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**Preprint**

## The Effect of Competition Law on Brunei's Small and Medium Enterprises

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# The Effect of Competition Law on Brunei's Small and Medium Enterprises

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## Abstract

Brunei must enact an effective competition policy in order to participate as a member in regional trading blocs like the APEC, ASEAN and the Trans-Pacific Partnership. What effect would Brunei's Competition Order have on Brunei – and specifically its small and medium enterprises or SMEs (the motor of non-petrol led growth)? We develop an indication of the scope of competition policy – and use that indicator in cross-country analysis to figure out competition's effect on Brunei's SMEs. Using back-of-the-envelope calculation methods, increasing competition under the status quo would likely cost Brunei US\$100 million. Yet, if serious innovation policy tags along with Brunei's expanding competition policy, Brunei's SMEs could experience a \$10 billion jump in GDP. Without policies to boost the effectiveness of the US\$1.5 billion in Wawasan innovation spending, increased competition could harm Brunei's SMEs. We identify the lack of Competition Commission independence and information dissemination.

**JEL Codes:** D47, K21, L44

**Keywords:** anti-trust, Brunei, competition policy, Competition Order

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# **The Effect of Competition Law on Brunei's Small and Medium Enterprises**

Bryane Michael, University of Oxford

## **Introduction**

Brunei's policymakers have joined the bandwagon in looking to small and medium enterprises (SMEs) as an engine of sustainable economic growth. For good reason. At the end of the last decade, SMEs accounted for roughly 98% of all of Brunei's enterprise establishments (Polsaram et al., 2011, p. 1-4). Judging only by economic fundamentals, the number of SMEs in Brunei should grow by 10% per year, if we control for the effects of the oil sector, rather than the roughly 3% growth witnesses in the last ten years (Kushnir et al., 2010, Figure 6; ASEAN, 2010, A3). Yet, SME growth in Brunei proceeds at much slower rates – suggesting that Brunei's SMEs can not compete at home and abroad. Brunei's implementation of its new Competition Order promises to provide Brunei's SMEs with a more level playing field vis-a-vis Brunei's larger, state-owned enterprises and foreign entrants. What effects would such a law have?

Brunei's policymakers very much require a study looking at the likely costs and benefits of developing competition law and policy in the Sultanate (as part of the wider APEC region). Brunei will suffer from the usual problems concomitant with its participation in trade blocs like the Trans-Pacific Partnership – like trade diversion, preference erosion and trade reversion (Deardorff, 2014, Table 3). Yet, following Koh (2013), we show how “behind the border inefficiencies” pose particularly significant problems. More specifically, without simultaneous increases in innovativeness and productivity, more vigorous competition will harm SMEs' growth prospects.

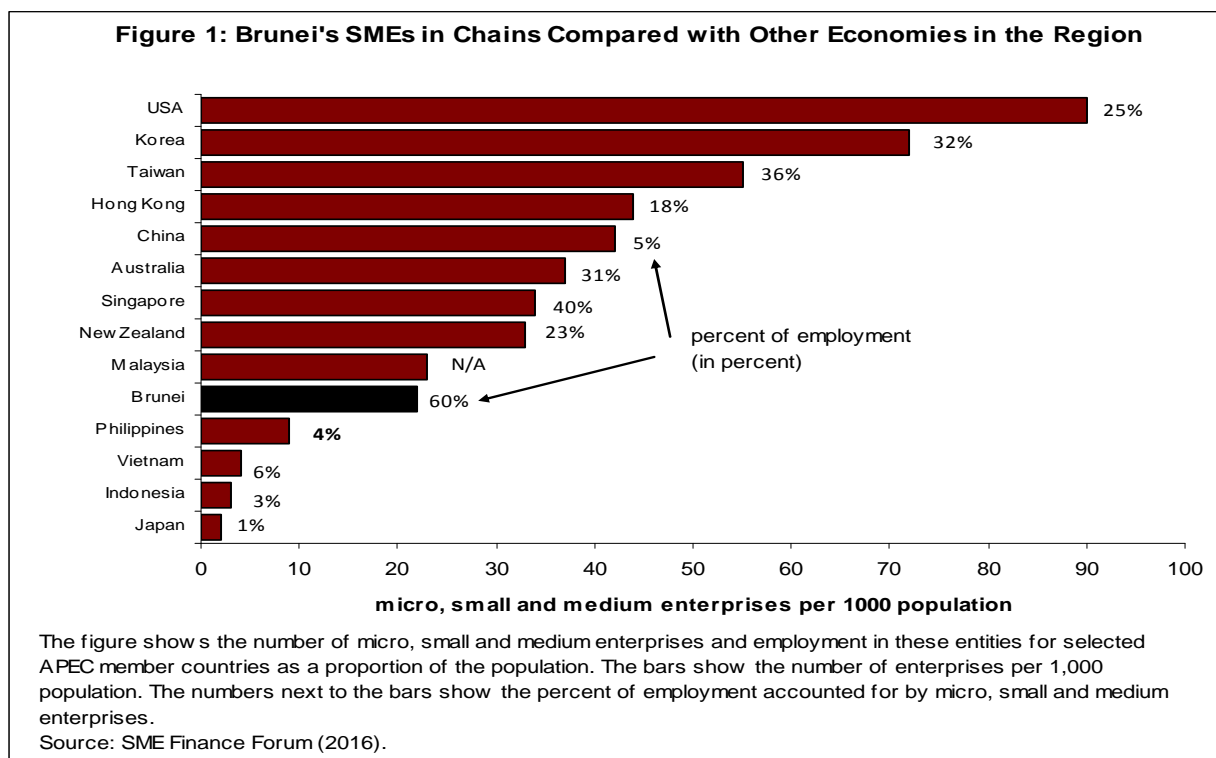
In this paper, we argue that – without significant policy work aimed at increasing SMEs' innovativeness -- the Competition Order will harm SMEs more than help them. The first section provides an overview Brunei's SME sector and the way that the Competition Order might affect it. The second section presents the Competition Order in the broadest terms – and focuses on two factors which could most hinder the Order's effect on productive competition for Brunei's SMEs and in the broader economy. Future changes to Brunei's competition law will need to provide more independence to the nascent Competition Commission. The Commission will need to disseminate information about its work, and about competition law and policy more generally – in order to achieve any sustained impacts on Brunei's competitive environment. The third section draws on economic analysis of competition law and policy from the APEC region in general. We focus on Brunei -- quantifying the likely benefits and costs of more vigorous competition in Brunei. Under the status quo, increased competition would likely cost Brunei SMEs' US\$100 million in their contribution to GDP. Yet, if serious innovation policy tags along with Brunei's expanding competition policy, Brunei's SMEs could experience a \$10 billion jump in GDP.

We should start our exposition with a few caveats. First, we do not try to build a model of the Brunei economy or use complex econometric techniques. As we write specifically for *CSPS Strategy and Policy Journal*, we want to present our analysis in a way that policymakers and non-specialists can understand. Readers interested in more details can see the larger APEC study we conducted in 2016. Second, data constraints prevented in-depth modelling of the Brunei economy. Without indicators for Brunei's innovativeness and data about her SMEs, we could only talk about Brunei relative to other economies. Third, the conclusions we make stem from cross-

country correlations. We do not aspire to conduct very deep analysis of Brunei. We want only to pull out implications for Brunei from the larger APEC study. Future work will need to see whether these cross-country trends apply to Brunei – and describe specific policies for boosting Bruneian SMEs’ innovativeness.

### Brunei’s SMEs and their Competitive Landscape

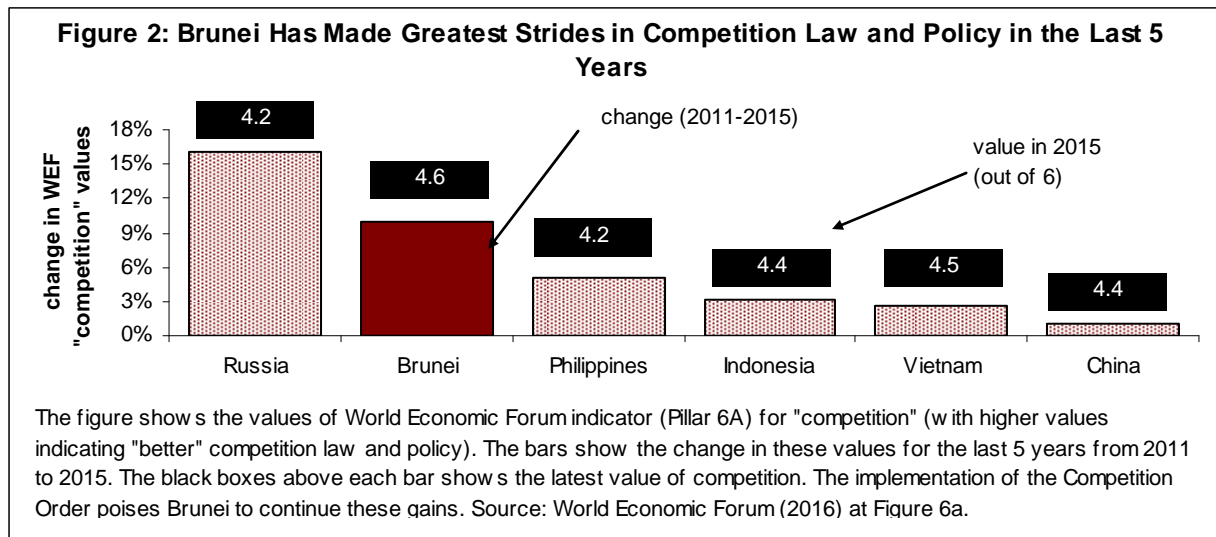
Numerous studies like Hall (2011) and Tambunan (2009) have described SMEs in the Asian and Southeast Asian region. Figure 1 shows the importance of Brunei’s SME sector relative to other APEC economies. In the upper-income jurisdictions like the US, Hong Kong, Taiwan and Korea, SMEs account for a relatively large share of companies (in terms of the proportion of companies) and employment. The middle and lower income economies tend to have fewer SMEs and SME-related employment. Brunei’s SME sector remains underdeveloped by APEC region standards in terms of the number of SMEs.<sup>1</sup> Yet, these SMEs employ a huge amount of Bruneian labour force. Even these simple figures give some idea about the potential size of Brunei’s SME sector. **If Brunei changes its competition policy in a way to grow its SME sector to APEC regional levels, such policies would add another \$5 billion in GDP per year.**<sup>2</sup>



<sup>1</sup> Sato (2011) provides a more in-depth discussion of SME development in the ASEAN region.

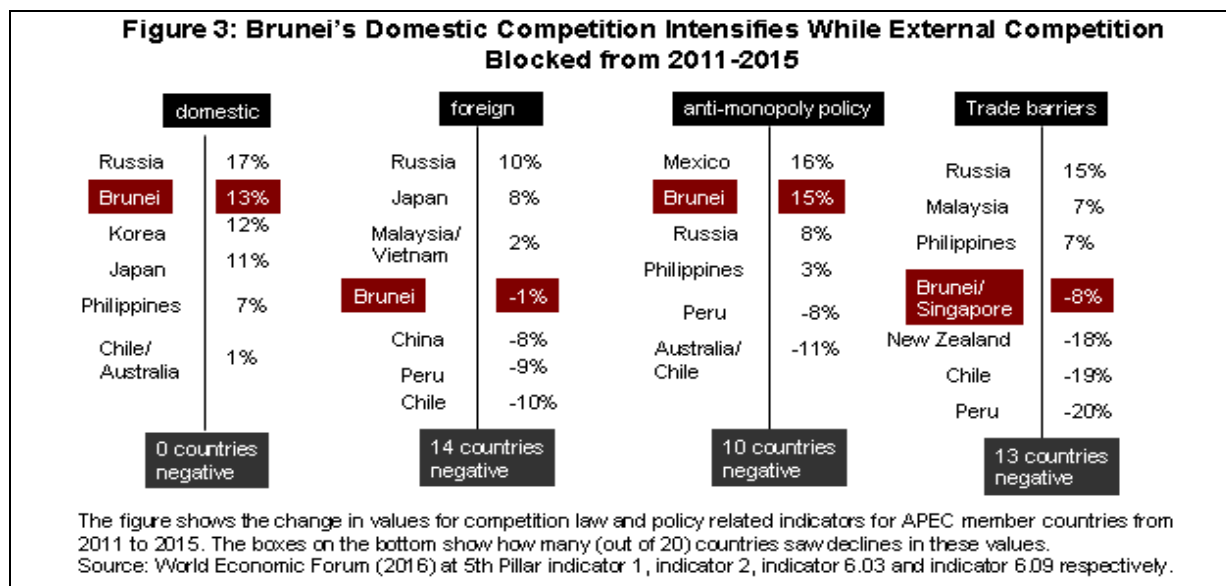
<sup>2</sup> A back-of-the-envelope illustration suffices to show where these numbers came from. Brunei had \$16.1 billion in GDP in 2013 (the latest year available, though the reader can conduct the same exercise with other data if desired). If the SME sector accounts for 25% of GDP (as per ERIA, 2014), and if policy could grow the value of that sector (only stacking SME growth on existing levels without any substitution or replacement of other growth in the economy), then 25% of \$16.1 billion times 120% equates to roughly the \$5 billion we refer to in the text.

