



The **E15** Initiative

# STRENGTHENING THE GLOBAL TRADE SYSTEM



## Mega-regionals and the Regulation of Trade: Implications for Industrial Policy

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E15 Expert Group on Reinvigorating Manufacturing:  
New Industrial Policy and the Trade System

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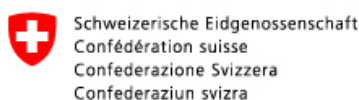
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# ABSTRACT

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Since the stalling of the Doha Round – which was designed to be development friendly – the main trade negotiation action has shifted to mega-regional initiatives. These agreements – particularly the Trans-Pacific Partnership, being the largest and most ambitious – will impact market regulations in a wide range of areas bearing on industrial policy, both by establishing substantive horizontal and sectoral standards and by establishing requirements concerning institutional and procedural approaches to domestic market policies and regulations. Network and demonstration effects will broaden the reach of these measures beyond the immediate parties to the agreement. This note reviews the key industrial policy issue areas under negotiation in the mega-regional free-trade agreements and evaluates the likely developments flowing from these agreements in terms of their impact on the international trading system. Based on this review, it discusses the likely future framework for industrial policy, which will integrate the additional policy constraints/changes introduced by these agreements.

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# INTRODUCTION

Two seemingly contradictory policy impulses are working their way through global economic policymaking.

The first impulse is the refinement, extension, and entrenchment of established economic policy orthodoxy through mega-regional trade negotiations. This orthodoxy – which has prevailed since the 1980s – emerged initially as a reaction to the legacy of problems from the preceding era of Keynesian 'demand side' policies and industrial policy intervention. It assigns to the market the primary role of determining prices (as well as exchange rates); the quantities of goods and services produced; and the organization of production both spatially (i.e., in which economy, through laissez-faire trade and investment) and institutionally (i.e., whether vertically integrated within firms or distributed locally in clusters or globally in value chains). It assigns to government the role of providing the enabling framework of physical and institutional infrastructures, with allowances for public intervention to correct for market failures – preferably on a cost-benefit tested basis.

Since 1980, global per capita real income growth averaged 1.8 per cent, which is 0.8 per cent less than the 2.6 per cent registered in the preceding era of Keynesian demand side policy (Maddison, 2014). This slowdown in growth – or 'growth discount' – was realized despite an explosion of innovation enabled by the computer; steep growth in trade and investment, which should unambiguously have accelerated income growth; and, an unprecedented ability to spread technology and ideas through the Internet. Arguably, we should have experienced a growth premium, not a discount. Moreover, we should have seen a rapid convergence of income levels, not a divergence and middle-income traps.

Furthermore, this recent era resulted in the emergence of microeconomic structures that, in the view of politicians worldwide, (a) do not provide the number or kinds of jobs that good labour market performance requires and (b) lack the admixture of manufacturing needed to anchor knowledge production and sustain capabilities essential to capturing a share of the emerging 'infant' industries of our age, which range from new energy to nanotechnology.

All this, along with envious comparisons to China's robust growth, has led to the second impulse: a revived interest in industrial policy interventions. Various surveys document these new policy departures (see, e.g., Ciuriak, 2013; Ciuriak and Curtis, 2013; and Warwick, 2013). The economic policy community is struggling to conceptualize the role of government in the economy in a way that reconciles these opposing impulses, while at the same time (a) guarding against what has generally been concluded are 'per se' failures of government intervention – i.e., failures that result from the

nature of government, as opposed to from circumstantial factors – and; (b) channelling government intervention into safe harbours. The issues are far from settled: inter alia, we see interest in 'smart specialization' (e.g., in Europe), arguments for complexity (Hausmann et al., 2013), and attempts to somehow 'bottle' the Asian miracle (the so-called Beijing consensus). This second impulse is gathering steam, if the pace of production of 'new industrial policy' papers is any guide.

In this note, we assess the extent to which the mega-regionals will constrain experimentation in this new direction. In particular, we focus on the likely outcome of the Trans-Pacific Partnership (TPP), the most ambitious and most advanced of the mega-regionals with respect to market regulation. We construct a template of the likely outcome of the TPP based on best available information. We then discuss approaches to industrial policy that will remain largely unconstrained by the emerging mega-regional-led regulatory framework for global commerce. We find that mega-regionals will constrain industrial policy modes, both directly through binding commitments and indirectly by reinforcing compatible initiatives in various multilateral fora, as well as by entrenching private standards implemented by the private sector. However, the state will still be able to act effectively through traditional 'horizontal industry policy,' the use of the government's 'convening power,' and as entrepreneur and investor. We discuss the implications.

