy wide level, the multifaceted nature of innovation does not lend itself

⁷ OECD (2014) Factsheet on how competition policy affects macroeconomic outcomes, page 12.

readily to measurement. NZIER collated a suite of innovation indicators for each APEC economy from available data sources. This quantitative data provides comparative information on innovation in APEC economies and a context for the discussion of structural policies in Chapter 2.

1.3.1. Comparative innovation data

Measures of innovation across economies can occur at a number of levels:

- outcomes – economic growth, productivity growth over time
- impact – R & D investment by private business
- output – policies in place
- process – good practice development followed
- input – resources available.

In this section we discuss available innovation measures at the outcome, output and input level and how these relate to levels of economic development.

Section 1 in this chapter discussed how APEC economies are at different stages of economic and technological development ranging from those at the frontiers of knowledge and technological development to those with the basic initial conditions. The emphasis of innovation policy needs to be related to the level of economic development and the critical challenges and binding constraints that each economy faces.

Table 1 Stages of development by economy

Table 1 summarizes the different stages of development for APEC economies based on two data sources, the INSEAD Innovation Index and the World Economic Forum (WEF) Global Competitiveness Index (GCI). Individual economies are categorized for the INSEAD index by drawing upon ERIA and Rasiah.⁸ The WEF categorization is drawn from their annual report.⁹

The WEF groups economies into three levels of economic development:

- ‘factor’ means the economy competes on its factor endowments, primarily unskilled labor and natural resources. Companies compete on price and sell basic products or commodities.
- ‘efficiency’ means the economy develops more efficient production processes and increases product quality.
- ‘innovation’ means the economy competes by producing new and different goods using the most sophisticated production processes and by innovating new ones.

The groupings by levels of development are broadly similar using the Rasiah framework and the WEF. More explanation of Rasiah’s framework can be found at the end of this Appendix.

Economy	Rasiah /ERIA	World Economic Forum
United States of America	Frontier	Innovation driven
Singapore	Frontier	Innovation driven
Hong Kong, China	Frontier	Innovation driven
Canada	Frontier	Innovation driven

⁸ Rasiah, R. (2013), ‘Stimulating Innovation in ASEAN Institutional Support, R&D Activity and Intellectual Property Rights, ERIA Discussion Paper Series, ERIA-DP-2013-28.

⁹ For economies where the level of development was not provided by Rasiah, the WEF grouping was used to indicate to which group the economy was most likely to belong.

Korea, Republic of	Frontier	Innovation driven
Australia	Frontier	Innovation driven
New Zealand	Frontier	Innovation driven
Japan	Frontier	Innovation driven
Chinese Taipei	Frontier	Innovation driven
Malaysia	Catch-up	Innovation driven / Efficiency driven
Chile	Catch-up*	Innovation driven / Efficiency driven
Russian Federation	Catch-up*	Innovation driven / Efficiency driven
Mexico	Catch-up*	Innovation driven / Efficiency driven
People's Republic of China	Catch-up*	Efficiency driven
Thailand	Learning	Efficiency driven
Peru	Learning*	Efficiency driven
Indonesia	Learning	Efficiency driven
Philippines	Learning	Factor driven / Efficiency driven
Viet Nam	Learning	Factor driven

*Level of development inferred based on WEF where not provided by Rasiah.

Incomplete data for Brunei Darussalam and Papua New Guinea

Source: WEF, INSEAD, NZIER, ERIA

Table 2 INSEAD ranking 2014

Table 2 summarizes the APEC economies' innovation ranking using the INSEAD index. Economies are grouped by their level of economic development (on the same basis as Table 1).

The INSEAD Global Innovation Index ranks economies on four dimensions:

- the 'Global innovation index' is a composite index ranking economies in terms of their environment for innovation and their innovation outputs
- the 'Innovation Input Index' shows the relative rankings of the environment supporting innovation based on five pillars (institutions, human capital and research, infrastructure, market sophistication, business sophistication)
- the 'Output Index' ranks economies based on the actual creation and take up of innovation as measured by two pillars (knowledge and technology outputs, creative outputs)
- the 'innovation efficiency' ratio ranks economies on the 'return' each economy gets from the quality of its overall environment (measured by the Input Index) to the creation and take up of innovation (measured by the Output Sub-index).

The color coding shows the relative ranking by countries (darker colored highlights are higher rankings).

Economies for which data was not available (Chinese Taipei and Papua New Guinea) are not shown in this table.

	Economy	Global Innovation Index	Innovation Efficiency Ratio	Innovation Input Sub-index	Innovation Output Sub-index
Frontier	United States of America	6	57	4	7
	Singapore	7	110	1	25
	Hong Kong, China	10	99	2	24
	Canada	12	86	8	20
	Korea, Republic of	16	54	16	15
	Australia	17	81	10	22
	New Zealand	18	66	13	18
	Japan	21	88	15	27
Catching-up	People's Republic of China	29	2	45	16
	Malaysia	33	72	30	35
	Chile	46	92	37	54
	Russian Federation	49	49	56	45
	Mexico	66	79	62	70
Learning	Thailand	48	62	52	49
	Viet Nam	71	5	100	47
	Peru	73	107	60	85
	Indonesia	87	4	117	60
	Brunei Darussalam	88	139	55	124
	Philippines	100	35	110	84

Source: INSEAD

Table 3 WEF ranking

Table 3 summarizes the APEC economies' rankings using the World Economic Forum (WEF) Global Competitiveness Index (GCI) index. The GCI is based on a wider range of factors than the INSEAD index and, while it is not specifically focused on innovation, it is widely used and well regarded.

The color coding shows the relative ranking by countries (darker colored highlights are higher rankings).

The countries in Table 3 are ranked by their competitiveness using four dimensions (WEF 2014¹⁰):

- the Global Competitiveness Index is the composite index and shows the competitiveness world ranking for each economy
- 'basic requirements' rank countries with regards to well-functioning public and private institutions (pillar 1), well-developed infrastructure (pillar 2), stable macroeconomic environment (pillar 3), and a healthy workforce that has received at least a basic education (pillar 4)
- 'efficiency enhancers' ranks countries with regards to higher education and training (pillar 5), efficient goods markets (pillar 6), well-functioning labor markets (pillar 7), developed financial markets (pillar 8), the ability to harness the benefits of existing technologies (pillar 9), and a large domestic or foreign market (pillar 10)

¹⁰ World Economic Forum. 2014. *The Global Competitiveness Report 2014–2015*. Geneva: World Economic Forum.

- 'innovation and sophistication factors' rank countries with regards to producing new and different goods using the most sophisticated production processes (pillar 11) and by innovating new ones (pillar 12).

Economies for which data was not available (Brunei Darussalam and Papua New Guinea) are not shown in this table.

	Economy	Global Competitiveness Index	Basic requirements	Efficiency enhancers	Innovation and sophistication factors
Innovation	Singapore	2	1	2	11
	United States	3	33	1	5
	Japan	6	25	7	2
	Hong Kong, China	7	3	3	23
	Chinese Taipei	14	14	16	13
	Canada	15	18	6	24
	New Zealand	17	9	11	25
	Australia	22	17	15	26
	Korea, Republic of	26	20	25	22
	Innovation / Efficiency	Malaysia	20	23	24
Chile		33	30	29	49
Russian Federation		53	44	41	75
Mexico		61	69	60	59
Efficiency	People's Republic of China	28	28	30	33
	Thailand	31	40	39	54
	Indonesia	34	46	46	30
	Peru	65	74	62	99
Efficiency / Factor	Philippines	52	66	58	48
Factor	Vietnam	68	79	74	98

Source: WEF 2014-15

Tables 1-3 are not intended to imply any judgements about the current national innovation systems. Rather the intent is to provide comparative contextual information from a range of sources. It builds on the idea that the focus of innovation policy will depend on the level of economic development and the unique critical challenges and binding constraints that each economy faces.

Table 4 Rasiah's Stages of technological development

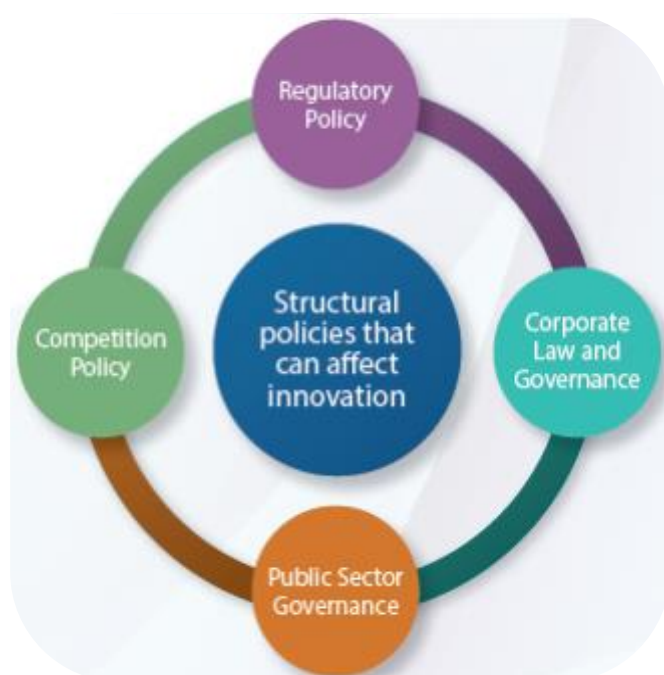
Phases	Basic Infrastructure	High Tech Infrastructure	Network Cohesion	Global Integration
Initial conditions	Political stability and efficient basic infrastructure	Emergence of demand for technology	Social bonds driven by the spirit to compete and achieve	Linking with regional and global markets

Learning	Strengthening of basic infrastructure with better customs and bureaucratic coordination	Learning by doing and imitation	Expansion of tacitly occurring social institutions to formal intermediary organizations to stimulate connections and coordination between economic agents	Access to foreign sources of knowledge, imports of material and capital goods, and FDI inflows
Catch-up	Smooth links between economic agents	Creative destruction activities start here through imports of machinery and equipment, licensing and creative duplication	Participation of intermediary and government organizations in coordinating technology inflows, initiation of commercially viable R&D	Licensing and acquisition of foreign capabilities Upgrading synergies through technology imports Emergence of strong technology-based exports
Advanced	Advanced infrastructure to support meet demands of economic agents	Developmental research to accelerate creative destruction activities	Strong participation of intermediary and government organizations in coordinating technology inflows, initiation of commercially viable R&D	Access to foreign human capital, knowledge linkages and competitiveness in high tech products
Frontier	Novel infrastructure developed to save resource costs	Basic research. R&D labs to support creative accumulation activities	Participation of intermediary organizations in two-way flow of knowledge between producers and users	Connecting to frontier nodes of knowledge, and competitive export of high tech products

Source: Rasiah 2013

2. Findings from Individual Economy Reports on Structural Reform and Innovation

Innovation — in products, processes, designs, marketing, and organizational approaches—is important to economic growth and firm productivity. While innovation is widely acknowledged as a key driver of growth, the links between structural policies and innovation are complex and less widely understood.