We know relatively little about the nature and extent of competition in Brunei. Figure 2 shows an informal measure of competitiveness in Brunei and around the region. Developing APEC member countries' 'competition' grew (improved) twice as fast as in the developed (OECD) countries from 2011 to 2015.<sup>3</sup> Competition grew in Brunei faster than in comparator jurisdictions like Indonesia and Vietnam. Even before the passage of the Competition Order in 2015, competition increased in Brunei more than almost any other APEC country (except Russia). Brunei had more vigorous competition than the other countries shown in the Figure. Authors like Hsieh (2004) chalk such relatively high levels of competition in Brunei to relatively efficient government administration, growing international trade linkages, and expanding finance.



A nuanced look at the various types of competition in Brunei shows that Brunei has intensified domestic competition at the expense of foreign competition. Figure 3 shows the extent of four types or areas of competition – as the extent of domestic competition, foreign competition, policy and effectiveness of the competition authority, and the extent to trade barriers. Brunei's domestic competition has improved and so has its anti-monopoly policy (even before the announced Competition Order). Yet, foreign competition fell and trade barriers increased. Authors such as Kao et al. (2008) have pointed to high labour costs and lack of R&D, information technology, technology management, information management, and the lack of industry integration as reasons for this disparity between foreign and domestic competition.

<sup>3</sup> Readers may consult the original data source for the exact definition of competition and the data are compiled.

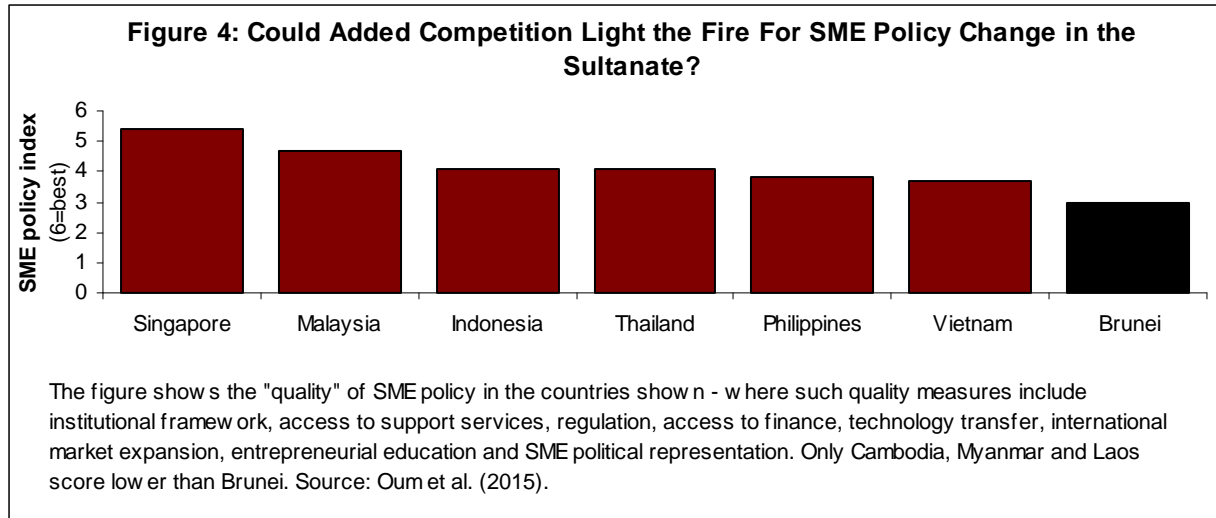


What policies make SMEs in Brunei – and in the APEC region more generally -- more competitive? As shown in Figure 4, Oum et al. – drawing on work by the OECD and ASEAN -- have already developed measures of policies that bolster SME competitiveness. Their policy index provides a potential template for thinking about the policies which affect SMEs competitive environment.<sup>4</sup> Brunei's SMEs come in at the bottom of the list, scoring 3 out of a possible 6. Numerous policies – like those governing support services, technology transfer, entrepreneurial education and so forth clearly affect SMEs' ability to compete at home and abroad.<sup>5</sup> Brunei's competitiveness only comes in at around 50% of the best-in-class. As such, Brunei's policymakers would need to improve SME policy far more than other policymakers in the region in order to offer the same kind of competitive environment available to SMEs in jurisdictions like Singapore. **Without these fundamental reforms, Brunei's policymakers will have difficulty enhancing both SMEs innovation and the extent of competition in these SMEs' markets.**<sup>6</sup>

<sup>4</sup> Local versions of these indices (like Aldaba and Aldaba, 2014) focus on details, thereby addressing some of the points that keep a country's score down.

<sup>5</sup> Authors like Tambunan (2011) note that confidentiality policies in many APEC member countries make constructing such a policy index impossible. Brunei's government could play a leadership role in ensuring that they – and its trading partners -- release the information needed to construct these indices.

<sup>6</sup> To keep our paper focused, we do not describe these fundamental reforms. Readers should look up the factors that make up Oum et al.'s SME policy index in order to grasp more fully the types of reforms Brunei needs.



For all these policy areas, many policymakers increasingly see competition law and policy directly as a key factor affecting SME performance in APEC region and out. After all, why look at tax, finance or other policies to understand the extent of competition between SMEs, when indicators become increasingly available which are able to assess such an extent of competition directly? These numbers sometimes shock. Even in a pro-competition jurisdiction like the UK, recent evidence from Storey (2010) suggests that up to 25% of SMEs simply accept anticompetitive behaviour (either by larger rivals or other SMEs). Of the roughly five econometric studies looking at the relationship between competition law/policy and economic growth, three find a statistically significant correlation between measures of competition law and economic growth.<sup>7</sup> Yet, no matter what effect competition law and policy have on the broader Bruneian economy, **SMEs as a class face competition related challenges requiring special attention.**<sup>8</sup>

Two challenges in particular relate to an independent body capable of protecting SMEs from large corporate interests and having the information necessary to exercise their rights to protection from unfair competition.

### **New Competition Order, Independence and Information Sharing**

The new Competition Order sets the basis for encouraging the competition and the innovation that accompanies such competition. Figure 5 shows the major provisions of the Competition Order – highlighting the importance of major provisions for the Bruneian economy (Government of Brunei, 2015). We also show the likely impact of the Order, in terms of the probability of effective implementation/enforcement. The Order closely resembles the emerging consensus of competition law – reading much like Singapore's competition law.<sup>9</sup> The order does not

<sup>7</sup> These studies include Voigt (2009), Ma (2011) and Hylton and Deng (2007). The other two studies, Schaper et al. (2010) and Petersen (2013) find no relationship.

<sup>8</sup> Indeed, these differences make even the definition of an SME challenging. As this paper is not focused on explaining the differences between SMEs and other businesses, we refer readers to Gibson and Vaart (2008).

<sup>9</sup> We do not have space to contrast the Competition Order with these other legal instruments. Fox and Healey (2015) provide a global perspective. Anandarajah and Lombardi (2015) provide a reasonable background on Singapore for



specifically state explicit objectives. However, the objectives for the Competition Commission partly lie in “[enhancing] efficient market conduct and promote overall productivity, innovation and competitiveness of markets in Brunei Darussalam” (Competition Order, 2015, at 4(1a)). In theory, the law applies to state owned and run companies – a major part of Brunei’s economy.<sup>10</sup> Yet, even if government owned, operated or regulated enterprises receive government exemption from the law, senior government officials view international trade agreements like the Trans-Pacific Partnership as requiring free and open competition among SOEs (Kasim, 2015). Similarly to Hong Kong, the law exempts the Authority for Info-communications Technology Industry of Brunei Darussalam from the law – as under the competence of a sectoral regulator.<sup>11</sup> **On paper at least, Brunei has a solid competition law.**

**Figure 5: The Likely Economic Importance of Various Provisions in the Brunei Competition Order**

Provision no.	Issue addressed	Importance (out of 5)	Likely Impact of Order (out of 5)*
<b>Substantive issues</b>			
Part II, at art. 3.	Competition Commission’s independence	●●●●●	◆
Part III, Chapter 2	Anti-competitive agreements	●●●●●	◆◆
Part III Chapter 3	Abuse of dominant position	●●●●●	◆
Part III, Chapter 4	Mergers	●	◆◆◆
Part III, Chapter 5	Rectification	●●●●	◆
Part III, at art. 67	Private rights of action	●●●●●	◆
<b>Procedural Issues</b>			
Part II	Competition Commission	●●	◆
Part III, Chap 6	Investigation and Enforcement	●●●	◆
Part IV	Offenses	●●●●	◆◆
Part V	Appeal Tribunal	●●●●	◆◆
Part VI	Other provisions	N/A	N/A

\* The wide latitude for exemptions pose significant risks, and thus reduce the impact of antitrust regulation in the Sultanate. We base the judgments about the importance of each provision on characteristics of the Brunei economy and nature of competition among its firms. We base the likely impact on the impact – as reported in academic articles and other publications -- other orders have had, such as orders fighting money laundering and financial crime, corruption, regulating banks and others.

Source: Brunei Competition Order (2015) and authors’ estimates

However, the law contains exceptions which could serious hinder its ability to promote innovation-promoting competition. For example, the law specifically exempts, “any undertaking entrusted with the operation of services of general economic interest or having the character of a

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readers interested in a practitioner’s perspective on the law. Ong (2015) discusses many of the same issues from an academic’s perspective.

<sup>10</sup> Salient sectors with government participation include Brunei’s oil and gas sector, telecommunications sector, transport, and energy generation/distribution sectors. We could not find a list of Brunei’s state-owned enterprises. Some well known examples though include Brunei National Petroleum Sendirian Berhad (the national oil company), Semaun Holdings (which engages in joint ventures with foreign investors in aquaculture, food processing, glass crystal, and hi-tech manufacturing industries). Telekom Brunei (TelBru) and Data Stream Technologies represent some well known names in telecommunications.

<sup>11</sup> The ASEAN Secretariat (2013) produces a wonderfully comprehensive overview of competition policy and law in the ASEAN region. Readers interested in their own compare-and-contrast between ASEAN countries should certainly consult this resource.



revenue-producing monopoly in so far as the prohibition would obstruct the performance...of the particular tasks assigned to that undertaking.”<sup>12</sup> Given Brunei’s small size and closure from the rest of the world, practically most companies operating in Brunei could arguably produce goods and services promoting the “general economic interest.” The law further gives the government the right to exempt any agreement under “exceptional and compelling reasons of public policy.”<sup>13</sup> Arguably, every agreement takes place in “exceptional” circumstances. Competition which causes lay-offs or decreased profits – the general effects of competition – represent “compelling reasons of public policy.” The law also singles out for exemptions waste management services, bus services and other sectors defined in the Monopolies Act as well as clearing houses.<sup>14</sup> Furthermore, the government can arguably exempt any agreement which aims at “improving production or distribution or promoting technical or economic progress.”<sup>15</sup> The law also, telling, excludes vertical agreements.<sup>16</sup>

Many view a competition commission’s independence as a *sine quo non* for effective competition policy.<sup>17</sup> Figure 6 for example, shows very dated independence rankings for competition authorities in several APEC countries.<sup>18</sup> Using these ten year old data, we see that the US had the most independent competition agencies among the countries shown in the figure.<sup>19</sup> Taiwan and Brunei have the least independent competition authorities.<sup>20</sup> These data naturally serve as a useful benchmark to assess the past, present and future of independence among APEC competition authorities.<sup>21</sup> As previously mentioned, independence only represents one issue out a range of issues important for determining the extent and quality of competition in a jurisdiction.<sup>22</sup> Yet, the inescapable conclusion remains that competition commission independence can help bolster the effectiveness of a country’s (like Brunei’s) competition policy and protect SMEs’ interests in free and fair competition.<sup>23</sup>

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<sup>12</sup> Brunei Competition Order (2015) at Third Schedule, art. 1.

<sup>13</sup> Id at Third Schedule, art. 4.

<sup>14</sup> Id at Third Schedule, art. 6 and 7 respectively.