## MEGA-REGIONALS AND MARKET REGULATION

The mega-regional trade negotiations include the 12-member TPP, the EU-US Transatlantic Trade and Investment Partnership (TTIP), and the 16-member Regional Comprehensive Economic Partnership (RCEP). In addition, a number of other trade and investment agreements involving the world's ten largest economies (including bilaterals involving various combinations of the United States (US), the European Union, China, Japan, Korea, Canada, and Australia) have recently been concluded or are being negotiated 'in the shadow' of the mega-regional negotiations. Accordingly, they tend to internalize the 'acquis' of the mega-regional negotiations even if the latter are not yet concluded, thus both foreshadowing their outcomes and serving to spread their effects.

The mega-regionals will impact substantive regulations governing international commerce in a wide range of areas bearing on industrial policy. In particular, they will establish substantive horizontal and sectoral standards and, equally important, requirements concerning institutional and procedural approaches to domestic market policies and regulations.

We focus on the TPP for several reasons. First, it already has a large membership and good prospects to grow much larger, with significant economies, such as Korea, Taiwan, and some Latin American economies considering joining the TPP. According to some commentators, even China is examining this option and has begun adapting to a post-TPP world. Second, the TPP sits at the cross section of the TIIP (the US is half of the TTIP) and of the RCEP (7 of the 16 RCEP members are currently TPP members, and Korea has applied for membership). Third, with four ASEAN members participating in the TPP and several other members, including the Philippines and Thailand contemplating joining the TPP (and Indonesia ambivalently studying the option), the economic

grouping of ASEAN will be driven by the growing critical mass of its members in the TPP to adopt policies consistent with the TPP. Thus, the TPP will likely be at the epicentre of the changes to the regulation of global commerce generated by the mega-regionals.

The table below works through the likely measures of the TPP, based on the information available, including the actual trade agreements that were negotiated in the shadow of the TPP and that have been concluded. Areas where the mega-regionals are likely to impose systemic constraints relative to the current multilateral framework driven by the World Trade Organization (WTO) are highlighted.

TABLE 1:

Likely measures of the TPP

Measure	Description	Constraint
<b>Border Measures</b>		
Elimination of industrial tariffs	This entrenches the free trade model. Significant trade diversion is to be expected in some sectors (e.g., in textiles and clothing) for non-members.	<b>Strong constraint for participants (e.g. limiting the use of tariff escalation)</b>
Lock-in of tariff cuts	No new duties and no provision for withdrawal with compensation – limits use of duties for new unbound areas.	<b>Strong constraint for participants (e.g. limiting the use of tariff escalation)</b>
Waivers of duties	No new waivers conditional on investment performance requirements – limits use of waivers for foreign direct investment (FDI) attraction.	<b>Strong constraint across industries</b>
Prohibition of export duties	Limits use of export tariffs to promote local processing (e.g., restricts future bans on export of logs to promote milling).	<b>Strong constraint</b>
Customs administration	Same direction as WTO Trade Facilitation Agreement (TFA) and promotes integrative trade.	<b>May impose additional constraints</b>
Rules of origin	Measures compromise access to value chains for non-TPP parties.	<b>Constraint on which value chains are available for connection by non-members</b>
<b>Technical Barriers to Trade (TBT)</b>		
International standards	Language for adherence to international standards with likely specific reference to those recognized by the WTO TBT Committee	<b>Dynamic constraint (i.e. evolving level of constraints) – influence on norms, especially through private standards and sustainable development standards reflected in underlying framework</b>
Duplicative testing and certification	Best efforts to implement	<b>Dynamic constraint – influence on norms</b>
Mutual recognition	Best efforts to implement	<b>Dynamic constraint – influence on norms</b>
Participation in development of standards	Governments will be required to provide the opportunity to the private sector to participate in standards development.	<b>Private sector likely to press for common standards</b>
<b>Sanitary and Phytosanitary (SPS) Measures</b>		
Standards	Normative language re: science – and risk-based assessments for SPS measures.	<b>Dynamic constraint – influence on norms</b>
Confirmatory test	Permissive language for confirmatory test – likely following WTO TFA.	No additional constraint
Customs SPS practices	Likely to follow WTO TFA.	No additional constraint