This chapter examines the links between structural policies and innovation. Structural policies here include regulatory policy (including ease of doing business), competition policy, corporate law and governance, and public sector governance. The chapter concludes with an exploration of how these linkages vary depending upon the level of economic development. It draws on 20 IERs submitted by member economies in 2015, based on the AEPR questionnaire (Appendix A). These provide an overview of each economy’s structural policy settings and the links to innovation.

Regulatory Policy

Good regulatory policy can be a powerful stimulus to innovation both directly and indirectly. This stimulus can occur through

both the design of individual regulatory regimes and the institutional structures which support good regulatory practice. Where institutional arrangements enable flexibility, and encourage the development of regulatory solutions that are appropriate to the situation, this will encourage innovation.

The 2014 AEPR on Good Regulatory Practices highlighted the progress that APEC economies have made in implementing good regulatory practices. The good regulatory practice toolkit is assisting economies to develop the regulatory frameworks and institutions that will provide a stable business environment for trade and investment. Implementing institutional arrangements such as regulatory impact analysis, strong transparency and public consultation requirements, or internal coordination of regulatory development will provide economies with a strong basis for developing more sophisticated regulatory regimes that support innovation.

The demands placed on an economy’s regulatory system will change as an economy moves through different stages of economic development. Once an economy establishes basic institutional regulatory arrangements, its focus will increasingly shift to developing the internal capability required to support these institutions. As institutions mature, internal capability becomes an increasingly important factor for driving ongoing success and creating an environment to foster innovation.

2.1.1. Flexible regulatory approaches

A regulatory system which allows and encourages situation-specific regulatory initiatives to be developed will support innovative regulatory practices. Most APEC economies have adopted regulatory systems which permit or encourage a range of options to be considered during regulatory policy development (although the extent to which flexibility is used is less clear). The approaches taken can range from the permissive (where alternative regulatory approaches *may* be considered in development) through to the directive (where alternatives *must* be considered). Alternative approaches could also involve not taking direct regulatory action.

The degree to which alternative regulatory approaches are encouraged to be considered during regulatory policy development can reflect different stages of development of an economy's regulatory system. As the capability of regulatory institutions increases, arrangements to support innovative approaches are enhanced. Continuing to explore and tailor regulatory approaches to the specific challenges faced by an economy can support innovation.

Viet Nam's permissive approach to regulatory flexibility

Viet Nam's regulatory system takes a permissive approach to regulatory flexibility. It permits innovation by allowing new approaches, and new methodologies and solutions to be developed or considered for different regulatory initiatives. There are no explicit requirements for developing or considering alternative approaches.

Canada has a more directive approach

Canada's Cabinet Directive on Regulatory Management takes a more directive approach. The Directive requires all federal departments to consider potential alternatives to regulation. This includes voluntary standards, information disclosure, and guidelines, and whether outcome or performance based approaches would be suitable; and to specify, particularly for technical regulations, regulatory requirements in terms of their performance rather than their design.

2.1.2. Administrative simplification

As an economy develops, its regulatory environment needs to adapt to reflect the changing needs and operating environment of its businesses. Regulation that imposes compliance costs on business or provides an impediment to business innovation should be eased to remove barriers that slow the speed of innovations to market. Administrative simplification programs are a mechanism that economies can use to provide structure to initiatives to improve the regulatory environment.

Economies reported that reductions in the administrative burden imposed by regulations can directly improve innovation by removing barriers that slow the speed of goods and services to market or dissemination within the market. Programs that emphasize administrative simplification and red tape reduction are broadly used within APEC. Economies take a number of approaches to these programs depending on their own particular challenges and the goals of the government in power. These approaches range from targets to remove regulatory instruments through to outcome-focused initiatives to reduce regulatory burden.

The variation in approaches taken to simplification can reflect where economies most need to place effort to address the binding constraint on their economy. For instance, if an economy's biggest barrier for business is transactional compliance costs, initiatives that focus on reducing the number of transactions may have the biggest impact. Alternatively, where transactional compliance costs

have been removed, focus may shift to continual improvement of the business operating environment rather than improving transaction efficiency. Most economies in APEC have some type of initiative focused on reducing compliance costs for businesses.

Australia's administrative simplification program

The Australian Government's simplification program commits to reducing the regulatory burden for individuals, businesses and community organizations. The program consists of various initiatives aimed at:

- reducing the volume of regulation itself;
- reducing the duplication and regulatory overlap between different layers of government;
- improving consultation with those affected by regulation;
- using post implementation reviews to determine how effective new regulations have been; and
- ensuring regulators are transparent, accountable and efficient in administering regulations.

As at March 2015, the Australian Government has repealed over 12,000 regulations or pieces of legislation and reported on deregulation initiatives that, if fully implemented, will result in compliance cost savings of more than \$2.45 billion per year. .

Singapore's approach to improving the quality of government regulation

Singapore has two key government platforms responsible for improving the quality of government regulation and removing outdated or unnecessary regulations to foster a pro-business and pro-innovation environment:

- The Smart Regulation Committee (SRC) is set up within the Singapore Public Service to promote good regulation practices within the Government and proactively review rules and regulations. The SRC seeks to get agencies within the Singapore Government to change their mind-set, adopt less of a 'regulator-centric' approach and shift to one that is more stakeholder-centric.
- The Pro-Enterprise Panel (PEP) was formed in August 2000 to actively solicit feedback on rules and regulations that hinder businesses and impede entrepreneurship. The PEP is chaired by the Head of Civil Service and comprises of mainly business representatives from the private sector. Acting on feedback from the public, the PEP engages agencies to review rules and regulations, so that Singapore businesses spend less time, effort, and money in meeting regulatory requirements for their operations. Since its inception, the PEP has received over 1,800 suggestions and more than half of these have resulted in regulatory or rules changes.

The Economic Committee's Ease of Doing Business work program is also supporting APEC economies in their efforts to improve transactional efficiency in their business operating environment. The work program uses the World Bank's Doing Business indicators, which provide practical comparative measurement of economies' progress in improving the business environment in the target areas.

Once economies move beyond improving the transactional efficiency of their regulatory environment, technology will increasingly drive economies' simplification programs for their engagement with business. Some economies are already using technology to drive innovation in how their government interacts with business, for example by joining up government services, sharing

information across government, working with third parties, and applying new digital and online tools. This is an emerging area of work within APEC as economies push the frontier of their simplification programs by developing innovative time-saving administrative solutions to make it easier for businesses to work with government.

Making it “Better for Business” in New Zealand

The “Better for Business” program focuses on making it easier for businesses to interact with government agencies, so they can spend less time on administration and more time focusing on their customers. “Result 9” of this program has a target of reducing business costs from dealing with government by 25% by 2017. This involves a partnership of eight government agencies in New Zealand to support and accelerate change across the public sector in three ways: Supporting individual agencies, co-design and co-delivery, and cross-agency delivery. As part of “Result 9”, the New Zealand Business Number is being introduced, which provides businesses with one unique identifier for each business to use in all their interactions with government agencies and each other.

2.1.3. Deepening impact analysis – competition effects

Competition plays an important role in supporting innovation, and regulatory policy can support or inhibit effective competition. Regulatory institutions such as regulatory impact analysis (RIA) can be designed to support (or require) competition analysis as a part of the regulatory development process. As an economy develops and becomes increasingly sophisticated, it is increasingly important to include competition analysis as a part of regulatory impact analysis to ensure that regulatory regimes do not provide a barrier to innovation.

Regulatory impact analysis is now widely used in APEC. It is an important instrument that supports the objective analysis of regulatory proposals. In varying degrees, economies are also incorporating into their RIA an examination of the proposed regulation’s effects on competition. Approaches vary from an explicit requirement for competition impacts to be assessed, to no explicit competition requirements (but also no restrictions on scope of analysis). This no doubt reflects that economies are at different stages of development with their RIA systems. Initial focus should be on implementing a basic RIA system and building internal capability to support this system. Once RIA systems are embedded, focus should shift to developing and strengthening specialized areas of analysis such as competition analysis principles.

Some economies also draw in authorities with specific expertise to assess competition effects (outside of the department authoring the regulatory impact analysis). This can increase the robustness of the assessment of competition impacts.

Competition analysis is included in RIA activity in Korea

In Korea, a regulatory impact analysis report is expected to include analysis of the impact of regulatory changes on market competition with comparative economic/social cost and benefit analysis. Completed reports are provided to the Regulatory Reform Committee who will also seek input from the Korean Fair Trade Commission (KFTC). The KFTC will provide evaluation of the proposed regulatory changes’ impact on market competition. The evaluation will assess impact in four areas:

- number/size of suppliers;
- capacity of suppliers;
- incentives to suppliers; and

- consumers.

2.1.4. Movement of skilled migrant labor

As a specific example of regulatory policy settings inhibiting or facilitating innovation, economies were asked how easily skilled migrants were able to move between firms. Innovation often relies on tacit knowledge held by skilled people. Immigration policies can place barriers on the movement of skilled people between economies, and occupational regulation imposes barriers on movement between firms within economies.

Labor market policies that enable worker mobility are positively associated with an economy's level of innovation and competitiveness.¹¹ Economies to varying degrees either place restrictions on migrants moving between firms or provide some flexibility on movement. There is no one single approach taken across APEC on this issue. Many economies maintain immigration settings which facilitate the entry of skilled migrants, but may have varying degrees of restrictions on movements within the economy, for example it is common to see work permits that are tied to a particular employer, which restrict the migrant worker's ability to move between firms within an economy. However, there are some economies that do make it easier for skilled migrants to move jobs within the economy.

The discussion has focused on how different aspects of economies' regulatory policy can affect innovation. The next section reviews how competition policy can play a specific role in encouraging innovation within economies.

2.2. Competition Policy

Introducing competition into less competitive markets can directly encourage innovation. This requires that the coverage of competition policy is as wide as possible and allows for consideration of longer term technical efficiencies from new technologies. Designing competition policies and enforcement programs that focus on making highly uncompetitive industries and monopolies more competitive can increase innovation. The increase in competition boosts innovation by encouraging firms to adopt improved technology and organizational arrangements, promoting the diffusion of innovations and encouraging resources to be invested in innovation.

2.2.1. Competition policy is generally comprehensive

The reports from individual economies suggest a relationship between development level and coverage of competition law. Developed economies tend to apply their competition law universally, subject only to limited specified exemptions. Absent more detailed information it is difficult to assess the significance of reported exemptions within these economies, though in some cases clearly significant sectors, such as telecommunications are exempt.