<sup>15</sup> Id at Third Schedule, art. 9.

<sup>16</sup> Id at Third Schedule, art. 8.

<sup>17</sup> UNCTAD Secretariat (2008) reviews the issues. Ma (2010) shows proof of the link between independence and effectiveness. Yet, Guidi (2015) finds that independence is less important for richer EU countries.

<sup>18</sup> We recognise the age of these data and the perils of showing them. However, APEC policymakers and competition authority officials may find useful the methodology and survey instruments the authors use to assess independence. Presumably, the telecommunications regulator represents the relevant Bruneian competition authority for that study.

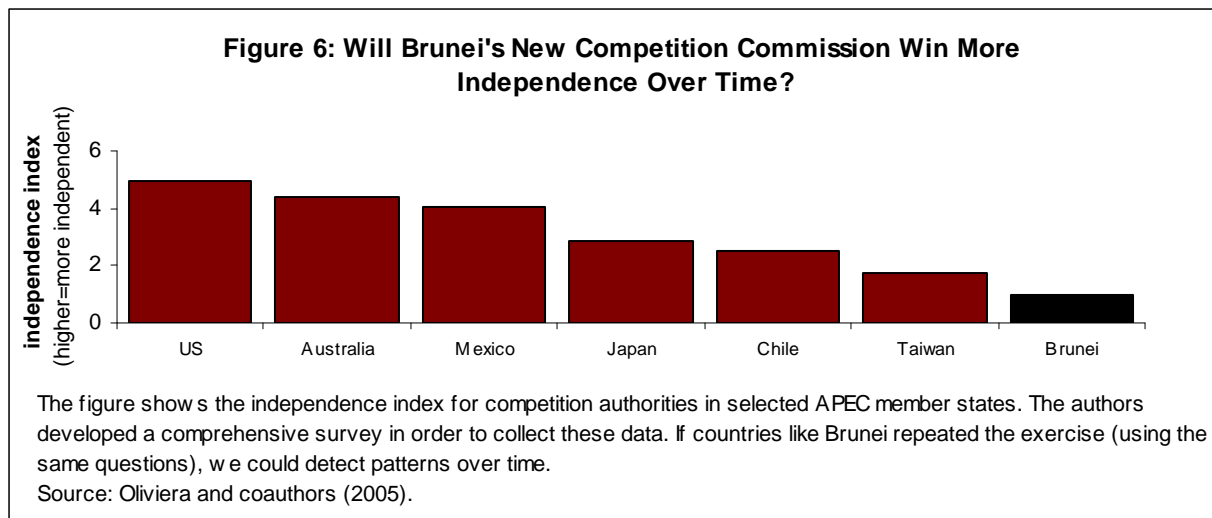
<sup>19</sup> The authors assessed all the competition authorities in these countries. See original study for more on their methods.

<sup>20</sup> The George Washington Competition Law Center (2012) provides readers interested in a checklist of provisions contained in Taiwan’s (and other countries’) competition policy

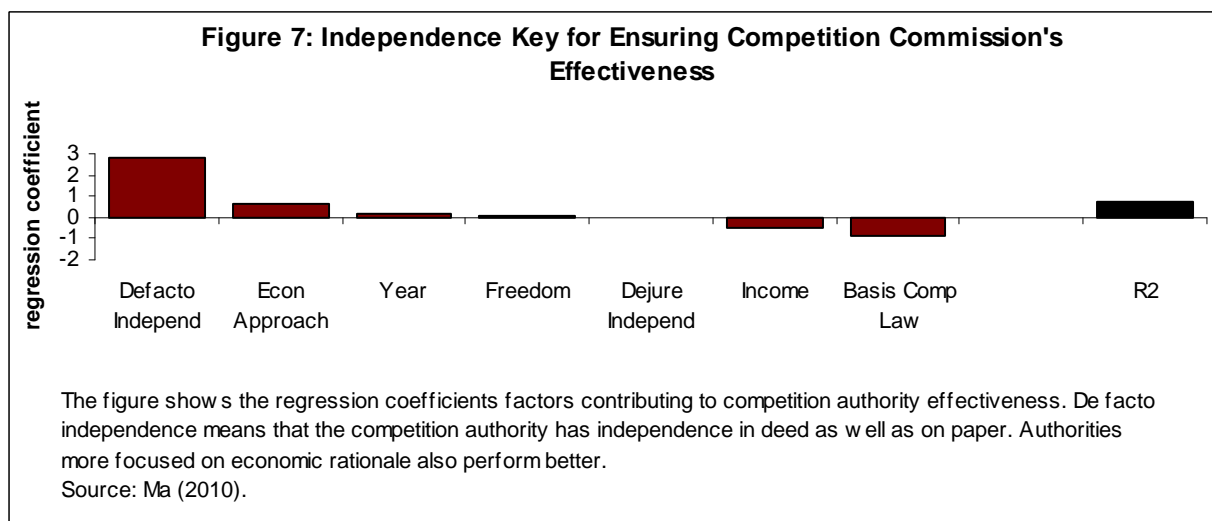
<sup>21</sup> Gilardi and Maggetti (2010) provide data from 2010 on the independence of competition authorities. However, they do not look at enough APEC countries to draw comparisons about Oliveira et al.’s data.

<sup>22</sup> We can not hope to inventory all the other regulatory reforms which should accompany independence for competition authorities. For a discussion, see OECD (2005) and Sosay and Zenginobuz (2005).

<sup>23</sup> Numerous authors like Borrell and Luis (2008) look at such group effects. Such independence looks unlikely until Brunei’s state of emergency ends. Indeed, the legal authority for the Competition Order derives from a constitutional provision giving the Sultan the power to pass laws during a state of emergency (namely article 83(3) of Brunei’s Constitution).



Such independence plays a large role in ensuring the competition authority's effectiveness of a competition authority. Figure 7 shows the main factors associated with a competition agency's "effectiveness" (as defined and described by the researchers of this study). The authors of that study find that actual (or de facto) independence correlates much more with effectiveness than formally legislated (or de jure) independence.<sup>24</sup> Competition regimes which follow an economic approach to competition policy and law tend to promote the effectiveness of competition authorities. Interestingly, the income levels and the legal tradition that competition law finds itself implanted in – also correlate negatively with a competition authority's effectiveness.<sup>25</sup>

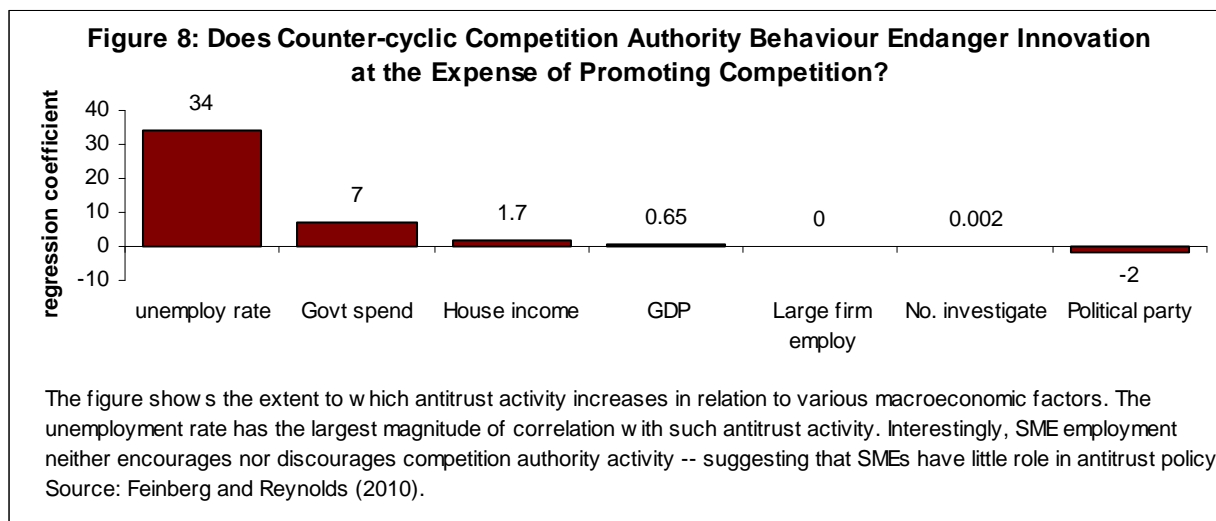


If Brunei's future competition authority acts like its peers abroad, enforcement and other activities may respond to economic events more than the quality of the competitive landscape.

<sup>24</sup> The de jure independence variable in the figure does not statistically significantly differ from zero.

<sup>25</sup> The test consists of whether the country follows a common law or civil law tradition. The statistic shown in the figure shows the extent to which any difference in legal regime correlates with competition agency effectiveness. Economist readers will recognise this as a dummy variable.

Figure 8 shows the major factors correlating with increased competition authority action.<sup>26</sup> For example, competition agencies usually become more pro-active as unemployment rises. Antitrust activity also increases as governments obtain access to more resources -- suggesting that these authorities do not have their own priorities (but instead scale their activities to match their resources).<sup>27</sup> Counter-cyclic activity promoting or restraining competition harms SMEs' ability to rely on stable competition law and policy (Armoogum and Lyons, 2014). Competition also lags due to the lack of competition authorities' focus and policy prioritisation – especially a focus on inculcating a culture of competition-focused commerce. Interestingly, the size of the SME sector, in itself, has no effect on antitrust agency activity. If Brunei's antitrust activity follows suit, counter-cyclical activity may endanger innovation at the time when Brunei's SMEs need to innovate the most – during an economic down-turn.

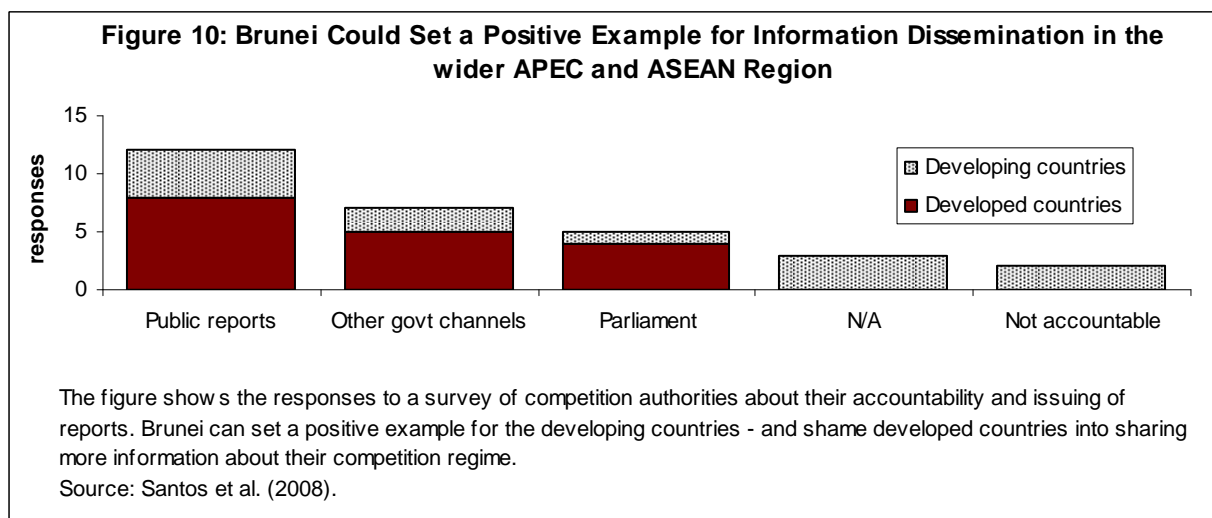
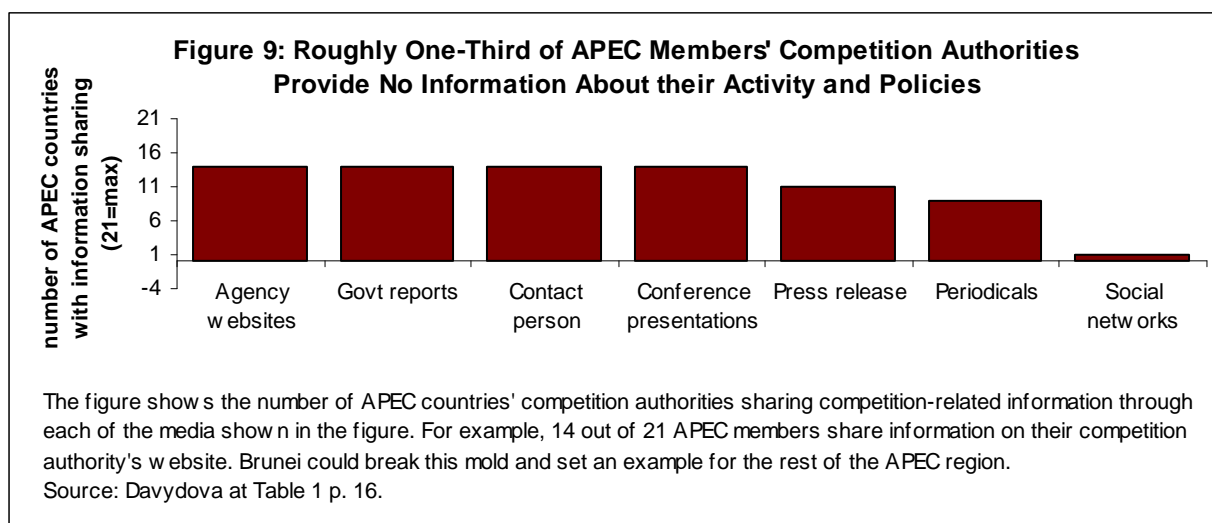


If competition authorities do not share enough information with each other, they certainly do not share enough with SMEs and other types of businesses. Figure 9 shows the information media that competition authorities have used to broadcast competition-related information. Only half of the 21 agencies from the study use websites and other means to disseminate competition-related information. Figure 10 – for its part – shows the disparity in reporting between developed and developing countries. Developed countries share much more information – and maybe their experience would serve well the developing competition agencies? As shown in figure 11, a recent APEC report compares competition related provisions in various member states' law in 2012. Brunei can fit into one of two camps – either providing a wide amount of information, or not. Brunei can set a positive example for its trading partners in the APEC and ASEAN region by liberally disseminating information about its competition regime.<sup>28</sup>

<sup>26</sup> This study focuses on state-level antitrust activity in the US – thus the extent to which such trends persist in an international context remain to be seen. Yet, these data represent some of the only data about these relationships.