Measure	Description	Constraint
<b>Goods Market Access Measures (additional to tariffs and TBT/SPS)</b>		
Agriculture - TRQs	Main impact will likely be on tariff rate quota (TRQ) administration.	<b>Additional constraint in agriculture</b>
Agriculture – export competition & food security	Provisions related to agricultural export competition and food security are under discussion.	<b>Additional constraint in agriculture</b>
<b>Services Measures (General)</b>		
Negative List	TPP market access will likely be formulated on a negative list basis, which limits future policy room.	<b>Additional constraint</b>
Market Access	Binding of present policy for market access.	<b>Additional constraint</b>
No local presence	Ability to supply services without establishing an office.	<b>Additional constraint</b>
Most Favoured Nation (MFN) ratchet	National treatment and MFN "ratchet" may constrain new FTA offers.	<b>Additional constraint</b>
Other measures	General transparency requirements and rules governing administrative practice.	<b>Dynamic constraint – influence on norms</b>
<b>Investment Measures (WTO does not have these disciplines in general)</b>		
Pre- and post-establishment national treatment	Example of modern treatment: "The establishment, acquisition, expansion, management, conduct, operation and sale or other disposition of investments in its territory" (KAFTA, 2014: 11.4).	<b>Additional constraint</b>
MFN ratchet	MFN "ratchet" may constrain new FTA offers.	<b>Additional constraint</b>
Minimum standard of treatment	Good regulatory practice.	<b>Dynamic constraint – influence on norms</b>
Performance requirements	Prohibition of performance requirements covers technology transfer.	<b>Strong constraint for policy content relating to technology transfer</b>
Composition of senior management and boards	Limits nationality requirements.	<b>Additional constraint</b>
Investor-state dispute settlement (ISDS)	Extensive network of bilateral investment treaties (BITs) with ISDS and scope for multinational forum shopping mitigate marginal effect of mega-regionals.	<b>Additional constraint</b>
<b>Government Procurement Measures</b>		
Expansion of WTO Government Procurement Agreement (GPA)	The revised WTO Government Procurement Agreement (GPA) represents a minimum target for the TPP. Only four TPP members are currently parties to the GPA (Canada, Japan, Singapore and the US). In the shadow of the TPP negotiations, New Zealand joined the GPA.	<b>Extensive additional constraints for non-members of the GPA</b>
GPA+ measures	Procedural rules may constrain the role of government as "launch customer".	<b>Possible additional GPA+ constraints</b>
<b>E-commerce Measures</b>		
General	No WTO regime for e-commerce despite long-standing work program; rules being developed by UNCITRAL, WIPO, ICANN, Hague Conference, with contributions from OECD, G8, APEC, World Bank, EU leadership on cross-border issues – emerging architecture promoted in general by mega-regionals.	<b>Additional constraint relative to the WTO.</b> However, it is more likely to enable effective industrial policy to exploit internet-based commerce and enable emergence of micro-multinational enterprises (MNEs)
Requirements relating to data transfer	Where data is stored has important implications for a variety of policy reasons from privacy to ability to regulate (e.g., in financial services). Restrictions on data transfer can also serve as an industrial policy to promote local digital economy development. The TPP is likely to limit ability to restrict cross-border data transfer.	<b>Additional constraint</b>