Less developed economies are more likely to exempt larger portions of their economies, including in one case a general exemption for firms owned by state and national governments.

¹¹ Negara (2015) *How Labour Market Policies Affect Innovation and Trade Competitiveness – ERIA Discussion Paper 48-*

Chile's competition policy focus

In Chile, competition policy is primarily focused on economic efficiency. Historically, competition policy has focused on sanctioning conduct that tends to have greater consumer impact. However, there is a separate specific focus on consumer protection, which is enforced independently of competition enforcement.

2.2.2. Independence of competition enforcement is universally accepted

Economy responses indicated universal acceptance that competition enforcement should take place in an independent manner. The independence of competition authorities to select cases to investigate is crucial. This ensures that they undertake their investigation in a manner that is not influenced, nor seen to be influenced, by the special interests among the firms they regulate. This requires at least some degree of independence in individual decision-making, at arms-length from the political decisions made by the executive government. This is particularly important for state owned enterprises where the government is a regulator as well as an owner.

Competition enforcement in the Philippines

The Philippines' Office for Competition is operationally independent, although it sits under the Department of Justice. A new independent commission, the Philippine Competition Commission, was recently established through the passage of the ***Philippine Competition Act*** on 21 July 2015. It is an independent quasi-judicial body that has exclusive jurisdiction over the enforcement and implementation of the competition law, which governs merger and acquisition agreements, prohibits anti-competitive agreements and abuse of dominant position, prescribes the disposition of cases, and imposes fines and penalties against violators.

However, competition authorities cannot exist in a vacuum, and like all organs of government, must be held accountable for their use of public funds and actions within the market. Being at arms-length involves balancing the inherent tension between being a public body and having operational independence in decision-making on defined activities such as enforcement.

Responses from the IERs indicated a wide range of structural arrangements across economies aimed at this same goal. This is consistent with a similar conclusion made by UNCTAD,¹² and likely reflects differences in the legal, administrative, political and economic factors that affect each economy.

Two broad levels of independence emerged as common themes across many responses:

- Operational independence – meaning independence in making individual investigation and enforcement decisions.
- Administrative autonomy – which balanced operational independence with public accountability in matters such as accessing funding, making resourcing decisions and responsibility for entering contracts.

Almost all responding economies had measures, and in some cases, an extensive range of measures in place to protect the operational independence of their competition authorities. Different arrangements exist for balancing administrative autonomy with public accountability in the exercise of the competition agency's administrative powers.

¹² *Independence and accountability of competition authorities*, UNCTAD (2008). http://unctad.org/en/Docs/c2clpd67_en.pdf

2.2.3. Developing economies are less likely to consider efficiencies from new technologies in their competition policy

Responses relating to efficiencies from new technologies (also known as dynamic efficiency) revealed a wide range of views among economies. There was a reasonably clear distinction between developed and developing economies in terms of recognizing efficiencies from new technologies within competition enforcement decision-making.

Developing economies generally indicated they had limited capacity to take into account efficiencies from new technologies. Some suggested that institutional capability was a constraint because of the complex modelling necessary to assess such claims.

Viet Nam's young competition authority

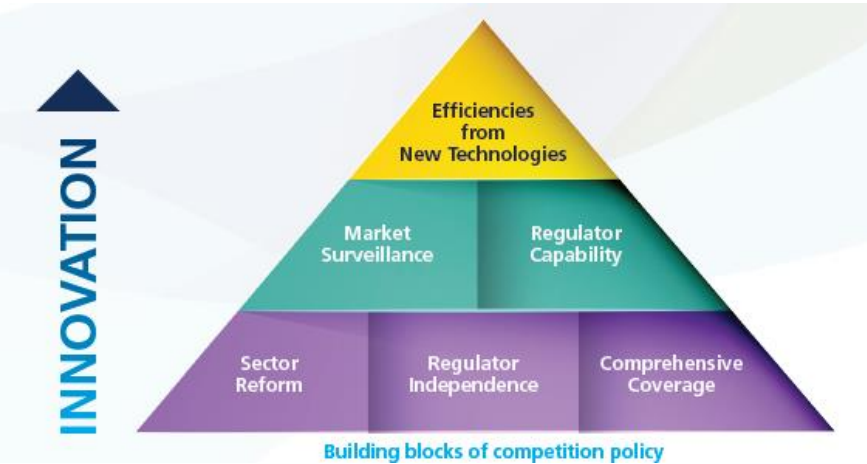
Viet Nam's competition authority is technically able to take into account efficiencies from new technologies under a general provision allowing for consideration of efficiency. However, as a relatively young authority, it struggles to muster the analytical resources to adequately document and assess efficiencies from new technologies.

In contrast, developed economies indicated that they took into account efficiencies from new technologies when assessing mergers, usually as an exception to approve an otherwise prohibited merger. It was not clear to what extent this consideration was universally applied. In some cases, it seems the burden is largely on the applicant to raise and prove claims of efficiencies from new technologies. In others, it seems that efficiencies from new technologies are taken into account largely on the initiative of the competition authority, on the basis of legislation that refers to efficiency in a general sense.

Canada's Competition Act explicitly promotes efficiency and adaptability

Canada's Competition Act includes as one of its stated purposes promoting efficiency and adaptability of the Canadian economy. Efficiency gains are available as a defense to mergers which would otherwise be likely to result in significant competition concerns, as well as to certain other anti-competitive collaborations between competitors. The Competition Tribunal, the specialized adjudicative body responsible for hearing cases that deal with competition matters such as mergers, is statutorily required to take efficiencies into account when the defense is raised. Efficiency gains can succeed as a defense to an anti-competitive merger by outweighing and offsetting any anti-competitive effects.

2.2.4. Strategic focus of competition policy could be sharpened



While the focus of competition policies varied across economies, one emerging trend is the increasing strategic focus of competition policy. Many developing economies indicated a focus on some combination of reforming natural or state owned monopolies, and introducing the

fundamentals of competition law to regulate conduct across markets.

Some of the more advanced economies take a more strategic focus in identifying and improving inefficient markets. While the actual focus of these economies varied, a need for sophisticated market intelligence in order to make these judgements was widely identified. Two notable mechanisms for competition authorities to gather this intelligence are an independent power to conduct 'market studies', and the ability to access information held by other government departments.

Hong Kong, China's competition authority

Hong Kong, China's Competition Commission is an independent statutory body established under the Competition Ordinance to enforce the competition rules and to investigate any conduct that constitutes or may constitute a contravention of competition rules. Investigation is usually driven by whether competition harms have been identified in markets, but the Commission also has the authority to conduct market studies into matters affecting competition in markets in Hong Kong.

For advanced economies, the future challenge will be to examine whether current policies, laws and institutions remain fit for purpose in the face of emergence of new technologies and rapidly changing circumstances.

Taking a strategic approach in a federal context: Australia’s national competition policy reform

In Australia, the Hilmer Review of 1993 found “strong and widespread community support” for the implementation of a national competition policy and the benefits such a policy could have for improving international competitiveness. Its recommendations led to all Australian States and Territories adopting a set of National Competition Policy (NCP) Agreements in 1995 and the passing of the Competition Policy Reform Act 1995 by the Federal government.

Reviews were required to be conducted in accordance with the NCP Guiding Legislative Principle. This stated that existing legislative restrictions on competition should only be maintained, and new restrictions imposed, where a two-part test is met:

- the benefits to society as a whole clearly outweigh the costs; and
- there is no alternative means of achieving these benefits that is less restrictive of competition.

Studies by the Australian Productivity Commission have concluded that the Hilmer reforms had a substantial impact on productivity growth, helping to underpin the strong period of economic growth Australia experienced in the 1990s and early 2000s.

The previous discussion has focused on regulation and competition policy. In the next two sections, we turn to the role of Corporate Governance and Public Sector Governance in enabling innovation.

2.3. Corporate Governance

Corporate law plays a key enabling role for innovation by establishing the relevant corporate governance frameworks. There is wide range of corporate forms including publicly listed companies, privately controlled firms, and publicly owned businesses (state owned enterprises). They all have to grapple with the problem of the separation of management from investor owners to allow good management to be rewarded and poor management to be disciplined. While competition in product markets helps discipline poor managers, those (such as directors) responsible for corporate governance also have an important role. Corporate governance includes corporate or companies law, securities law, share market regulation and insolvency and bankruptcy law. These laws play a key enabling role at the birth, change of life and at the death of corporations.

Initiatives to improve Ease of Doing Business are widespread across APEC and they can encourage innovation by smoothing the transitions in the life cycles of businesses. Corporate governance frameworks that set rules for creating, restructuring and liquidating companies exist across economies at all three levels of development. One of the most notable differences between the frameworks of developing and advanced economies is the development of more sophisticated systems to provide greater options for raising capital and to incentivize growth.

2.3.1. Role of directors in ensuring good corporate governance is an area of ongoing emphasis across APEC

While competition in product markets helps discipline poor managers, directors' role in corporate governance is also very important. Well-designed corporate governance policies can contribute to the incentives placed on directors and managers of firms to seek to compete through innovation, as well as adopting capital structures to promote innovation. The majority of APEC economies have mechanisms in legislation to improve alignment of managers' and owners' interests, or at least encourage managers to act in the interests of owners. The most common mechanism is for directors to have a duty to act in the interest of the company or its shareholders. This is often coupled with the ability for shareholders (on behalf of themselves or on behalf of the company) to take court action to enforce breaches of directors' duties.

For companies that are listed on a stock exchange, there are generally additional obligations, such as obligations to publicly announce information that would affect the share price, and to make disclosures regarding related party transactions and executive compensation.

Chinese Taipei's system of corporate governance evaluation

As part of its policies to solve the potential conflict between owners and management of listed companies, Chinese Taipei has introduced a system of corporate governance evaluation. The evaluation is conducted by the Taiwan Stock Exchange with the results of the companies ranked in the top 20% being publicly released.

2.3.2. Forms of capital raising depend upon an economy's level of development

There is a broad spectrum of responses from economies regarding the forms of capital raising used in their jurisdiction. Advanced economies have more developed financial markets with a range of options for capital raising. Developing economies may have a stock exchange but rely on financing through the banking system, self-financing or borrowing from relatives. Middle income economies responded that they are making use of venture capital and private equity.

One promising practice is greater flexibility in financing start-ups. A number of APEC economies are developing legal mechanisms that enable crowdfunding. Crowdfunding is a mechanism that helps micro and small innovative enterprises raise funds from the public to invest in start-ups. It enables those who cannot or do not want to get funds through traditional means such as banks and finance companies a way to access alternative sources of capital.