<sup>27</sup> Numerous other studies of competition authorities come to a similar finding. Santos et al. (2008) for example show rather revealing (if dated) data on the number of agencies engaging in policy prioritisation.

<sup>28</sup> The ASEAN Secretariat's (2010) guidance on advocacy and outreach only consists of one page (p. 40). Thus, Brunei's experience could fill in this void in wider ASEAN understandings about disseminating competition policy-related information to SMEs and others.



**Figure 11: Brunei Can Follow Upper Income APEC Members' Example of Spreading Information about Various Aspects of Their Competition Law/Policy**

	Cartel investigations	Unilateral abuse of dominance	Merger review	Market studies	TA, CB	Competition policy issues
Australia	Y	Y	Y	Y	Y	Y
Brunei*	-	-	-	-	-	-
Canada	Y	Y	Y	Y	Y	Y
Chile	N	N	N	N	N	Y
Hong Kong	Y	Y	N	Y	Y	Y
Indonesia				Y	N	Y
Japan	Y	Y	Y	Y	Y	Y
Korea	Y	Y	Y	N	Y	Y
Malaysia	N	N	N	N	N	Y
Mexico	N	N	N	N	N	Y
New Zealand	Y	Y	Y	Y	N	Y
PNG	Y	Y	Y	N	N	N
Peru	N	N	N	N	N	N
Philippines	N	N	N	N	N	N

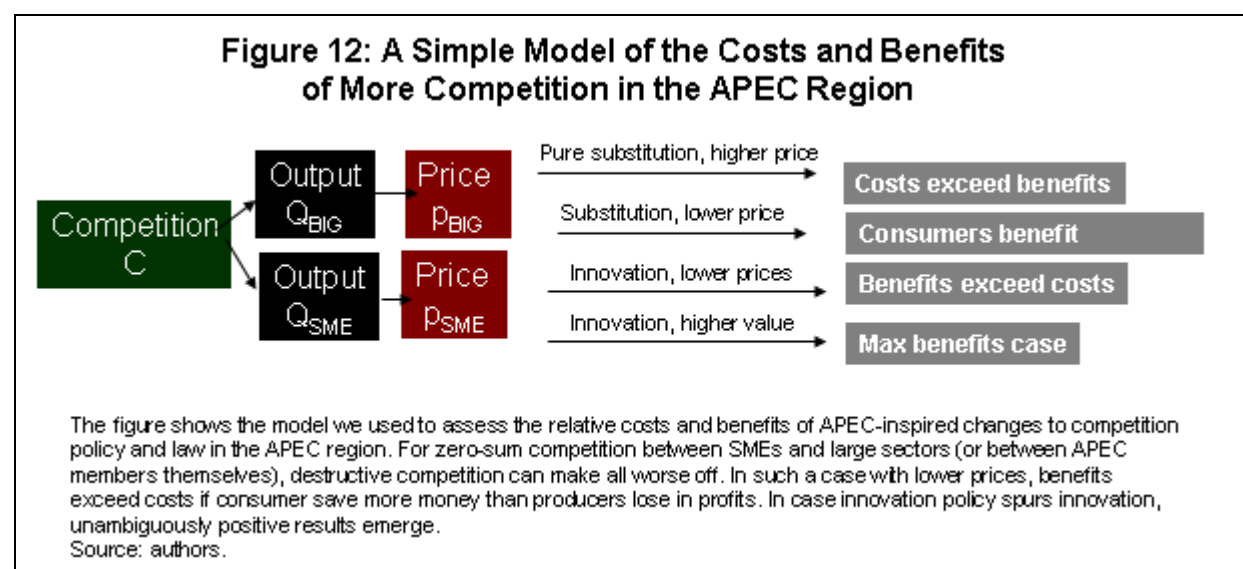
Russia	Y	Y	Y	Y	Y	Y
Singapore	Y	Y	Y	Y		Y
Taiwan	Y	Y	Y	Y	N	Y
Thailand	Y/N	Y/N	Y/N	N	N	N
USA	Y	Y	Y	Y	Y	Y
Vietnam	N	N	N	N	N	Y

\* The new Competition Order contains provisions related to these topics. Not enough experience exists in Brunei to assess likely enforcement.

Source: Davydova (2012), Table 3 at p. 67 and subsequently updated by authors.

## The Economics of Brunei's Eventual Competition Policy

Increased domestic and foreign competition will represent a mixed blessing for Brunei's SMEs. Figure 12 shows the model we used looking at the potential effects on Brunei's SMEs of increasing the scope and enforcement of competition law and policy. As shown, the effect depends on competition's effect on quantities produced and prices. When more competition simply shifts demand from one SME to another (or from a large domestic firm to an SME), costs to all market participants rise.<sup>29</sup> If such competition results in lower prices, then consumers win – potentially at the expense of SMEs if their profits decline too much.<sup>30</sup> **Yet, when competition spurs innovation – competition would make Brunei's economy better off.**<sup>31</sup> Such innovation increases quantities provided to consumers and either lowers prices, or increases prices to the extent that consumers get more value for their money.



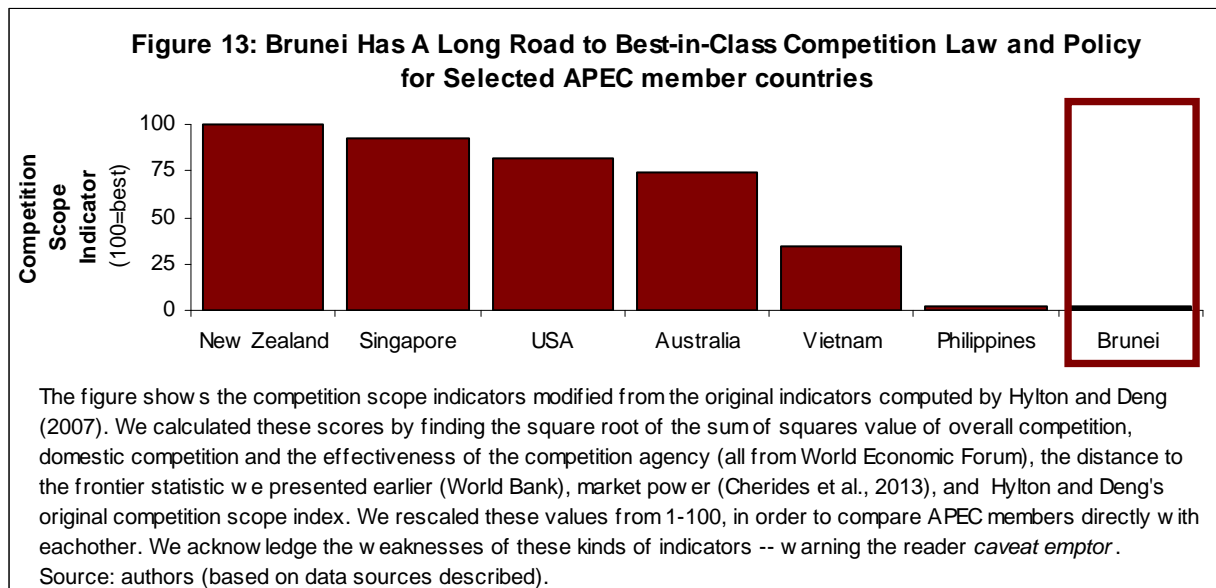
Our competition scope and enforcement indicator comprises a core part of our analysis. Figure 13 shows the value of this new updated scope indicator for Brunei, compared with several APEC member states. New Zealand has the “best” competition law and policy (as measured by the

<sup>29</sup> Costs rise because these companies spend more on R&D, administration, management and so forth in the attempt to lure customers away from rivals and keep customers for themselves. Most economists know this as destructive competition.

<sup>30</sup> We show in the appendix the conditions under which the drop in prices more than compensates for drops in profits.

<sup>31</sup> Some cases still exist where innovation can immiserate an economy, such as when too many entrepreneurs chase too few ideas. Desai et al. (2010) provide specific parameters of this case.

extent of legal provisions covering competition related issues and enforcement). In contrast, the Philippines and Brunei come in at the bottom of this indicator. Past economic development in South-east Asia particularly relied on state planning and industrial policy (and thus on the lack of competition). Yet, few experts today would admonish countries like Brunei to forego a rigorous competition law/policy in the interests of national economic development.<sup>32</sup> The length of time the Brunei authorities have taken to get a draft law out suggests that the Brunei government will not consider competition a priority for a long time.



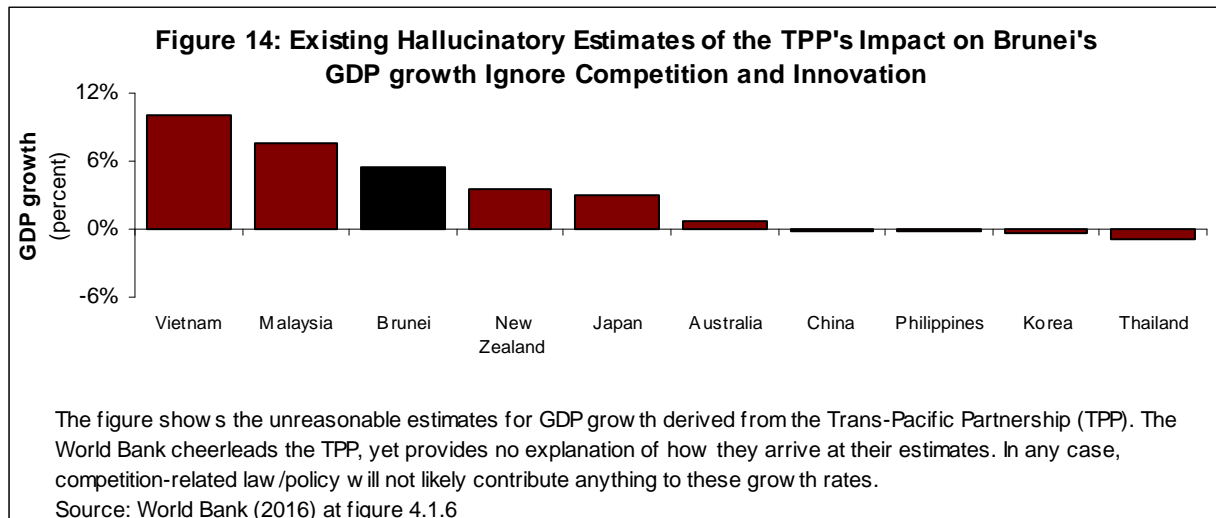
The Trans-Pacific Partnership (TPP) will likely have no real economic effects on competition by and between Brunei's SMEs (Chapter 16). Under the auspices of the TPP Agreement (2015), APEC member states had to adopt several competition-related provisions. The TPP Agreement on competition contains mostly broad statements of principles – like “recognising that a private right of action is an important supplement to the public enforcement of national competition laws, each Party should adopt or maintain laws or other measures that provide an independent private right of action.”<sup>33</sup> In that respect, the Agreement represents a directive to member states to draft their own laws in conformance with the broad competition-related principles in the TPP Agreement. Such a general agreement could not possibly result in the type of economic changes shown in Figure 14. In that figure, GDP growth in some APEC countries like Vietnam can increase by 10% by 2030 (not a very brave estimate to be sure).<sup>34</sup> Growth in Brunei increases by about 5%. Even with these Panglossian estimates, some of Brunei's potential trading partners, like the Philippines, Korea and Thailand, should still expect to lose GDP growth to the TPP. Because the TPP requires most countries in the APEC to implement competition-related provisions already in their domestic law, the competition-related chapter will like have no effect

<sup>32</sup> The exclusion of vertical anticompetitive agreements from Brunei's (and Singapore's) competition law shows the enduring influence of the industrial policy mindset. Bull and co-authors (2016) describe the continuing legacy of industrial policy in the region and its effect n competition law and policy.