2.3.3. There is growing flexibility in financing start-ups

Economies with advanced financial markets tend to have a greater range of options for firms to raise capital. The development of a bond market is seen as useful. Some economies have implemented rules to make it easier for small and medium firms and start-ups to raise capital. These may take the form of exemptions from the requirements that larger listed companies must meet. Types of exemptions used are those for small stock offers, or for offers made to specific types of investors, such as institutional investors.

A common way of making capital raising easier, for companies that are not large enough to warrant listing on the main board of the stock exchange, is to operate a board with less stringent and more streamlined requirements. Some economies have government-owned financial institutions which provide loans or equity capital, sometimes targeted at specific sectors.

Alliance of venture capital firms in Indonesia
Eight of Indonesia’s venture capital firms and incubators have formed an alliance to educate the market about venture capital investments and tech entrepreneurship. It will partner with government and regulators to promote a legal environment to support start-ups.

Crowdfunding in New Zealand
A number of economies are in the process of developing rules for raising capital by crowdfunding. Crowdfunding is the practice of funding a project or venture by raising monetary contributions from a large number of people, typically via an online platform. Equity crowdfunding is where the funders receive shares in the venture. This is regulated by the Financial Markets Authority Act in New Zealand, which limits the amount a business can raise to NZ\$2 million in a 12-month period.
The Financial Markets Authority (FMA) requires crowdfunding services to be licensed and to provide investors with information on the risks of crowdfunding. The FMA does not check the companies; it only checks and licenses the crowdfunding platform. The service must also have systems in place to run some basic checks on the companies who want to raise money, such as checking company senior managers or directors are not bankrupt, or that they do not have convictions for fraud or dishonesty.

2.3.4. There are still barriers to accessing private equity partners or publicly listing

Some developing economies with many small and medium-sized enterprises have difficulty accessing finance through financial markets and tend to borrow from friends and family. One example given of a policy that discourages a company from expanding is a tax on initial public offerings.

Regulating the Russian stock market

There are still significant barriers for businesses in Russia to access private equity partners or publicly list on the stock exchange. These include structural problems with the Russian stock market and non-market investment risks, a lack of collective investment schemes, high central bank rates which reduce the availability of credit instruments for Russian companies, and a lack of incentives for angel investors.

However, the Russian government is focused on improving the regulation of the stock market. This includes measures to simplify the issue of securities, inter-industry capital migration and reorganizing procedures of Russian companies and banks. In 2014, the Russian Government introduced the Code of Corporate Management to improve the quality of management in the largest state-owned enterprises. To facilitate growth of small and medium sized enterprises (SMEs), the 2011 Federal Law on Economic Partnership was adopted to create microfinance institutions and guarantee funds, as well as encourage venture capital and seed investment funds. The Innovation and Investment Market was created in 2009 as an exchange market for high-tech companies in the margins of the Moscow Stock Exchange. This is intended to facilitate attraction of investment, especially in the development of small and medium-sized businesses in the innovative sector.

2.3.5. An appropriate balance needs to be struck between enabling risk taking and protecting shareholders and creditors

The responses of APEC economies do not indicate that risk taking and entrepreneurship are hindered by insolvency law. Economies at all levels of development have various mechanisms for restructuring and rehabilitation of insolvent companies with an external party such as a court or a receiver approving or making decisions.

To avoid poor or fraudulent managers repeatedly starting businesses, a number of more advanced economies provide the ability for their courts to prohibit people involved with failed companies from being a director or taking part in the management of a company for a certain period.

Transparency is important as it allows investors to make an informed decision about whether to invest in a company where the directors, executives or promoters have been involved in an insolvency proceeding. Some economies have publicly available information on insolvencies for this purpose.

Corporate governance needs to be supported by good public sector governance. The next section discusses how the quality of public institutions and public governance are also important in encouraging innovation.

2.4. Public Sector Governance

Governments can have a major impact on innovation by providing the broad legal framework through the rule of law, entities that encourage innovation, and through the specific national innovation system. Stable and predictable public sector institutions are essential because innovation is inherently uncertain and risky.

The rule of law requires that adequate legal mechanisms are in place to protect physical and intangible property rights, the level of competition SOEs are exposed to, and the existence of SOEs to explicitly encourage private sector innovation. These mechanisms also determine whether there are public sector bodies tasked with and capable of delivering an innovation policy, a knowledge infrastructure and an innovation infrastructure.

2.4.1. Legal frameworks are widespread but application is uneven

Each APEC economy has its own unique legal mechanism to make and enforce laws, rules and regulations and achieve the rule of law. While generally, property rights exist across all APEC economies, the right to own property is not universal.

Some economies have been less successful than others in achieving a stable and predictable rule of law regime. This can be due to a lack of an independent judiciary or other corrective mechanisms for administrative abuse.

Economies at different levels of development all face different priorities from establishing the legal frameworks to improving the operation of the rule of law within their individual systems.

There are still significant limitations to property ownership in some developing economies. In some developing economies (such as Viet Nam), there is no private ownership of land. Land is owned by the government in these economies, granting only protectable and tradable land use rights. Even if property rights do exist, these property rights may not be guaranteed. In some cases, the government is able to expropriate private immovable property where there is necessary public utility in doing so.

Middle income economies generally have basic legal systems in place, with most having a judiciary independent of the legislature and executive. However, there were some middle income economies that still have relatively weak legal mechanisms and others that have yet to achieve a stable and predictable rule of law despite appearing to have good legal frameworks in place.

Advanced economies generally have strong protection for the rule of law and property rights. Many of these economies reported well-established legal mechanisms, with an independent judiciary and statutory property rights. These property rights are often enforceable via enforcement agencies and the courts system. In addition to remedies such as injunctions and damages, many advanced economies also had alternative dispute resolution mechanisms for rights disputes, and placed importance on having effective and timely dispute resolution processes. The existence of these legal mechanisms and clear enforceable rules helps to reinforce incentives for people to meet their obligations and respect property rights.

Rule of law in the United States

Each economy has its own means of making and enforcing laws, rules and regulations and upholding the rule of law. Providing a stable and predictable rule of law regime reduces the risks of neglect/ignorance of the law, corruption and administrative abuse.

For example, in the United States, the protection of property rights is enshrined in the Fifth Amendment to the United States Constitution, which states that “No person shall be...deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.” Everyone is subject to the law including government. All government officials of the U.S. federal government, including the president, vice president, the justices of the Supreme Court, State judges and legislators, and all members of Congress, pledge first and foremost to uphold the Constitution.

2.4.2. State Owned Enterprises decline in significance as economies become more advanced

The size of the SOE sector within each economy varies significantly depending on the level of development. Generally, the role of SOEs in advanced economies is much smaller than in developing and middle income economies. However, there was a notable lack of data on SOEs for several APEC economies, and SOEs were often not defined or considered a separate sector in these economies.

The role of SOEs appears to decline over time as an economy grows and becomes more advanced, and those remaining SOEs in advanced economies generally face product market competition. SOE sectors generally played a large role in developing economies.

Overall, SOE market revenue as a percentage of GDP was relatively high for developing economies, with reported figures ranging from 20%-50%.

There were greater variations in the size of the SOE sector across middle income economies, with figures ranging from 3% to 50% for these economies. In general, the role of SOEs was still significant for many middle income economies.

Advanced economies had a relatively small SOE sector in terms of the SOE market revenue to GDP measure. Advanced economies that provided SOE data reported having SOE revenue less than 10% of market GDP. There has been a steady decline in the size of the SOE sector in these advanced economies over the last 20-30 years, with a trend towards privatization of smaller government trading enterprises and larger infrastructure providers such as electricity and transportation.

The SOE model in these advanced economies attempts to avoid sheltering public enterprises by putting SOEs on a level playing field with business so they can operate as successful businesses in competitive markets. SOEs in advanced economies often operated at arms-length with no particular advantages from public ownership.

Competitive neutrality for SOEs in Australia

Australia's National Competition Policy (NCP) reform process required the government to reform SOEs (described as Government Business Enterprises (GBEs) or Government Trading Enterprises (GTEs)) in three ways by:

- restructuring them (removing regulatory responsibilities from SOEs where they may have resulted in an advantage for SOE over private business);
- making them compete on an equal basis with private business (the competitive neutrality dimension); and
- setting up independent price regulators where they retained monopoly power.

The Productivity Commission's Review of National Competition Policy Reforms (PC Inquiry Report No 33, 2005) summarized the results as follows:

- the prices of several key economic infrastructure services have fallen in real terms since the early 1990s — though there has been considerable variation across sectors and jurisdictions;
- in general, price reductions do not appear to have come at the cost of reduced service quality. Indeed, service quality has improved in some areas and consumers have benefited from access to a wider range of services;
- NCP and related reforms have been significant (and sometimes major) contributors to those price reductions; and
- businesses have generally benefited more than households, with many enjoying substantial price reductions. This partly reflects intentional 'rebalancing' of prices between businesses and households to more closely reflect the costs of providing services to each.

Across APEC economies, there are not many SOEs that are explicitly tasked with encouraging private sector innovation. However, there were some middle income and advanced economies that reported having government-owned businesses operating in the science sector. These tend to be specialist non-market bodies that play a key role in the overall national innovation system.

SOEs encouraging private sector innovation in New Zealand

In New Zealand, Crown Research Institutes (CRIs) are wholly government-owned research companies that carry out scientific research for the benefit of New Zealand. Each of the seven CRIs is aligned with a productive sector of the economy or a grouping of natural resources. CRIs play a unique and important role supporting their sectors to innovate and grow. They strive to address New Zealand's most pressing issues and achieve economic growth by improving sectors' productivity and the sustainable use of natural resources.

New Zealand Venture Investment Fund (NZVIF) is a government-owned company established in 2002. It partners with private investors to attract greater levels of investment into New Zealand's most promising high growth companies of the future. NZVIF's public-private investment partnership model is intended to attract greater levels of private investment and capability.

2.4.3. National innovation systems generally lack coherence

Economies are continuing to develop and improve their national innovation systems. Among developing and middle income economies, it is common to see all the elements of the national innovation system under the responsibility of one public sector body.

All APEC economies reported having a public sector body tasked with and capable of delivering an innovation policy. However, having different bodies to deliver a knowledge infrastructure and innovation infrastructure was not universal. In more advanced economies, the innovation system is more often divided into distinct areas with different public sector bodies looking after each area. Across APEC economies, two parts of the national innovation system are predominantly publicly owned and funded – the knowledge infrastructure of universities and research institutes, and the innovation information infrastructure provided by standards bodies, and patent offices and stewards of geophysical information.

Innovation infrastructure includes the networks that companies need to innovate. While many economies have these information infrastructures to support business and innovation, they were usually not clearly identified in the IERs as being ‘innovation infrastructure’ as such.

Even among advanced economies with distinct public sector bodies tasked with innovation policy, and knowledge and innovation infrastructure, a lack of coherence in their national innovation systems was a common theme. This indicates that as economies develop and refine their innovation systems, a key challenge will be to examine how the different parts of the innovation system operate, and how they can best work together in an integrated and coherent manner to achieve their innovation priorities.