<sup>33</sup> Id at 16.3.2.

<sup>34</sup> In fairness, their estimates cover all chapters (not just the competition-related chapter). Part of the problem stems from the lack of description of the model the World Bank authors use to derive their estimates.

on economic growth. **Any Brunei work on competition law and policy must thus propose something new and better – rather than just repeating the TPP and other agreements in place.**<sup>35</sup>



In order to arrive at our competition-specific estimates of the GDP growth-related effects by modelling the way changes in competition policy/law affect the real value output (and thus growth) in the APEC region. First, following Hylton and Deng (2007), we rely on a measure of the scope and enforcement of competition policy and law (as shown in figure 13). Such a measure – rough as it is – helps us link changes in competition law/policy with changes real economic variables. Second, we look at how changes in the scope and enforcement variable correlates with indicators of interest like output growth, inflation, exports and so forth. Third, we use these correlations to estimate how increases in scope and enforcement would impact growth and inflation for those economies with the lowest scope and enforcement scores. Fourth, we change the values we find to simulate the effect of increased competition, imported innovation, increases in productivity coming from such competition, stealing business and so forth. Brunei represents only one jurisdiction we analysed among all the APEC members.

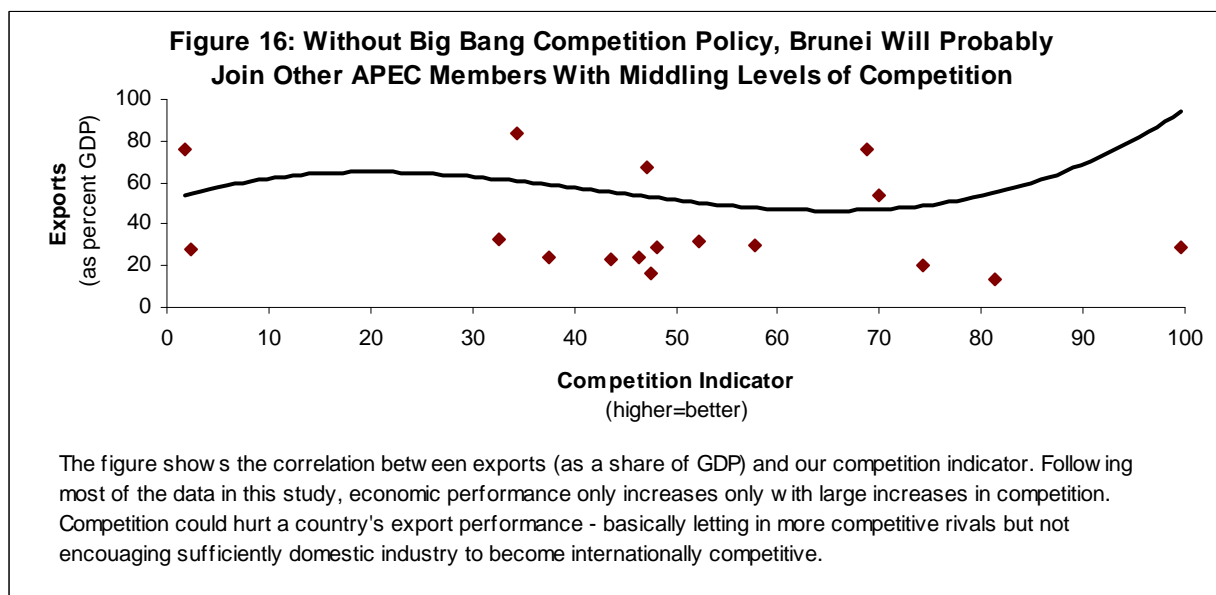
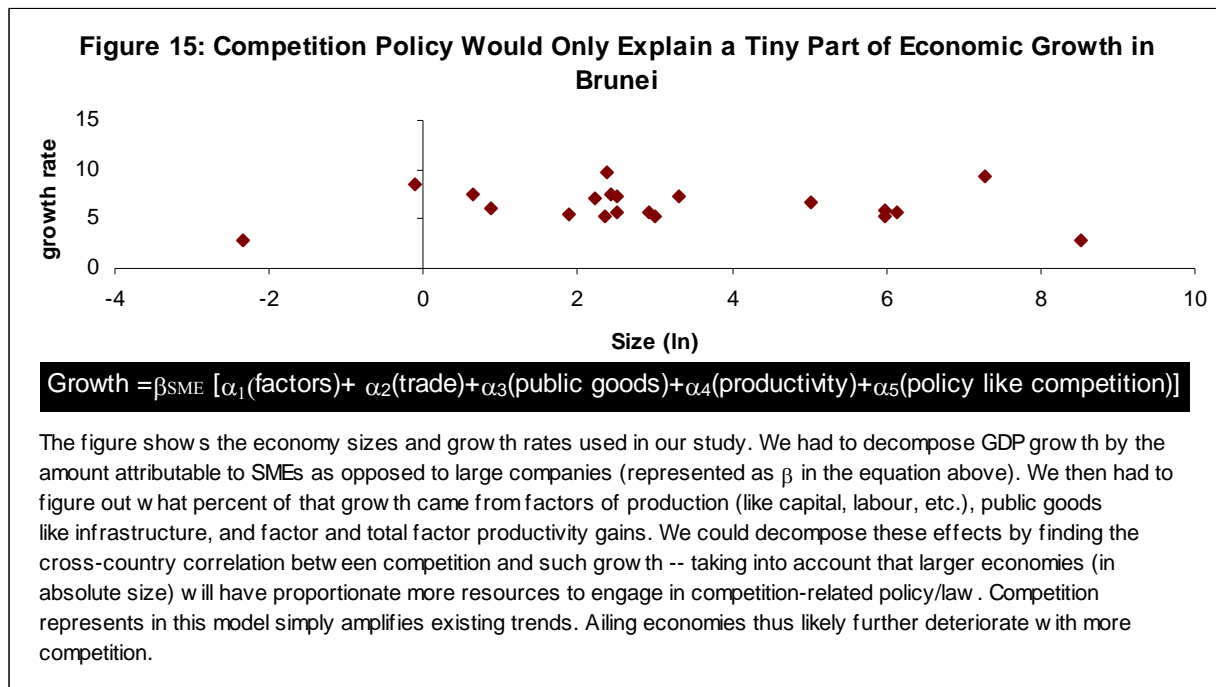
Competition policy influences economic growth by making the usual factors of production more effective/efficient.<sup>36</sup> Figure 15 shows historical GDP nominal growth rates of the APEC member states for the previous 5 years. Big countries (or small ones) do not necessarily grow faster (slower) than other economies. Instead, each dot in the figure represents the sum of growth rates due to capital, labour, knowledge, public goods (like roads) and competition policy/law. Figure 16 shows the link more clearly with one element of output growth (namely exports). If SME growth follows the general trend, the relationship between competition and export performance

<sup>35</sup> Even following the status quo does not ensure that APEC economies become more competition friendly over time. As the US Council of Economic Advisors (2016) can attest to, the US in recent years has seen a re-emergence of anticompetitive behaviour. Brunei, for its part, has experienced anti-competitive politics – as shown by the non-enforcement of the old Monopolies Act (1932 at Chap. 74 of the *Laws of Brunei*).

<sup>36</sup> Interestingly, few experts have tried to establish an empirical connection between competition law/policy and economic growth. Davies (2012) comes the closest by illustrating the ways to conduct a cost/benefit assessment of a competition authority.

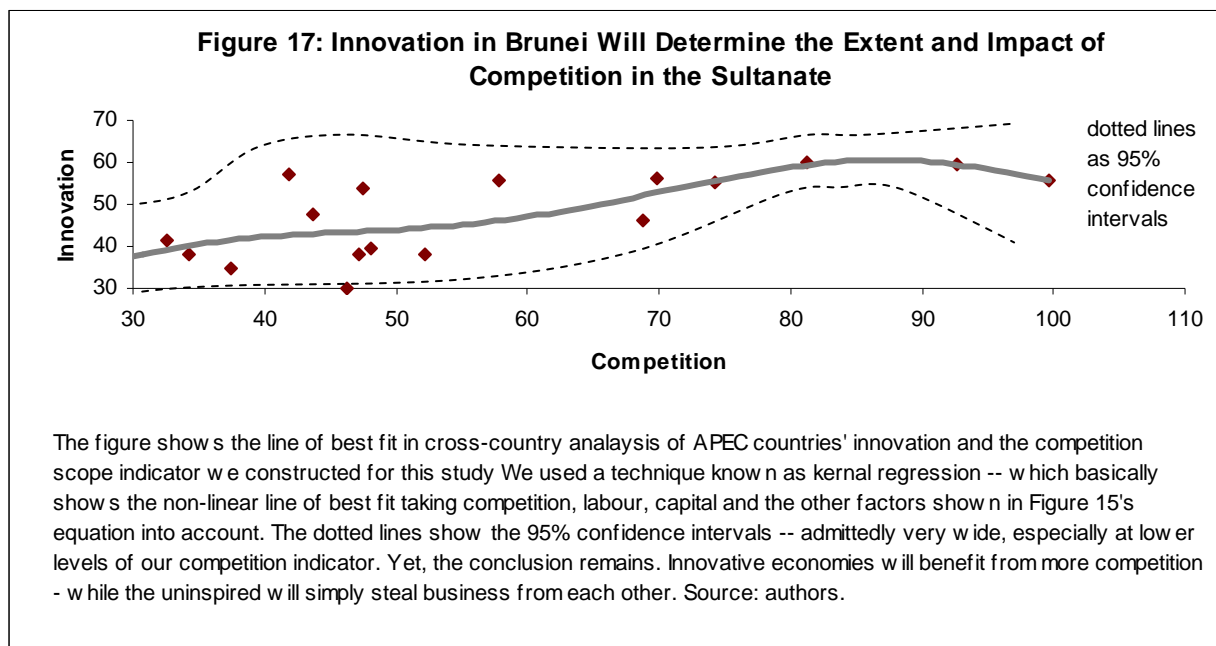


seems to have three phases. For low levels of competition, more competition increases SME export growth. For middling competition levels, SMEs' export performance falls as the economy becomes more competitive. For very high levels of competition policy/law, SMEs' export performance again increases. While these data do not control for outside factors, they still reveal a basic fact about competition and growth. **Countries probably settle in a range where more competition policy/law ends up hurting SME growth – requiring them to make the difficult decision to continue until competition reaches a critical level.**



If Brunei (and other APEC economies) hope to use competition policy/law to boost economic growth, such competition needs to add something to the production function not already there.

Expanding competition policy alone won't make Brunei's SMEs better off. Figure 17 shows the relationship between the level of competition law/policy in APEC countries and the extent of innovation (a major component and determinant of productivity). At first glance, higher levels of competition and innovation go hand-in-hand (as shown by the upward sloping "kernel" curve of best fit).<sup>37</sup> As shown by the wide variation in the relationship shown in the figure, numerous economies can have very different levels of competition corresponding with the same level of innovation. For example, several APEC countries score around 55 on the innovation index – including one with a competition index score of around 45 and two with competition scores above 90.<sup>38</sup> Brunei's innovation index score hovers at around 35 – very low by APEC standards.<sup>39</sup> **Competition without innovation in Brunei would probably detract – rather than contributes – to economic growth and specifically SMEs' growth.**

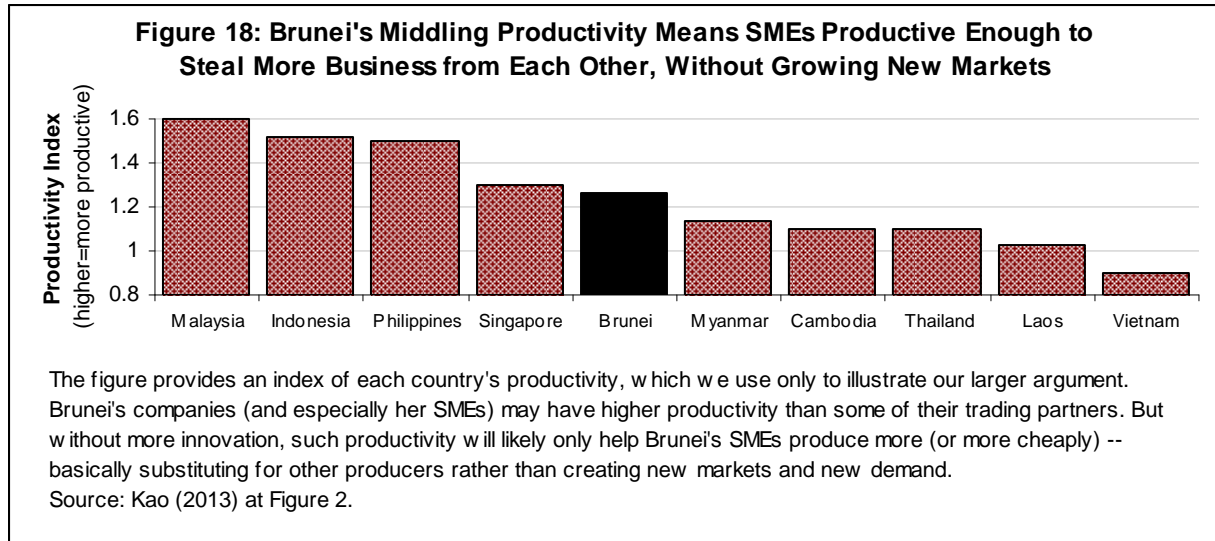


Other evidence points to the limited role that more competition will play in encouraging the growth and profitability of Brunei's SMEs. Figure 18 shows estimates of the productivity of various Asian economies. Brunei's productivity comes in at the middle of the range (both in terms of rank and index value). SMEs from more productive economies (like Malaysia or Singapore) will take business from Brunei's SMEs under a regime of more intense local and foreign competition. Brunei has a national innovation policy in place – called the Wawasan 2035. What does that policy tell us about how Brunei plans to improve its innovativeness in the longer-run?

<sup>37</sup> Kernel regression tries to minimise the distance between a line of best fit and the data – just like a standard regression. We do not discuss our methods in detail, given the focus of the CSPS publication.

<sup>38</sup> Numerous other experts like Aghion and co-authors (2002) have found similar results.

<sup>39</sup> For the index by year, see Brunei: Innovation index at [http://www.theglobaleconomy.com/Brunei/GII\\_Index/](http://www.theglobaleconomy.com/Brunei/GII_Index/)



## Brunei's Innovation Policy

Two documents underpin Brunei's strategy for improving national innovation – the Wawasan 2035 and the Outline of Strategies and Policies for Development 2007-2017 (Sabha, 2006).<sup>40</sup> The Executive Summary outlines the government's strategy to promote innovation by creating focusing its efforts on **developing a knowledge-based economy** (XII).<sup>41</sup> The results of such an economic transformation include: 1) economic diversification (away from hydrocarbons), 2) social progress and political stability, enhancing the quality of life, the environment, national security and Bruneian society, 3) enlarging the highly skilled labour force, In RKN 2007-2012, the highest priority is given to HRD, with the aim of developing a pool of high calibre work force in all fields of importance to the country's development, 4) strengthening the capacity to implement policy and simplify administrative procedures (id).

More specifically on the issue of developing a **high-skilled labour force**, the government envisions the deployment of a human resources fund. The fund would finance 1) specialist and professional manpower development, 2) scholarship scheme, 3) a special scheme focused on unemployed graduates, 4) a skills development scheme for school drop-outs and leavers; 5) a skills-development scheme and 6) an entrepreneurship development scheme (id, at XIII). Specific projects have included a Sixth Form Centre, , two science colleges (at Sengkong and Kuala Belait) and new facilities in Kupang, Tutong as well as a new complex for Pengiran Anak Puteri Rashidah Sa'adatul Bolkiah College of Nursing (Part III, 3.61). In the longer-term, the government seeks a 60/40 ratio of science to arts students (Part III, 4.40).

The Sabha envisions **deepening R&D spending** by: 1) strengthening government activities tied to encouraging or conducting such R&D, 2) directly financing such R&D, 3) pay or otherwise

<sup>40</sup> We refer to the document as the Sabha, or royal order/communication which promulgated these two documents. The documents themselves form Part I and Part of the Sabha respectively.

<sup>41</sup> We reference parts of the Wawasan by article numbers. For example, the XIII at the end of this sentence refers to text in the Executive Summary of the Sabha.

provide resources for teaching from primary school to university (id, at XXI).<sup>42</sup> Such R&D support would encompass government-funded educational institutions and public-private/international partnerships (Part II, (i).6). Support for stronger intellectual property rights also should incentivize R&D spending (Part II, 2.22). R&D funding under the government's programme budgeted BND165 million (about US\$121 million or almost 2% of all support to science and technology under the plan (Part III, 3.71).

Several other **infrastructure-related projects** aim to similarly promote innovation. Part of a BND\$313 million budget allocation should go toward the construction of a Technology Park for High Technology Industry and Innovation Centre (Part III, 5.13). Other projects studied include an eco-cyber park, high-tech park, technology park and a biotechnology park, as well as a Innovation Centre and Incubation Centre specifically aimed at encouraging the development of SMEs (Part III, 5.38). The government has identified the lack of a central innovation agency as a constraint on innovative growth (Part III, 17.09). The government hopes to establish such an agency (Part III, 17.17).

Several innovation-related projects **aim specifically at Brunei's SMEs**. The government has allocated BND\$185 million under an e-business programme aimed at developing SMEs – including the possible building of a eco-cyber park for these SMEs (Part III, 10.21). Broad local business development strategies aim at “increasing opportunities”, “developing incubation centres,” “maximising the indirect effects of foreign direct investment” – and other generalities (Part II, v).

**Monitoring and evaluation** also comprise part of the government's innovation in learning-by-doing. The government plans to establish indicators assessing the rank of Brunei's educational institutions worldwide, the level of sophistication of educational facilities (whatever that means), the number and type of international students studying in Brunei Darussalam, the number of R&D staff in the country, the number of scientific innovations (presumably by counting patents), and others (Part III, 4.47).

In each planning period, the government allocations around BND\$1 billion for education and human resources development, and another BND\$1 billion for information technology and other related expenditures aimed at promoting e-innovation. Thus, **innovation should cost US\$1.5 billion in the short-term** (in each multi-year distribution cycle). Yet, if past levels of innovation serve as a guide, past expenditures of roughly these amounts had little appreciable impact on innovation in the Sultanate.

### **The Costs and Benefits of Competition Order**

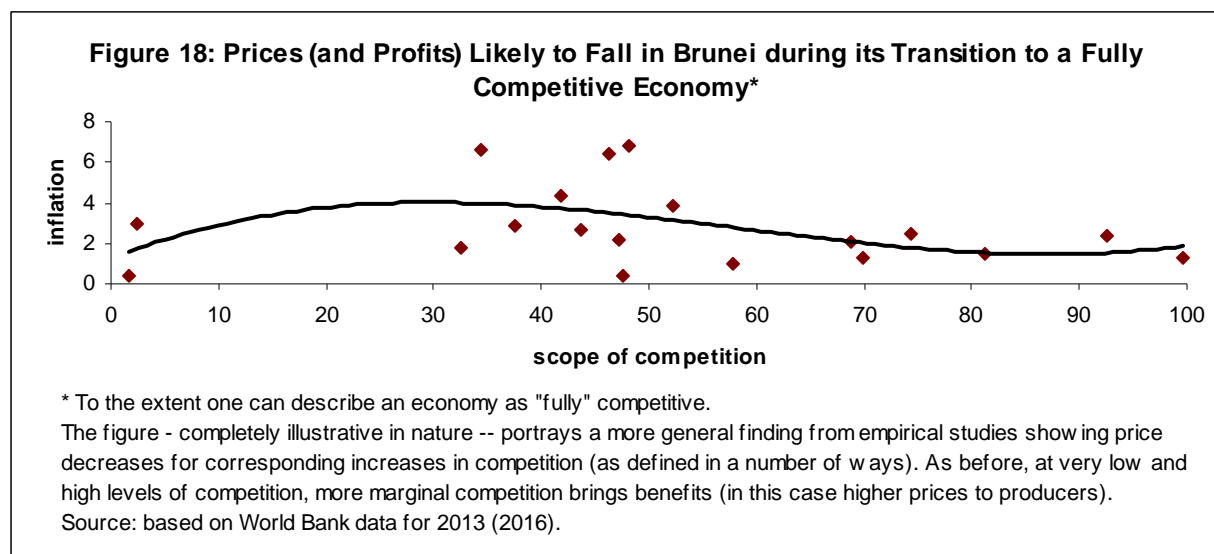
As our model suggests, competition impacts on SMEs' revenues/profits via quantity and price effects. We addressed the quantity effects previously. What about the price effects? Competition's effects on prices can vary depending on the way that Brunei's SMEs respond to such competition. Experimental evidence (the best form of evidence for economists) shows that competition tends to lower prices while having little effect on innovation.<sup>43</sup> Yet, when taking

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<sup>42</sup> We have tried to put the Sabda's jargon into normal English. See the original source for the exact wording.

<sup>43</sup> Busso and Galiani (2014) show their own results, as well as provide other literature in this area.

several market niches into account, the evidence from authors like Lach and Moraga-Gonzalez (2009) shows that prices might actually rise – as demand from customers used to paying high prices remains inelastic.<sup>44</sup> Interestingly, innovation and good/service quality may deteriorate as competition intensifies.<sup>45</sup> Competition's impact on the prices of SMEs' goods and services remains important because prices determine profits. Yet, we want to know what effect competition has on the growth of prices (as a possible proxy for the growth in innovation).<sup>46</sup> Figure 18 shows the relationship between inflation and competition for APEC member countries (just as an illustration of results from the broader literature rather than as a causal relation). If SMEs follow the general trend, increased levels of SME competition (and thus competition policy and law) can correlate with price decreases (and thus higher consumer welfare) for medium levels of competition. At low and high levels of competition, SMEs can benefit from higher prices. **Regardless of the effect on prices, competition's stifling influence on innovation calls for policies as part of any competition policy/law reform which can improve SMEs' innovation/productivity.**



What exactly are these effects? Brunei has far less to gain from competition than other countries in the region. Figure 19 shows the estimated benefits to SMEs (in output terms and expressed in US dollars to make these benefits comparable across countries).<sup>47</sup> Vietnamese SMEs represents one of the largest beneficiaries of competition in this group.<sup>48</sup> Given these countries large

<sup>44</sup> Inelastic means they take the price increase without balking.

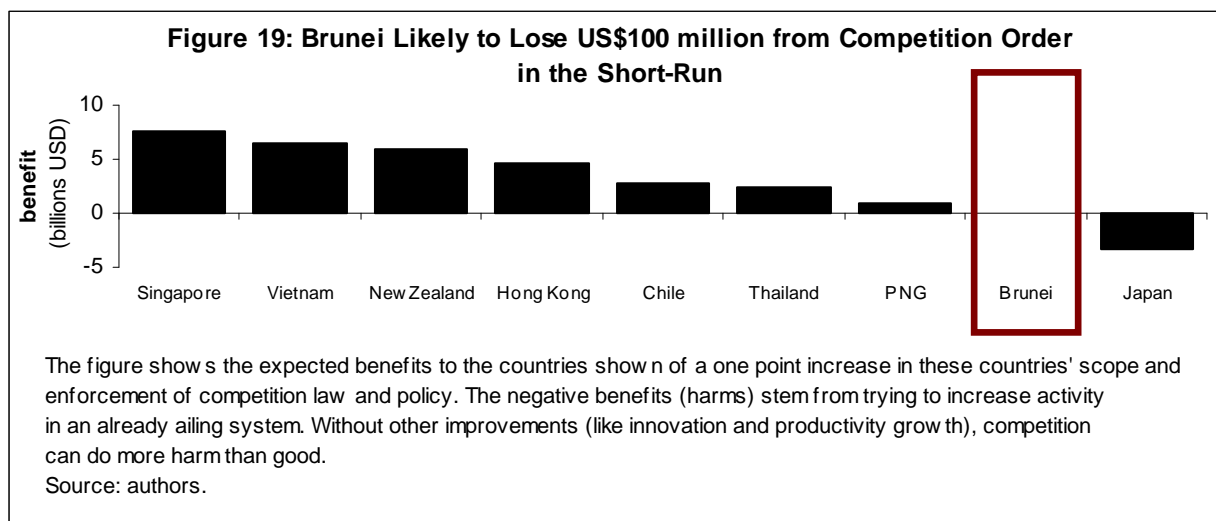
<sup>45</sup> An alarming number of studies like Forder and Allan (2014) find such a deterioration in quality.