Canada’s national innovation system

Canada has a public sector body tasked with and capable of delivering innovation policy and the innovation infrastructure.

The Federal Department of Industry (Industry Canada) is the public sector body responsible for Canada’s national innovation policy, and sets the strategic direction for policies and programs that support and stimulate research, development and innovation in Canada. Industry Canada is also tasked with developing and administering framework statutes, regulations, policies and procedures.

Furthermore, innovation infrastructure is delivered by Industry Canada. It is responsible for developing, setting and assuring compliance with related regulatory reform and standards, and consults with a variety of stakeholders and portfolio organizations.

In terms of knowledge infrastructure, Industry Portfolio partners work with Industry Canada to promote scientific excellence and foster an environment conducive to innovation. Industry Portfolio partners include national research granting agencies (such as Canada’s main public research organization – the National Research Council), other science-based government departments, and external stakeholders from the private and public sector (including Council of Canadian Academies and Canadian Institute for Advanced Research).

2.5. Innovation challenges vary at different levels of development

Following the Global Financial Crisis (GFC), many economies have taken a strategic shift in their innovation priorities. Resetting these priorities has resulted in a different mix of policies to encourage innovative growth. Across all APEC economies, while exact priorities vary depending on the economy’s individual context, there were a number of common themes including:

- increasing public spending on innovation, research and development (relative to GDP);

- strengthening the transfer of knowledge from academia to industry;
- increasing the recruitment and development of scientific talent to meet the needs of industry and public sector research institutions;
- reviewing the relative roles of the public bodies in the innovation system; and
- promoting the adoption of Information Communications Technology.

The table below illustrates common aspects of structural reform policies and the challenges faced by economies at different levels of development.

Structural policies and challenges	Developing economies <i>(learning/ factor driven)</i>	Middle income economies <i>(catching-up/ efficiency driven)</i>	Advanced economies <i>(frontier/ innovation driven)</i>
Regulatory policy	Developing institutions to support robust regulatory policy development and implementation. Creating public participation procedures.	Implementing frameworks to identify and manage impacts of regulatory reform. Working to ensure that regulation does not inhibit firm innovation.	Implementing advanced tools to support transparency and robust regulatory policy. Using regulation to promote innovation and the adoption of new technologies.
Competition policy	Establishing a competition authority to enforce competitive markets.	Establishing a comprehensive competition policy framework.	Sophisticated competition framework to encourage long term efficiencies from new technologies.
Corporate governance	Providing basic legal infrastructure to support the birth, life, and death of firms.	Refining corporate governance systems to enable increased capital raising and more complex corporate structures.	Advanced and flexible legal infrastructure to support firm governance and risk taking, incentivize growth and enable raising of capital.
Public sector governance	Implementing governance frameworks to support the rule of law and remove corruption or administrative abuse.	Administrative simplification, improving coordination between government agencies.	Sophisticated governance arrangements to incentivize efficient and effective public spending, taxation, and ownership (where applicable).

2.5.1. Developing economies

Among developing economies, current science, technology and innovation capabilities are still underdeveloped. Developing economies generally lack a national innovation system or have very fragmented systems in place.

These economies are at the ‘learning’ level of development and their economy is largely driven by factors of production. They are generally still working on adoption of technology and tailoring

innovation to respond to specific local conditions. Social innovation to help to introduce technical innovations is another issue facing some developing economies.

The innovation priorities for these economies generally focus on:

- putting in place basic innovation systems;
- strengthening their ability to absorb new technology from more advanced economies; and
- encouraging uptake of and improving public access to cost-effective technology.

Structural challenges facing Viet Nam:

For a developing economy such as Viet Nam, one of the main challenges is to successfully transition into a market-oriented economy. Since the GFC, Viet Nam has implemented bolder structural reform measures but much work remains. This includes proactive economic integration with other economies to liberalize trade and investment. Given the innovation system in Viet Nam is only emerging, the key areas of focus for Viet Nam will be to establish and build the capability of its public institutions, legal frameworks and systems.

Structural challenges facing Thailand:

Thailand is facing internal challenges including an ageing population, depleting natural resources and environment, and instability of its political and administrative systems. There has been limited success with policies focusing on technology transfer from foreign entities. Thailand is increasingly focusing on strategic sectors following the Asian Financial Crisis. It is currently focused on developing manpower and infrastructure policy to resolve a shortage of R&D personnel and incentive policy to promote the commercialization of technology. For example, Thailand's Science Park Development Program aims to promote greater private sector investment in R&D and create new entrepreneurs.

For these developing economies, the immediate priority will be to establish basic institutions such as regulatory impact analysis, competition policy, legal framework, and a basic innovation system. After these institutions are in place, it is crucial to focus on building their internal capability to support the stable and predictable operation of their structural policies and institutions. Adopting new technologies from other economies may speed up this process of learning and developing the policies and institutions to stimulate firm innovation.

2.5.2. Middle income economies

Middle income economies generally have the right institutions and basic innovation systems in place. These economies are big consumers of foreign new technology and are increasingly focused on technological catch-up. Applying innovative technologies to support industrial development is a common feature.

Middle income economies have usually undergone a path of significant growth driven by low-cost factors of production and exports of natural resources. However, such rapid growth rates are becoming unsustainable and many of these economies are now facing a growth slowdown. It was acknowledged that as growth rates declined, future economic growth would have to come from innovation and productivity gains rather than the 'easy gains' such as labor savings.

These economies are recognizing the importance of increasing R&D efforts, and are continuing to develop their innovation systems and building up their innovative capacities to begin to compete with leading world innovators.

Structural challenges facing Mexico:

Mexico's economy is characterized by its significant manufacturing sector. Despite the strong growth in manufacturing, trade liberalization has given rise to disparities between sectors, regions and companies. Mexico is facing low national integration into value chains as well as weak supply chains, and shortages of trained technicians and engineers. The low level of R&D in current industrial processes is also a significant challenge confronting Mexico. Mexico has put in place a *National Program of Innovative Development 2013-2018* to promote innovation in industrial sectors through participation from academia, the private sector and government. This program includes increasing public spending on innovation, and promoting knowledge transfer and local vocations in the areas of science, technology and innovation.

Structural challenges facing China:

As a middle income economy that has achieved over a decade of exponential growth, China is facing rising environmental and resource constraints. Its traditional growth model relying on low cost factors of production and intensive input is unsustainable. China's factor and investment-driven economy must now transition to one that is driven by innovation. A new engine of growth based on innovation will require good supporting structural reform policies and institutional innovation.

In June 2015, the State Council of China issued the document "Promoting Entrepreneurship and Innovation", stating that China should accelerate the implementation of its innovation-driven development strategy and create a supportive environment for innovation and entrepreneurship. China's current areas of focus include resolving the institutional problems that constrain its capability to improve innovation efficiency, promoting inclusive innovation, improving the rate of technology transfer, and developing the regional innovation ecosystem to create innovation poles that diffuse and drive innovation in China.

Across middle income economies, common priorities for innovation include:

- increasing public spending on innovation;
- strengthening knowledge transfer from academia to industry;
- promoting development and adoption of IT; and
- improving recruitment and development of skilled people in the areas of science, technology and innovation.

While middle income economies are making good progress in improving their national innovation systems, they also face internal challenges such as institutional capability and coordination of their innovation policies. These economies are increasingly putting the right institutions in place, but it is important to note that developing quality institutions and implementing good structural policies will require time and sustained commitment.

2.5.3. Advanced economies

Advanced economies are generally considered at the 'frontier' of new technology. Several of these economies have leading innovative companies and are focusing on retaining and improving the competitiveness of these firms. Another common goal for advanced economies is to become a global leader in science and technology.

These advanced economies are generally less reliant on natural resources as a driver of economic growth. A common theme among advanced economies was the stronger focus on innovation following the GFC. They note the need to improve structural imbalances within their economies and

the slowdown of real wage growth. There is also a shared emphasis on transitioning towards a high value-added, knowledge-based economy.

Despite the generally good macroeconomic and institutional settings of advanced economies, the innovation performance of some advanced economies is still relatively weak. For example, New Zealand, whilst ranked third on the World Bank's Ease of Doing Business survey, is only eighteenth on the INSEAD Global Innovation Index. This may be due to the lack of "innovation and sophistication factors", such as having a low share of R&D intensive industries, a small domestic market, smaller firms, and few of the large firms that dominate global R&D.

Structural challenges facing Hong Kong, China:

Hong Kong, China is developing a knowledge based, high value-added economy, with a view to maintaining the city's competitiveness and achieving long-term sustainable development. Throughout the years, Hong Kong, China strives to provide the most favorable business environment for the private sector to flourish including a simple tax regime with low tax rate, level playing field, free flow of information and capital, rule of law, and with minimal red tape.

Moreover, Hong Kong China focuses on fostering an innovative/technological culture and entrepreneurship, and facilitating the provision of technological infrastructure and human resources to support this, as well as promoting international standards and conformity assessment to underpin technological developments and trade.

Collaboration between government, industry, academia and research sectors will also be enhanced, so as to promote R&D and technology transfer in the economy.

Structural challenges facing Japan:

Despite being an advanced, innovation-driven economy, Japan is faced with significant demographic changes with a declining birth rate, an ageing population and a prolonged period of deflation. Japan's maturing economy has resulted in changes to its industrial structures, reducing its industrial competitiveness in the world.

In response to growing economic challenges and to develop a path for sustainable growth, the "Japan Revitalization Strategy" was adopted in June 2013. This was revised in June 2014 to accelerate reforms, and further updated in June 2015 for "Realization of revolution in productivity by investment in the future". The latest strategy includes various innovation policies, aiming to encourage dynamic innovation ventures and a full-fledged national innovation system in Japan.

The "Comprehensive Strategy on Science, Technology and Innovation 2015" directs the Council for Science, Technology and Innovation to function as a command center for the Comprehensive Strategy. Through a nationwide commitment, the Comprehensive Strategy focuses on the five areas: 1) tackle challenges aimed at future industry creation/social change in the "period of grand transformation"; 2) promote science, technology and innovation contributing to regional revitalization; 3) promote science, technology and innovation, capitalizing on the 2020 Tokyo Olympic/Paralympic Games; 4) create an environment that generates innovation chains; and 5) undertake key initiatives to resolve economic and social issues. Innovation priorities for advanced economies generally include:

- shifting the focus from increasing the overall level of support for the national innovation system towards prioritizing areas of competitive advantage;
- restructuring the competitive funding system and better integration and collaboration in different parts of innovation system;

- attracting and developing entrepreneurs and scientific talent and to meet industry needs; and
- improving the global competitiveness of innovative firms.