<sup>46</sup> Few authors would suggest that competition explains nominal inflation in any economy (as monetary policy plays a leading role). Thus, if innovation does not cause price growth to fall in the short or medium-term (even though it may cause price levels to decline), then competition should cause the trend in prices (and thus profit growth) to increase.

<sup>47</sup> We do not express these gains as a percent of GDP or other relevant indicator (like government spending), as such gains represent only a fraction of these values. Moreover, policymakers have the habit to consider dollar amounts when comparing policies.

<sup>48</sup> In relation to Vietnam, our study seems to agree (at least proposes similar patterns of benefits) with the World Bank study we critiqued earlier. Yet, these data do not show the sensitivity of the Vietnamese economy to economic downturns – in which competition has historically risen and yet, output falls (Doan, 2012).

existing production base, extra competition helps SMEs in countries like Vietnam integrate more in local supply chains and business systems as they send more products to customers. Similarly with our previous examples, Vietnam's SMEs would benefit even more if they develop their productivity before the adoption of any policies increasing the level of competition among Vietnamese SMEs (Hughes and Nguyen, 2015). Hong Kong's SMEs compete in a small local economy and will face very competition from a range of companies (SMEs and large firms) once integration with the Mainland proceeds apace.<sup>49</sup> Brunei's existing business practices affecting SMEs would likely carry on for a long time after the implementation of its competition law. Thus, the benefit of the Competition Order would probably be negligible – and in fact the countries' SMEs would lose US\$100 million if cross-country patterns hold. Yet, even if competition ends up producing gains, **without some mechanism for compensating Brunei SMEs harmed by competition, interest in competition policy reform would likely stall.**<sup>50</sup>



How would these estimates change if policies designed to improve SMEs' innovation and productivity work concurrently with the expansion of competition law and policy? Figure 20 shows the harms to SMEs in APEC member countries with lagging innovation policies and practices.<sup>51</sup> In other words, the figure shows the way that innovation and competition interact – with larger values representing harms from the interaction of competition and lack of innovation. As shown, Indonesia and the Philippines represent the two economies most damaged by increased competition without accompanying innovation/productivity policies. Interestingly, the Japanese economy would experience some harm from added competition – not surprising given the continued dominance of massive financial industrial groups.<sup>52</sup> We do not explicitly show

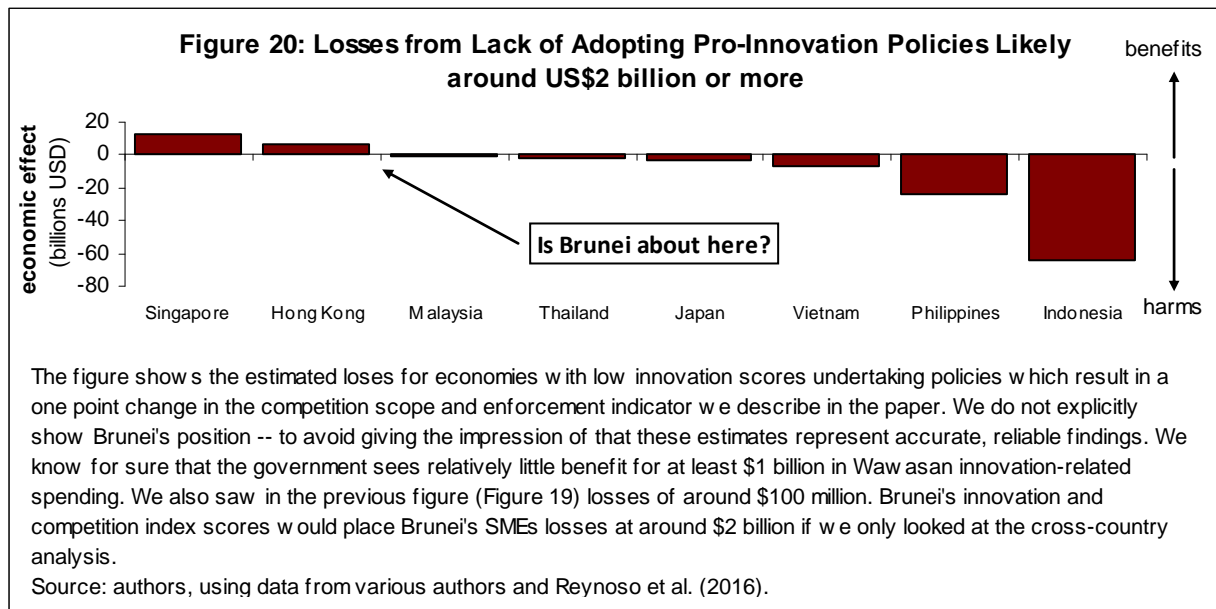
<sup>49</sup> Disappointingly, the authors of a study on the issue (Ng and co-authors, 2011) ask for government help – rather than devising ways to boost innovativeness and productivity.

<sup>50</sup> Better understanding the problems of destructive competition and attendant harms from competition policy/law can help governments set up compensation arrangements which do not harm competition/innovation (Stucke, 2013). We could find no explicit policy aimed explicitly at redistributing the gains from more competition.

<sup>51</sup> Negative effects encourage authors like Ellis and Singh (2010) to call for a larger public role for competition authorities in letting governments know when competition-enhancing policies might cause negative economic impacts.

<sup>52</sup> Japanese keiretsu represent the most famous type of anticompetitive business organisation. Matous and Todo (2015) document the persistence of these business entities, while Aoki and Lennerfors (2013), as business gurus,

Brunei – as we do not want to give a misleading impression of the reliability and accuracy of our estimation. Yet, from the data we presented early, Brunei’s lack of innovation probably puts its SMEs closer to Malaysia’s position in Figure 20 than Hong Kong’s. We know for sure that SMEs reaped little to no returns from the roughly US\$1 billion to Wawasan innovation-related spending (as we described earlier). We also know that, if we believe figure 19, the country’s SMEs would lose around \$500 million (a relatively insignificant amount). **In other words, the status quo would roughly as at present.**



## Conclusions

Brunei’s Competition Order probably arose in order to comply with ASEAN and TPP competition policy-related requirements. Yet, our findings clearly illustrate why Brunei’s policymakers have shied away from adopting serious competition law and policy in the past. Such competition would likely increase SME’s domestic competition, while benefitting foreign competitors. Increased competition would likely cost SMEs up to US\$2 billion – a very large hit to a sector which accounts for roughly 60% of employment. Low returns to past spending of around US\$1 billion on innovation policies look likely to continue into the future – making competition more harmful than helpful to Brunei’s SMEs. Brunei thus has little to gain and a lot to lose from more competition.

Yet, if Brunei’s innovation policy changes direction, other APEC countries’ experiences show that the Competition Order can benefit Brunei’s SMEs. Copying Hong Kong’s or Singapore’s innovation policies could produce gains to Brunei’s SMEs of around \$5 billion gross (before subtracting the cost of innovation policies and compensating SMEs hurt by competition). The Competition Order results from the *zeitgeist* of competition policy reform across the region. Yet, simple tweaks to the Order -- focused on increasing the independence of the Competition

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disingenuously argue that a new pro-SME variety of keiretsu has emerged after the global economic crisis of 2008. You decide.



Commission and encouraging the Commission's education and dissemination of competition-related information to SMEs – could increase the gains to competition in the Sultanate.

Future research will need to calculate these costs and benefits using a rigorous model of the Brunei economy – instead of the cross-country analysis we used. Such a model could show radically different results. Yet, time will be the ultimate arbiter – showing the effects of competition and innovation policy in Brunei.

## References

Aghion, Philippe, Nicholas Bloom, Richard Blundell, Rachel Griffith, and Peter Howitt. (2002). Competition and Innovation: An Inverted U Relationship. NBER Working Paper No. 9269. Available [online](#).

Aldaba, Rafaelita and Fernando Aldaba. (2014). Toward Competitive and Innovative ASEAN SMEs: Philippine SME Policy Index 2012. Philippine Institute for Development Studies Discussion Paper 2014-30. Available [online](#).

Anandarajah, Kala and Dominique Lombardi. (2015). Competition Policy International Antitrust Chronicle (1). Available [online](#).

Aoki, Katsuki and Thomas Lennerfors. (2013). The New, Improved Keiretsu. Harvard Business Review. Available [online](#).

ASEAN Secretariat. (2013). Handbook on Competition Policy and Law in ASEAN for Business. Available [online](#).

ASEAN Secretariat. (2010). ASEAN Regional Guidelines on Competition Policy. Available [online](#).

Armoogum, Khemla and Bruce Lyons. (2014). What Determines the Reputation of a Competition Agency? Available [online](#).

Borrell, Joan-Ramon and Juan Luis. (2008). The drivers of antitrust effectiveness. Spanish Finance Ministry Public Economics Journal 185(2). Available [online](#).

Bull, Cavinder, Chong Kin Lim, and Scott Clements. (2016). A new era for competition law in the ASEAN region. Drew & Napier Thought Leadership Briefs. Available [online](#).

Busso, Matias and Sebastian Galiani. (2014). The Causal Effect of Competition on Prices and Quality: Evidence from a Field Experiment. NBER Working Paper No. 20054. Available [online](#).

Davies, Stephen. (2012). A survey of the approaches and methods used to assess the economic effects of a Competition Authority's work. Swedish Competition Authority Working Paper 2012:1. Available [online](#).

Davydova, Lesya. (2012). Survey on Information Exchange on Competition in APEC Region: Phase I. Available [online](#).

Deardorff, Alan. (2014). Trade Implications of the Trans-Pacific Partnership for ASEAN and Other Asian Countries. Asian Development Review 31(2).

Desai, Sameeksha, Zoltan Acs, and Utz Weitzel. (2010). A model of destructive entrepreneurship, 34 World Institute for Development Economics Research Working Paper 4. Available [online](#).  
Economic Research Institute for ASEAN and East Asia (ERIA). (2014). ASEAN SME Policy Index 2014: Towards Competitive and Innovative ASEAN SMEs, Eria Research Project Report 8, 2014, available [online](#).

Doan, Tinh. (2012). Evolution of Competition in Vietnam Industries over the Recent Economic Transition, Economics Discussion Paper No. 2012-12. Available [online](#).

Ellis, Karen and Rohit Singh. (2010). Assessing the Economic Impact of Competition. ODI Working Paper. Available [online](#).

Feinberg, Robert and Kara Reynolds. (2010). The Determinants of State-Level Antitrust Activity, Review of Industrial Organisation 37(1). Available [online](#).

Forder, Julien and Stephen Allan. (2014). The impact of competition on quality and prices in the English care homes market. Journal of Health Economics 34(4). Available [online](#).

Fox, Eleanor and Deborah Healey. (2011). Competition Law and the State: Competition Laws' Prohibitions of Anti-Competitive State Acts and Measures. UNCTAD Research Partnership Platform Publication Series. Available [online](#).

George Washington Competition Law Center. (2012). Taiwan Competition Framework. Available [online](#).

Gibson, Tom and H. van der Vaart. (2008). Defining Small and Medium Enterprises in Developing Countries, Brookings Global Economy and Development Working Paper. Available [online](#).

Gilardi, Fabrizio and Martino Maggetti. (2010). The independence of regulatory authorities. Available [online](#).

Government of Brunei. (2015). Competition Order. Order 1 of 7<sup>th</sup> January 2015. Available [online](#).

Guidi, Mattia. (2015). The Impact of Independence on Regulatory Outcomes: the Case of EU Competition Policy, Journal of Common Market Studies 53(6). Available [online](#).

Hall, Chris. (2011). APEC and SME Policy: Suggestions for an action agenda. Available [online](#).

Hsieh, Wen-Jen, Ismail Duraman, Chris DiCicco and Ming-Ming Lin. (2004). National Competitiveness of Brunei: Moving Beyond Natural Resources. Asia Pacific Management Review 9(20). Available [online](#).

Hughes, Kent and Anh Nguyen. (2015). Vietnam Takes on the Trans-Pacific Partnership. Wilson Briefs 1. Available [online](#).

Kasim, Leo, State-owned firms will be subject to ‘market disciplines’ under TPP, Brunei Times, 14 October, 2015, available [online](#).