Overall, the IERs demonstrate that there is no 'one size fits all' approach to structural policy settings that drive firm innovation. APEC economies differ significantly in their starting point, paths and levels of economic development, and in the imperatives and constraints they face. Even for economies at similar levels of development, 'binding constraints' (their unique contextual factors and individual challenges to economic growth) will be very different. For some the priority is getting the basic building blocks in place to underpin a national innovation system. For others it is to adapt to stay on the frontier of knowledge and technological development. Economies will need to tailor their policy reforms to reflect their respective circumstances and innovation challenges. Sometimes, despite the existence of best practice rules and laws, innovation performance can still be weak. Therefore economies should continue to monitor how their structural policies are operating even after they have put the right systems and policies in place.

The next chapter provided by the Philippines explores the links between competition policy and innovation in greater detail. The chapter also examines the challenges for young competition agencies, such as the agency to be constituted in the Philippines, and how APEC can add value.

3. Competition Policy and Innovation – Case Study by the Philippines

3.1. Competition-Innovation Nexus

There is a general understanding that the mark of a competitive economy is its ability to continuously generate innovations. It seems ironical therefore that safeguarding market competition could be seen as inimical to innovation. Yet just several decades ago, the relationship between bodies promoting innovation and those enforcing competition was tenuous, if not hostile. On one hand, some arrangements designed to incentivize or facilitate production of new technologies were proscribed for restricting competition. On the other, policymakers pushing for innovation disagreed with anti-trust campaigns against certain size of firms and concentration of markets. There was a view then that laws on intellectual property and competition¹³ are inherently incompatible in so far as the former confers exclusive rights that tend to nurture monopoly, while the latter assails monopoly power.

The crux of the discord is the complex relationship between market competition and innovation. There are a number of views on this issue. One view holds that since the process of innovation requires resources, there should be more tolerance for large firms who have the wherewithal to engage in and bear the risks of innovation. Market dominance, especially if borne out of innovation, should not be suppressed, but instead accepted as a natural reward for efficiency. An opposing view argues that size and dominance stifle the incentive to innovate. Smaller firms are seen to be more motivated to innovate, not just so they can forge ahead of others, but also because they have fewer assets whose value may be diminished or rendered obsolete by new technology. Consequently, more competitive markets, comprised of numerous small firms, are predicted to be more dynamic than concentrated markets, consisting of few large firms. Still, a middle-ground view espouses moderate level of market competition to stimulate innovation, based on some empirical evidence suggesting an inverted U relationship between market concentration and rate of technological change.

Neither theory nor empirical research has thrown definitive support behind any of these views.¹⁴ But over the years, the hostility between the bodies protecting intellectual property and enforcing competition waned and was replaced by collaboration – one that perhaps grew out of recognition of their common objectives to promote consumer welfare and ensure efficient allocation of resources.¹⁵

¹³ The terms of “competition policy” and “competition law” are used here interchangeably. Strictly speaking, competition policy refers to a broad set of policies to promote competition in local and national markets. It encompasses policies that enhance trade and investments, favor market entry and exit, reduce unnecessary government interventions and place greater reliance on market forces. Competition law refers to legislation, judicial decisions and regulations specifically aimed at preventing anti-competitive business practices, abuse of market power and anti-competitive mergers. Yet the principles underlying competition law are the same policies that are considered scope of competition policy. To the extent that the former is an embodiment of the latter, the two terms can be justifiably treated the same.

¹⁴ Despite the stream of empirical studies attempting to relate market structure and innovation, there is still demand for more robust results using better data, measures of competition and econometric techniques.

¹⁵ In a number of economies, competition authorities are actively collaborating with patent agencies to ensure that the patent process is not manipulated to forestall innovation (e.g., by patent flooding or trolling) or used to abuse market dominance (e.g., ambushing standards or forcing competitors to cross-license).

However, the recent spate of disruptive innovation brings back to the fore the complexities of the competition-innovation nexus. Disruptive (as opposed to incremental) innovations are new products, production processes or business models that have the potential to radically transform or destroy existing markets, or create new ones. They often result in new, better and lower-priced products and services, but do not fit existing regulatory frameworks. Faced by the threat of novel competition, incumbents demand to bring disruptors under the fold of the same regulatory regime they are subjected to. Such demand may be easily dismissed as an attempt to forestall the market entry of new rivals, but there may be legitimate social concerns (such as consumer health and safety) that may justify uniform application of existing regulations. Hence, many policymakers agonize on the appropriate response that will not afford unfair advantage to disruptors, yet also weaken or destroy incentives to innovate.

There have been, of course, disruptive innovations in the past, but the recent kind brings a new perspective to the discourse for at least two reasons. First, many have been carried out by start-ups with minimal resources (instead of those entrenched with huge resources) but capitalizing on the inefficiencies of incumbents.¹⁶ Second, regulated but not concentrated markets seem to be just as vulnerable to disruptions as concentrated ones. These observations suggest that, contrary to past understanding, neither size of the firm nor concentration of the market is a critical determinant of innovation. It follows that in dealing with innovation concerns, competition policy does not have to focus on some firms because of size, or on some markets because of degree of concentration.¹⁷

It remains the case that encouraging innovation is a central concern of competition policy. In addition, there is a growing perception that innovation could be induced more by competition-enhancing policies than by policies that directly promote it. This view finds support empirically where it is found that easing anticompetitive product regulation tends to have a more powerful effect on innovation than protection of intellectual property rights (IPR).¹⁸

In this case, instead of attempting to unravel the elusive nexus between competition and innovation, it is more useful to distinguish the desirable elements in competition policy that could promote innovation. Four elements are deemed critical: (i) adequate consideration of technical and dynamic efficiency in determining anti-competitive conduct; (2) fairly wide coverage of enforcement but strategic focus on least competitive markets; (3) independence, accountability and transparency of competition authorities; and (4) coherence of competition policy with sector regulation and other economic policies.

These elements are presumably well understood by competition regimes in developed economies, but perhaps less so by developing economies, especially by those still finding a niche for promoting market competition in their national agenda. They deserve to be clarified, *i.e.*, translated from abstract principles to practical terms. It is also useful to explore the challenges these imperatives present to young competition agencies, and the role for APEC. The discussions that follow are devoted to these tasks.

¹⁶ For example, disruptors avoid some of the costs incurred by incumbents such as the use of middlemen.

¹⁷ The problem may be traced to the fact that the promised benefits of competition are based on an abstracted model of a market (described as perfectly competitive) that is unlikely to be observed in practice.

¹⁸ This is based on an OECD study (Jaumotte and Pain, 2005, cited in UNCTAD, 2011) that shows eliminating anticompetitive product market regulation has stronger correlation with business spending on R&D than improving protection of IPR. Similarly, reducing restrictions on foreign direct investment increases domestic patents more than IPR protection.

3.2. Key Elements of an Effective Competition Law

3.2.1. Efficiency Consideration

Competition laws are special in that they cannot be codified as completely, nor applied as precisely, as other laws. The difficulty stems partly from the melding of economic concepts and legal precepts and translating the former to the latter. Most competition laws therefore do not provide detailed, step-by-step guidance for such critical processes as assessing market power. In the absence of standard metrics or parameters for many of the economic concepts and principles embodied in the law, the enforcement of competition laws is not surprisingly varied across jurisdictions and over time.

In large measure, the “inexactness” or “incompleteness” of competition laws is a reflection of the nature of economic behavior and markets that are continuously adapting and evolving. A conduct considered anti-competitive in one context, may be legitimate in another. Moreover, it is impossible to anticipate all future behaviors that could undermine market competition. Thus no competition law can provide an exhaustive listing of abuses of dominant position or anti-competitive agreements. The impacts on market competition and consumers have to be determined on a case-by-case basis.

Most competition laws thus combine two legal frameworks – *per se* prohibition and rule of reason – to take account of the nuances of market competition without completely departing from bright line rules. *Per se* prohibition is akin to an automatic rule of illegality – the determination is immediate since it does not require a thorough analysis of the conduct and its market context. Activities that trigger *per se* prohibition are considered patently anticompetitive, *i.e.*, without consideration of any redeeming value in terms of improving market processes or increasing economic output. Thus the prohibition is commonly reserved for “hard core cartel” behavior such as price- and output-fixing agreement between competitors.¹⁹ The presumption of illegality is conclusive once the elements constituting the prohibited conduct have been established and cannot be rebutted by any pro-competitive justification.

Rule of reason, on the other hand, requires extensive analysis of the impact on the market, counterfactual simulation of market outcomes, and balancing of commercial justification and damage wrought on the market. If pro-competitive justifications outweigh the anticompetitive consequences, then a conduct may be allowed to continue unless a less restrictive alternative is available. The determination of infringement is done on a case-by-case basis.²⁰

Clearly, the application of rule of reason is more consistent with the goal of fostering innovation. For example, in determining whether a proposed merger should be disallowed, a case-specific, often complex, inquiry is undertaken. This is because it might lead to allocative and productive efficiencies, while increasing market power or reducing rivalry post-merger. Competition agencies in more dynamic economies prefer to go through the process of evaluating business justifications and anticompetitive consequences of a conduct under the rubric of rule of reason. There is in fact a move

¹⁹ The 1998 OECD Cartel Recommendation (p. 3) defines a hard core cartel as “an anticompetitive agreement, anticompetitive concerted practice, or anticompetitive arrangement by competitors to fix prices, make rigged bids (collusive tenders), establish output restrictions or quotas, or share or divide markets by allocating customers, suppliers, territories or line of commerce.”

²⁰ In applying rule of reason, there are various standards adopted to distinguish between competitive and anti-competitive conduct. Several APEC economies have opted for test of “substantial lessening of competition” (SLC) which may pertain to the objective or effect (including likely effect) of a conduct or agreement.

towards applying broader exemptions to per se provisions that are already prescribed in the law. This is in recognition of the danger of dampening innovation because of rigid application of rules. Consequently, most competition regimes would allow certain conduct or agreement on the ground that it would create a new product, enhance production, allow risk sharing, or set legitimate standards, even if it might lessen market competition.²¹

Still, considering the analytical work and administrative burden that might be dispensed with if behaviors are per se prohibited, an inexperienced competition authority may prefer such a legal standard. It could be argued that a per se standard reduces the market uncertainty that may be caused by inconsistencies in judgment owing to the competition agency's lack of experience or the absence of domestic jurisprudence. A further justification is it cuts down time and cost of enforcement by avoiding a long and complex investigation. The preference for per se over rule of reason is thus often dictated by convenience and practicality – not by a conviction on its merits or a lack of regard for the technical and dynamic efficiency that may be sacrificed by the rigidity of such a standard.