Kao, Chiang. (2013). National Productivity of the Southeast Asian Countries. European Scientific Journal 1, available [online](#).

Kao, Chiang, Wann-Yih Wu, Wen-Jen Hsieh, Tai-Yue Wang, Chin-Ho Lin, and Liang-Hsuan Chen. (2008). Measuring the national competitiveness of Southeast Asian countries. European Journal of Operational Research 187. Available [online](#).

Koh, Wee-Chian. (2013). Brunei Darussalam’s Trade Potential and ASEAN Economic Integration: A Gravity Model Approach, Southeast Asian Journal of Economics 1(1).

Kushnir, Khrystyna, Melina Laura Mirmulstein, and Rita Ramalho. (2010). Micro, Small, and Medium Enterprises Around the World: How Many Are There, and What Affects the Count? World Bank/IFC MSME Country Indicators. Available [online](#).

Lach, Saul and Jose-Luis Moraga-Gonzalez. (2009). The Asymmetric Price Effects of Competition, CEPR Discussion Paper No. DP7319. Available [online](#).

Ma, Tay-Cheng. (2010). Competition authority independence, antitrust effectiveness, and institutions, International Review of Law and Economics 30(3). Available [online](#).

Matous, Petr and Yasuyuki Todo. (2015). Dissolve the Keiretsu, or Die: A longitudinal study of disintermediation in the Japanese automobile manufacturing supply networks. RIETI Discussion Paper Series 15-E-039. Available [online](#).

Ng Ying-chu, Vivienne Luk and Kang Liew Inn-Lee. (2011). The Road to Sustainable Development of Hong Kong SMEs - The Present and Future. Available [online](#).

OECD. (2005). Designing Independent and Accountable Regulatory Authorities for High Quality Regulation, Proceedings of an Expert Meeting in London, United Kingdom. Available [online](#).

Oliveira, Gesner, Eduardo Machado, Lucas Martins and Carla Ferreira. (2005). Aspects of the Independence of Regulatory Agencies and Competition Advocacy. Available [online](#).

Ong, Burton. (2015). Competition Law and Policy in Singapore, ERIA Discussion Paper 2015-53. Available [online](#).

Oum, Sothea, Ponciano Intal, Dionisius Narjoko, Robertus Herdiyanto and Axel Castellane. (2015). ASEAN SME Index 2014: Towards competitive and innovative ASEAN SMEs. Available [online](#).

Polsaram, Pussadee, Panid Kulsiri, Lissara Techasemsukkul Thaw Dar Htwe, and Kanittha Kwanchainond. (2011). A Survey Research Project on Small and Medium Enterprises Development Policies of 4 ASEAN Countries: Brunei Darussalam, Cambodia, Lao PDR, Myanmar. Available [online](#).

Sabda. (2006). Sabda By His Royal Highness Prince Mohamed Bolkiah Chairman of The Council For Long-Term Development Plan. Part I: Wawasan 2035 and Part II: Outline Of Strategies and Policy Directions 2007-2017.

Santos, Ilana, Lerzan Unal, Patricia Araujo, Rafael Furtado, and Renata Dantas. (2008). Agency Effectiveness Project. Available [online](#).

Sato, Yuri. (2011). Development of Small and Medium Enterprises in the ASEAN Economies. In Development of Small and Medium Enterprises in the ASEAN Economies: Beyond 2015. Available [online](#).

Sosay, Gul and Unal Zenginobuz. (2005). Independent Regulatory Agencies in Emerging Economies, Paper prepared for presentation at the 2005 Annual Conference of the European Consortium for Political Research, Budapest, Hungary, 8-10 September 2005, available [online](#).

Storey, David. (2010). The competitive experience of UK SMEs: Fair and unfair. Small Enterprise Research 17(1). Available [online](#).

Stucke, Maurice. (2013). Is competition always good? Journal of Antitrust Enforcement 1(1). Available [online](#).

Tambunan, Tulus. (2009). SMEs in Asian Developing Countries, 2009, available [online](#).

Tambunan, Tulus. (2011). Developing ASEAN SME Policy Index: Access To Information. Available [online](#).

TPP Agreement. (2015). Trans-Pacific Partnership, Trans-Pacific Partnership Agreement. Available [online](#).

UNCTAD Secretariat. (2008). Independence and accountability of competition authorities, UNCTAD publication TD/B/COM.2/CLP/67. Available [online](#).

US Council of Economic Advisors. (2016). Benefits of Competition and Indicators of Market Power. Available [online](#).

World Bank. (2016). Global Economic Prospects. Available [online](#).

World Economic Forum. (2016). World Competitiveness Report 2015, Competitiveness Rankings. Available [online](#).

## Appendix I: Mathematics and Statistics Background/Procedures

We use a pretty typical model of competition and growth in order to arrive at our estimates. Specifically, Baldwin and Robert-Nicoud derive a model in which economic growth depends on innovation and competition.<sup>53</sup> Equation (1) shows their specification of a firm's market share (as a function of its marginal costs).<sup>54</sup> In that equation,  $m$  represents marginal costs,  $n$  represents the value of firms,  $E[m]$  represents a weighted average of these marginal costs. Furthermore,  $a$  represents sales of the firms' differentiated products and  $G[a|a_D]$  represents the probability distribution of sales for these firms. The parameter  $\phi$  represents the level of trade freeness (with  $\tau=\infty$  for a closed economy and  $\tau=1$  for a perfectly open one. Equation (2) shows the standard utility curve in this model. In this equation,  $r$  represents the value of consuming something today rather than later,  $D$  represents the consumption basket of all SME's (or firms) products,  $d_i$  represents the consumption of SME's  $i$  good or service. The rest of the parameters look more familiar – with  $Y$  equating to income,  $E$  to expenditure,  $S$  as saving/investment,  $L$  as labour income,  $E/\sigma$  represents profits and capital  $\theta$  represents the actual set of SME goods consumed. These equations yield the growth condition and SME production as shown in equation (3). In that equation,  $K$  represents the value of new, innovative products, capital  $\omega$  represents the extent of competition.

$$s[m] = \frac{1}{n} \frac{m^{1-\sigma}}{E[m]}, \quad E[m] = \int_0^\infty Y^{1-\sigma} dG[Y | Y_D] + \phi \int_0^{ax} Y^{1-\sigma} dG[Y | Y_D], \quad 0 \leq \phi = \tau^{1-\sigma} \leq 1 \quad (1)$$

$$U = \int_0^\infty e^{-Yt} \ln D dt \quad D = \left( \int_\Theta d_i^{1-1/\sigma} di \right)^{1/(1-1/\sigma)} \quad Y = E + S \quad Y = L + (E/\sigma) \quad (2)$$

$$g = \frac{L/\sigma}{p_K E[K]} \frac{\rho(\sigma-1)}{\sigma} \quad Y_D = \left( \frac{\beta-1}{(1-\Omega)K_D} K_t \right)^{1/k} \quad Y_X = \left( \frac{\Omega(\beta-1)K_t}{(1+\Omega)K_X} \right)^{1/k} \quad (3)$$

where  $p_K = c[1, E[a], 1]$ ,  $E[K] = \beta K_D (1+\Omega)/(\beta-1)$ ,  $\Omega = \phi^\beta T^{1-\beta}$ ,  $T = K_X/K_D$ ,  $\beta = k/(\sigma-1) > 1$

In such a world, output depends on the extent of competition and on innovation from SMEs and other firms. Imagine that  $Y$  as income equals the price of output multiplied by  $y$  (the value of output in units). Thus, looking at the growth of the ratio of domestic SME production to export (delta in the equation) gives equation (4). As such, the growth of the SME sector depends on the price of innovation, the flow of innovations to the domestic and export sector respectively, and the degree of competition. As such, growth of output (defined as the inverse function of the stock of innovations  $K$ ) depends on the scale of innovation, whether such innovation goes to the domestic or export sector, and the level of competition in the economy.

$$\Delta = \frac{L/\sigma}{p_K E[K]} \frac{\rho(\sigma-1)}{\sigma} \left( \frac{(1+\Omega) K_X}{\Omega(1-\Omega) K_D} \right)^{1/k} \quad \text{or} \quad \frac{L/\sigma}{p_K E[y^{-1}(K)]} \frac{\rho(\sigma-1)}{\sigma} \left( \frac{(1+\Omega) y^{-1}(K_X)}{\Omega(1-\Omega) y^{-1}(K_D)} \right)^{1/k} \quad (4)$$

<sup>53</sup> Richard Baldwin and Frederic Robert-Nicoud, Trade and growth with heterogeneous firms, 74 Journal of International Economics 1, 2008.

<sup>54</sup> We use the same variable and parameters as the original authors, to make clear that these equations belong to them.

Prices, competition and innovation relate to each other as follows. Adding prices to the equation and making exported goods and domestic goods equal to each other, we see at its optimal – and after replacing our competition indicator with its relation to innovation – that output equals the root of a bunch of terms (including our indicators for competition and innovation). In this model, prices will always fall as GDP rises (mainly because we model preferences rather than profits). If we further assume that innovative capacity is normally distributed across countries, we see that some countries' GDPs' can increase with more competition and innovation. Yet, depending on the value of beta and k, such growth could easily be negative. **Moreover, unremarkably, the size of this harm or benefit depends on the size of competition, innovation and the already existing growth rate.**

$$\Delta Y = \frac{L/\sigma}{p_K p \cdot E[y(K)]} \frac{\rho(\sigma-1)}{\sigma} \left( \frac{(1+\Omega)}{\Omega(1-\Omega)} \right)^{1/k} \quad \text{or} \quad \frac{d\Delta Y}{dK} = - \frac{L/\sigma}{p_K p \cdot y^2} \frac{\rho(\sigma-1)}{\sigma} \left( \frac{(1+\Omega)}{\Omega(1-\Omega)} \right)^{1/k} \quad (5)$$

$$\frac{d\Delta Y}{d\Omega} = - \frac{1}{k} \frac{L/\sigma}{p_K p \cdot y^2} \frac{\rho(\sigma-1)}{\sigma} \left( \frac{(1+\Omega)}{\Omega(1-\Omega)} \right)^{(1-k)/k} - \left( (2\Omega^2 + 2\Omega - 1) + \frac{(\Omega^3 - \Omega)}{(1-2\Omega)} \right). \quad (6)$$

$$L\rho(\sigma-1) = -y^2 k p p_K \sigma^2 \left( (2\Omega^2 + 2\Omega - 1) + \frac{(\Omega^3 - \Omega)}{(1-2\Omega)} \right) \left( \frac{(1+\Omega)}{\Omega(1-\Omega)} \right)^{(1-2k)/k}, \quad \Omega = \phi(K_X / K_D)^{k/(\sigma-1)} \quad (7)$$

$$\frac{L}{y^2} = \frac{-k p p_K \sigma^2}{\rho(\sigma-1)} \left( (2\phi^\beta + 2\phi - 1) + \frac{(\phi^{2\beta} - \phi)}{(1-2\phi)} \right)^\beta \left( \frac{(1+\phi)}{\phi(1-\phi)} \right)^{\beta(1-2k)/k} \quad (8)$$

$$y = \sqrt{\frac{-\rho(\sigma-1)}{k p p_K \sigma^2} \left( (2\phi^\beta + 2\phi - 1) + \frac{(\phi^{2\beta} - \phi)}{(1-2\phi)} \right)^{\beta-1} \left( \frac{(1+\phi)}{\phi(1-\phi)} \right)^{\beta(1-k)/k}} \quad (9)$$

With these relations in mind, we can easily derive both the competition scope indicator and the innovation penalty/bonus indicators. Instead of omega, we use several measures of the scope and enforcement of competition (as indicated in equation 10 by  $o_i$ ). Following equation (9), we know that competition determines the change in GDP by some amount. We can thus take the “distance” of these various competition indicators using the Pythagoras theorem. Depending on the value of k and sigma, we can easily see that innovativeness increases with competition – and only increases due to investments in innovation for very small values of k less than one or sigma much larger than one. In other words, **competition leads to innovation (and thus growth) if investments in innovation transfer to output faster than companies' marginal costs decrease production/sales.**

$$\Omega = (o_1^k + o_1^k + o_1^k \dots + o_1^k)^{1/k} \quad \text{such that} \quad \Delta Y = \sqrt{\phi \Omega K^{k/(\sigma-1)}} \quad (10)$$

$$G(\phi | \Phi, \sigma) = \frac{g}{\sqrt{2\sigma^2}} e^{\frac{-(\phi-\Phi)}{2\sigma^2}} K^{k/(\sigma-1)} \quad (11)$$

Readers interesting in distributional issues (between foreign and domestic companies or between foreign and domestic can easily use the original formulas.