3.2.2. Coverage and Focus

The effectiveness of competition law may be limited by an exemption from enforcement that is applied to selected sectors. Nonetheless, most competition laws provide for some exemptions based on social or policy objectives, such as agreements or conduct to satisfy international obligations or to pursue collective bargaining by workers. It is also quite common to extend immunity to entities entrusted with the operation of public services but only in pursuit of their mandate such as guaranteeing universal access or quality services at affordable prices.

Some economies rationalize the grant of temporary exemption as providing flexibility to firms engaged in technological activities.²² But like other forms of special privileges, exemption from competition law could distort market competition and dampen innovation incentives, particularly when it results in a dominant firm that could block the entry of innovators or is used to frustrate the introduction of innovations in the market. Accordingly, exemptions should be granted sparingly and only under specified conditions, obligations and a time limit.

Exemptions may also weaken the powers of the competition authority. The sources of anticompetitive behavior are not easy to detect and the effects may not be confined to one sector. Thus, placing some sectors outside the enforcement of competition law could undermine the effectiveness of the authority in investigating, restraining and imposing sanctions.

While a broad coverage of the competition law and commensurate powers of the competition agency are optimal, it is still considered a good practice for competition authorities to set priorities, i.e., to focus their activities, enforcement actions and advocacy initiatives for a given time period. This is a custom that even those less constrained by resources find expedient. The focus may be on specific activities (e.g., merger approval) or sectors (e.g., those most affected by anticompetitive issues), or targets (e.g., elimination of cartels).

Priority setting allows the competition agency to deploy its resources to where its action would have a tangible impact. It is also a legitimate means of controlling public expectations and demands, given that there are far more numerous anticompetitive behaviors than any agency can monitor and effectively deal with. Regardless of how priorities are determined, however, the agency must be able

²¹ It is a common dilemma of many competition authorities where to draw the line between hard core collusion and legitimate business collaboration.

²² The more common case-specific exemptions are those applied to vertical agreements involving technology transfer, exclusive and selective distribution and franchising.

to effectively communicate such priorities to the public in a manner that they are perceived as rational and not arbitrary, selective or discriminatory.

3.2.3. Independence and Accountability

It is a truism that independence and accountability of the body enforcing the competition law are paramount. A competition authority should be free from political interference or business influence. Thus, most competition agencies are statutory bodies, quasi-autonomous of other branches of government and have strong (at least *de jure*) judicial and administrative powers in conducting investigations and applying sanctions. Such autonomy, however, is often counterbalanced by accountability. The public has the right to be informed of the competition agency's decisions and rationale behind those, and should be able to obtain redress if the agency acts arbitrarily or incompetently. In many jurisdictions, decisions of the competition agency are open to judicial review by the regular courts or administrative tribunals.

Apart from statutory authority and judicial review of decisions, several safeguards have been adopted to attain a balance of independence and accountability. For example, officials are appointed to a fixed term and are not able to be removed from office without due cause. Where the structure is collegial, the terms of officials are staggered so that at any time, not all sitting members are appointed by the same government administration. It is also important that the agency's actions cannot be forestalled nor its decisions overturned except through a well-defined court process.

In developing countries where civil servants are lower-paid than their private sector counterparts, exempting competition agencies from public sector salary scales is considered necessary to attract and retain highly qualified staff and to fend off corruption.

Having an adequate and neutral source of funding is also critical to the agency's independence. It is however not clear which source of funding is optimal. There is a view that fees for specific services and penalties on erring parties are better sources than regular fiscal allocation since the budget process is open to political intervention. But the public may have difficulty seeking recourse to the competition agency if the fees are high, and the agency may be perceived as imposing unnecessarily onerous penalties in order raise funds for its own use.

With greater autonomy comes greater responsibility to the public. Since decisions of the competition authority have a pervasive impact on the entire economy, they should hold up to public scrutiny. Hence, final decisions and guidelines, including normative standards, adopted by the competition authority in its investigation and decision-making should be accessible to all stakeholders.

On the other hand, while judicial review of decisions is essential in making the competition authority accountable, many jurisdictions confine the review to procedural issues, *i.e.*, the processes adopted by the competition authority in investigating and adjudicating. In those cases, the task of the appeals body is not to do a *de novo* consideration of evidence and legal arguments, but to ascertain if there was abuse of discretion by the competition authority such as when it acted outside its jurisdiction or misapplied the law.²³ Hence, appeals are accommodated not so much for the courts to substitute their appreciation of the case for the wisdom of the competition authority, as to ensure fairness and integrity of the decision process.

²³ Grounds for appeal typically include error of fact, failure to observe procedures, flawed reasoning and manifest error of appreciation of evidence.

3.2.4. Policy Coherence

Competition law is but one, albeit critical, policy lever that has a direct impact on market competition. But its effectiveness in curbing anti-competitive practices could be easily undermined by industrial policies that erect entry barriers to protect national champions, or restrictive trade policies that prevent the competitive threat from imports. Other policies could also influence the enforcement of competition law. Exemptions afforded to state-owned enterprises, for example, could constrain the enforcement of competition law. Liberal trade and investment policies, on the other hand, could expand the competition authority's perspective of the effective market and its assessment of market dominance and abuse. Considering how other policies could either reinforce or negate the impact of competition policy, coherence is important to the effectiveness of the latter.

The imperative of having a set of policies all contributing to the goal of promoting market competition is not lost to many economies. In various jurisdictions, as a result, one of the important functions of competition authorities is to advise other agencies (through issuance of opinions) on the potential competitive effects of their policies. It is also common for competition authorities to intervene in proceedings concerning technical or economic regulations even where regulators are autonomous.²⁴ Some economies even find the need to craft a national competition plan to harmonize policies and ensure proper coordination among concerned agencies.

3.3. Implications for Young Competition Agencies

The requirements for an innovation-friendly competition policy just described, might seem ordinary and to be expected of any jurisdiction with good governance. But in practice, they may present challenges even to those with long established competition regimes – more so to those with a young and “barefoot”²⁵ competition authority.

In the last two decades, several APEC Member Economies have enacted national legislation to clearly lay down rules to govern domestic market competition and to establish a competition body to enforce such law. The Philippines is the most recent addition to this league of economies with a national competition law. After more than two decades in the legislative mill, the Philippine Competition Act (PCA) was finally enacted on 21 July 2015. At the time of writing, the Competition Commission, the body tasked to implement the law, has yet to be constituted. But the legislation that will support this new body can be assessed in terms of the elements expounded in the preceding discussion to determine the gains that may be expected from this recent initiative.

Like other new legislation, PCA has benefitted significantly from the competition laws, jurisprudence and experiences of its predecessors. Perhaps for this reason, the intent to give due regard to technical and dynamic efficiencies in determining anti-competitive conduct is unmistakable. Only two acts are per se prohibited, namely price-fixing agreements between competitors and bid-rigging. All other prohibited acts must have the object or effect (including likely effect) of “substantially preventing, restricting or lessening competition.”²⁶ More to the point, PCA specifically provides for an evaluation

²⁴ The line distinguishing technical and economic regulation on one side, and competition regulation on another, is often blurred, hence competition authorities normally intervene in regulatory proceedings, and regulators are often asked to participate in competition proceedings.

²⁵ The term “barefoot” refers to agencies “without significant political or financial support” (UNCTAD, 2011). The term “young” is however not qualified, but is used here to refer to a competition authority established in 2000 or later.

²⁶ The PCA spells out an economics-based reasonableness approach in disposing cases, to wit:

of the restraint on competition vis-à-vis potential efficiency gains, forbearance on natural outcomes of superior product or process and adopting a broad and forward-looking view when assessing market impacts.

The application of PCA is meant to be broad and extraterritorial; its enforcement is not constrained by *a priori* exemptions that are often made out of political considerations. It provides that all acts, whether committed within or outside the Philippine territory, and having “direct, substantial and reasonably foreseeable effects in trade, industry or commerce” are covered. The only explicit exclusions are collective bargaining agreements of workers over wages and conditions. Nonetheless, the law empowers the competition authority to forbear application of the law on individuals or sectors under certain conditions.²⁷ This allows the Commission to focus on least competitive markets.²⁸

Cognizant of how governance can be easily compromised, PCA has safeguards to ensure independence of members of the Competition Commission (hereafter the Commission), such as fixed term of office and two-year prohibition (applied after end of office) from appearing as counsel or agent in competition cases.²⁹ The law also exempts the Commission’s staff from the standard pay scale for civil servants to attract individuals with the necessary skill-set required for the complex work of the Commission.³⁰

While no level of safeguards can ensure the probity of an institution, the responsibility entrusted to the Commission on competition matters is enormous. Foremost, it has original and primary

SEC. 26. Determination of Anti-Competitive Agreement or Conduct. – *In determining whether anti-competitive agreement or conduct has been committed, the Commission shall:*

(a) Define the relevant market allegedly affected by the anti-competitive agreement or conduct, following the principles laid out in Section 24 of this Chapter;

(b) Determine if there is actual or potential adverse impact on competition in the relevant market caused by the alleged agreement or conduct, and if such impact is substantial and outweighs the actual or potential efficiency gains that result from the agreement or conduct;

(c) Adopt a broad and forward-looking perspective, recognizing future market developments, any overriding need to make the goods or services available to consumers, the requirements of large investments in infrastructure, the requirements of law, and the need of our economy to respond to international competition, but also taking account of past behavior of the parties involved and prevailing market conditions;

(d) Balance the need to ensure that competition is not prevented or substantially restricted and the risk that competition efficiency, productivity, innovation, or development of priority areas or industries in the general interest of the country may be deterred by overzealous or undue intervention; and

(e) Assess the totality of evidence on whether it is more likely than not that the entity has engaged in anti-competitive agreement or conduct including whether the entity’s conduct was done with a reasonable commercial purpose such as but not limited to phasing out of a product or closure of a business, or as a reasonable commercial response to the market entry or conduct of a competitor.

²⁷ The Commission may forbear only under the following conditions:

(a) Enforcement is not necessary to the attainment of the policy objectives of this Act;

(b) Forbearance will neither impede competition in the market where the entity or group of entities seeking exemption operates nor in related markets; and

(c) Forbearance is consistent with public interest and the benefit and welfare of the consumers. (Sec. 28, PCA)

²⁸ Apart from allowing the Commission to set priorities, the process of forbearance makes it transparent if the Commission’s inaction on a competition issue is intentional and legitimate or sheer neglect of duty.

²⁹ Such prohibition of practice extends to the spouse or relative by consanguinity or affinity within the fourth civil degree.

³⁰ There is a general perception that public servants are vulnerable to corruption because of low pay, and raising the scale will make them less vulnerable.

jurisdiction over all competition cases. This has implications on the ability of other domestic institutions to curb anti-competitive behavior. Although regulators with a competition mandate have not lost their authority, any competition-related case must be first brought to the Commission, which would then decide the body to adjudicate the matter.³¹ That primacy of authority is meant to avoid jurisdictional conflict between the Commission and sector regulators. It is reinforced by the sole and exclusive authority vested in the Commission to initiate and conduct a fact-finding or preliminary inquiry on any competition-related matter.³² Other agencies are therefore estopped from pursuing measures to prevent or curb anticompetitive conduct before the Commission can conduct its inquiry.³³

Apart from adjudicating competition cases, however, an equally crucial role of the Commission is to promote coherence of government policies with the objectives of the competition law. In other jurisdictions, the competition authority role is limited to issuing advisory opinions and guidelines on competition matters. The Commission has more avenues to ensure policy coherence as its functions include; (i) proposing legislation for the regulation of commerce, trade and industry; (ii) intervening in administrative and regulatory proceedings conducted by other government agencies when consideration of the provisions of competition law is required; (iii) working with sector regulators in issuing sector-specific competition rules; (iv) assisting the economic planning body in formulating a national competition policy framework; and (v) reviewing economic and administrative regulations, government actions, policies and programs, *motu proprio* or upon request, as to their impact on market competition.

Overall, the PCA seems to have the critical elements to see through the Commission's work. It still remains to be seen though if the Commission will be effective not only in enforcing the law, but also in boosting domestic market competition. Notwithstanding the supportive legislation, the Commission may not be spared by the usual difficulties faced by young competition agencies.

Perhaps the biggest hurdle for the Commission is the anticipated wide gap between the resources needed to understand the complexities of the market and those that can be provided by the fiscal budget. Despite official pronouncements on the value the government ascribes to the PCA, the fact remains that the Commission will have to compete with other equally important national priorities. Inadequate budget is often exacerbated by a skills shortage, which the PCA will attempt to mitigate by exempting its staff from the standard pay in the public sector. Still, there is no assurance that such a measure can attract the number of technical personnel that the Commission requires.

The absence of domestic jurisprudence to guide the Commission's work is made even more daunting by the generally low awareness about competition issues in other government agencies, including the judiciary, and civil society.³⁴ There is also a limited supply of domestic experts who are versed in the economics and law of competition to provide independent support to the Commission.

Much of the work of the Commission in the initial years will involve building up its credibility to the general public and gaining constituents for market competition. This renders competition advocacy indispensable in the long list of tasks ahead of the Commission. Faced with the enormous responsibility, the Commission, like other young institutions, will need all the support that it can

³¹ Such authority applies also to cases involving competition and noncompetition issues.

³² As a result, no criminal proceeding, to be handled by the Department of Justice, can be pursued without a preliminary investigation initiated by the Commission.

³³ Recognizing the possibility that this may precariously delay all actions to prevent or curb anticompetitive conduct, the PCA requires the Commission to complete its inquiry in 90 days.

³⁴ A 2006 survey conducted by the International Competition Network among young competition agencies reveals a common set of problems. See UNCTAD (2011, p. 11).

muster.

3.4. Towards an Innovation-inducing Competitive Market

Aligned with the overarching goal of attaining shared prosperity is the need for greater cooperation among APEC members to ensure that national competition policies are substantively aligned and effectively enforced to promote innovation.³⁵ The thrust and degree of cooperation are inevitably different among economies that have established competition governance at one level, and between economies with mature competition regimes and those that have just recently set up their system of governance at another level. Many of the current initiatives in APEC involve information exchanges that are more relevant to those with a long tradition of competition governance. Undoubtedly, there is added value to the region if the present activities can be intensified and possibly advanced to the direction of either more regular and systematic enforcement cooperation or harmonization of policies. But the returns to APEC are likely to be greater if targeted initiatives to assist young agencies are pursued. This is because while other international forums such as the International Competition Network, OECD and UNCTAD, have similar work as the current APEC initiatives, there are fewer activities addressing the unique and difficult circumstance of young competition agencies. Considering that about half of APEC members are novices in competition governance, the proposed thrust has considerable merits.

As discussed, the four elements for effective competition policy present more challenges to young agencies than to mature ones. The difficulties arise because the former are invariably handicapped by limited physical, financial and human resources; inadequate support from other government agencies; low level of competition awareness among constituents; lack of domestic jurisprudence; and dearth of independent local expertise to complement in-house resources and exact accountability. The gap between resource availability and need certainly varies across economies, and some are more open to accepting external assistance. It follows that the relevant assistance may have to be tailored to the agencies after an independent and thorough diagnosis of their specific requirements.

Nonetheless, several cooperation activities may be pursued that could have strategic and wider application such as:

- (i) a peer review of the national competition policy and legal framework of members with young agencies, particularly as regard to the four elements for effectiveness;
- (ii) a comparative study of the competition legal framework focusing on three areas: elimination of cartels, curbing abuses of market dominance and merger control, to identify opportunities for enforcement cooperation;
- (iii) a systematic campaign to increase the competition awareness of civil society and raise the level of understanding of government agencies not directly involved in competition governance on the dynamics of market competition and innovation;
- (iv) development of APEC recommended guidelines to help national competition agencies assess and measure competitive harm and evaluate potential dynamic efficiency gains that may arise from a conduct or agreement;
- (v) an ex post assessment of the handling by national competition agencies of selected cases with APEC-wide relevance;

³⁵ There is an added benefit from cooperation in making competition policies work effectively – i.e., it reinforces the efforts to promote trade and investments in the region.

- (vi) an exploration of opportunities for harmonization of national competition and innovation policies; and
- (vii) design and set up of more regular and timely information exchanges that would reduce gaps in information available to national agencies and lead to more informed decision making and consistent enforcement of competition law.

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4. Conclusions and Recommendations

4.1. Conclusions

Analysis of the relationship between structural policies and firm innovation is in its relative infancy. In many ways, therefore, this year's Report has raised as many questions as it has answered. But it is clear that firm innovation provides a new lens through which governments may consider the impact of structural reforms. Innovation is far wider than invention, research and development or technology. In future, this lens is likely to be at least as important as the traditional focus on business compliance costs, particularly as innovation will be of greater importance to growth as more economies and more industries reach the frontiers of technology.

The Report makes it clear that structural reform may either help or hinder firm innovation. For example, poorly conceived or executed structural reforms can create compliance or regulatory burdens that act to chill innovation. A similar impact can be felt if the reforms create economic uncertainty or prohibit or inhibit the adoption of new technologies. On the other hand, well-conceived structural reform can create the conditions under which firm innovation can flourish. This can occur through providing firms with the time, space and resources with which to innovate as well as through incentivizing firms to succeed through the adoption of new technologies.

If governments are to complement and support firm innovation through structural reform, some key conclusions to emerge from the Report are:

- Regulatory flexibility and administrative simplification are key objectives in the area of *regulatory reform*. In particular, APEC economies report that reductions in the burden imposed by the design and administration of regulations can directly improve innovation. As economies develop, many seek to equip themselves to consider the competition impacts of regulation;
- In the area of *competition policy*, it is important for all economies to have comprehensive competition law with an independent competition agency. This helps ensure that the regulation of competition is not captured by special interests to the detriment of innovation. As economies develop, their competition agencies become better equipped to consider efficiencies from new technologies (i.e. competition based on innovation). In addition, governments can better equip themselves to consider innovation outcomes in terms of their wider competition policies in such areas as how state owned enterprises are regulated;
- In the area of *corporate governance*, all economies recognize the need for incentives to ensure directors act in the long term interests of shareholders, including by ensuring that adequate firm strategies for innovation are in place. All also recognize that an appropriate balance needs to be struck between risk taking and shareholder/creditor protection. Insolvency laws appear not to act as a barrier in this area. As economies develop, there is increased focus on enabling a range of options for capital raising, especially for new innovative firms.
- Legal frameworks to promote sound *public sector governance* are widespread but their application is uneven. In areas where application is poor, this can be to the detriment of innovation. The role owned enterprises tends to decline as economies become more developed. However there is still a role for specialist non-market bodies tasked explicitly with encouraging innovation in economies. Most economies report having established national innovation systems but these often lack coherence, particularly when set alongside the objectives for structural reform.

The Report has shown that developing, middle-income and advanced economies face different challenges around structural reform and innovation. The key conclusion of this Report, however, is that all economies can improve innovation outcomes through structural reform, no matter their level of development. Even developing economies have in place at least some elements of the system they will need in order to promote greater firm innovation. The key is to focus policy and administrative improvements on the binding constraint so the changes introduced will make the greatest difference. It is also worth noting that the nature of firm innovation will differ depending on the level of development, whether this comprises faster rates of technological catch-up amongst developing economy firms, or pushing out technological frontiers amongst developed economy firms.

The Report reaches three further conclusions in this area. First, it is clear that there is significant heterogeneity even with the groups of developing, middle-income and developed economies. The types of systems used to promote innovation are different as are the strengths of policies and institutions. Second, structural policies have an important role to play in supporting the development of high performing national innovation systems tailored to each country's unique circumstances. Thirdly all economies, no matter their level of development, face capability challenges in developing the policies and institutions that will improve firm innovation outcomes. While these are more acute for developing economies, this is an area that all economies are on a steep learning curve and there is much that they can learn from each other. It is important for all economies to be realistic about their capability needs and to have strategies in place that will allow them to build capability over time.

There are, however, reasons to be optimistic in this area. As our understanding of the links between structural reform and innovation improves, there is the potential for all economies to move more quickly to adopt the policies and institutions that will lead to improved firm innovation outcomes. In this area, technology, particularly digital technology, and continued value chain integration can also be of significant assistance. Digital technology can provide the means to significantly increase the speed of capability development as well as to put in place digital systems that will significantly streamline and lower the costs of government interaction with the private sector. Value chain integration enables economies to move up the value chain as capabilities grow. Together these will also provide the potential for faster rates of "catch-up" by developing and middle income economies with developed economies.

Finally, it is clear that APEC can play a significant role in this area. Significant momentum has been created for this work because of the challenges faced by economies faced by the "middle income trap" and the importance of improved structural reform and innovation policies to meet these challenges. This Report has made the first step in pointing the way forward to help meet these challenges and in particular, has highlighted the capability challenges that must be addressed to do so. Given APEC's strengths in the area of capacity building, there is significant further work that can be carried forward in this area. In the first instance, this can be achieved by taking account of this Report in existing work programs on structural reform such as RAASR and EODB as well as by transmitting its contents to other APEC bodies with interests in structural reform and innovation.

4.2. Recommendations

It is recommended that the Senior Officials Meeting recommend that APEC Ministers:

- (a) Endorse the 2015 AEPR on Structural Reform and Innovation;
- (b) Instruct the Economic Committee to take account of the findings of this Report in its structural reform work programs, particularly in such areas as RAASR and EODB;
- (c) Instruct the Economic Committee to transmit and discuss the contents of this report with other APEC bodies with an interest in structural reform and innovation.



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