Measure	Description	Constraint
<b>Intellectual Property (IP) Measures</b>		
General enforcement of IP	Impact depends on where a country is on basic IP: up to a point, stronger enforcement encourages innovation; beyond the appropriate balance point, strong IP may be socially damaging. Proliferation of low value patents, the "anti-commons" (thickets of patents around an invention), and the emergence of "patent assertion" entities can potentially impede technology-based re-innovation by small and medium-sized enterprises (SMEs).	<b>For most countries with sound, basic IP, strengthening enforcement relative to the WTO is an additional strong constraint</b>
Pharmaceutical patent package	Lower thresholds (for 'evergreening'), expanded scope of patentability (diagnostic, therapeutic, and surgical methods); patent term extensions to compensate for patent approval periods; limitations on patent revocation; linkage between patent status and regulatory approval of competing generics; extended test data exclusivity to delay entry of generics; requirement for national exhaustion of patent protection, which restricts scope for parallel importation; narrowing the scope for compulsory licensing; and limiting countries that benefit from the agreed TRIPS public health flexibilities.	<b>Strong constraint on development of a generics industry relative to the WTO. Little likelihood of offsetting increased research and development (R&amp;D) investment for most countries.</b>
Copyright extension	Additional costs imposed on derivative re-innovation with minimal incentive for additional creative work.	<b>Additional constraint on derivative innovation</b>
Digital rights management	TRIPS-plus measures are not aligned with the emerging nature of innovation – incremental, 'grain-sized' innovations, open-source/ community-based.	<b>Additional constraint on some innovation modes</b>
<b>Competition Measures (WTO does not have these disciplines in general)</b>		
General	WTO working program on competition has been abandoned; FTAs are developing practice, but mainly with soft law – i.e., non-binding measures that help establish norms. KORUS/KOREU introduce detailed measures, which, in general, are good practice for domestic regulation.	Although beneficial for industrial development, a competition regime poses <b>additional constraints relative to WTO</b>
Designated monopolies	Act solely in accordance with commercial considerations in non-public service mandates.	<b>Additional constraint</b>
<b>State-Owned Enterprises (SOEs) Measures</b>		
General	Direction for mega-regionals is clear: 'competitive neutrality'; success in agreeing specific rules is unclear. Underlying principles emerging: <ul style="list-style-type: none"> <li>- The OECD State-Owned Enterprise Guidelines (2005, 2014 review);</li> <li>- The IMF Santiago Principles for Sovereign Wealth Funds (2008); and</li> <li>- World Bank Report on the Corporate Governance of State-Owned Enterprises (2014).</li> </ul>	Impact depends on translation of competitive neutrality principle into law. <b>Possible additional constraint relative to WTO.</b>
Transparency in the relationship between an SOE and its government	Wish list includes: <ul style="list-style-type: none"> <li>- Negative list for exceptions;</li> <li>- Transparency of compensation of SOEs for domestic public service obligations;</li> <li>- Require SOEs to act 'in accordance with commercial considerations' with a concrete definition of 'commercial considerations';</li> <li>- Constrain use of SOEs for pursuing non-commercial or strategic objectives; and</li> <li>- Distinguish SOE procurement when engaging in commercial transactions from government procurement.</li> </ul>	<b>Many of the 'asks' pose additional constraints relative to the WTO</b>
Exemption from commercial law	No exemption from: <ul style="list-style-type: none"> <li>- competition laws;</li> <li>- regulatory or judicial enforcement;</li> <li>- bankruptcy laws;</li> <li>- disclosure requirements (e.g., Petronas reports only to Malaysia's Prime Minister); and</li> <li>- criminal prosecution.</li> </ul> Pro-active measures to address corruption and bribery.	<b>Many of the 'asks' pose additional constraints relative to the WTO</b>



Measure	Description	Constraint
Preferential treatment	No preferential (or exclusive) access to: <ul style="list-style-type: none"> <li>- Controlled networks and distribution channels (e.g., Japan Post's access to post offices on preferential basis to commercial competitors);</li> <li>- Supplies;</li> <li>- Information; and</li> <li>- Licensing (e.g., Japan Post has a 'deemed license' and a 'patron' ministry that ensures its profitability, including through favourable regulatory treatment).</li> </ul>	Many of the 'asks' pose additional constraints relative to the WTO
Non-discrimination	Compliance with WTO non-discrimination requirement	No additional constraint
Technology transfer	Constraints on requirements for forced participation in joint ventures ('shot-gun JVs') and forced technology transfer.	Major constraint on technology acquisition
Subsidies	<ul style="list-style-type: none"> <li>- No direct subsidies to SOEs;</li> <li>- No favourable access to capital, including through government guarantees on debt;</li> <li>- No preferential access to export credits;</li> <li>- No favourable tax treatment; and</li> <li>- No access to below-market cost for production inputs.</li> </ul>	Major constraints which may be mitigated to the extent exceptions are allowed for the purpose of addressing market failures
Ensure operations based on commercial principles	<ul style="list-style-type: none"> <li>- Commercial operations imply profit requirement;</li> <li>- Curtail the use of administrative guidance;</li> <li>- Address the benefits of legacy assets (e.g., Japan Post);</li> <li>- No preferential sales and purchases;</li> <li>- No 'buy-national' policies implemented by SOEs; and</li> <li>- No special treatment (e.g., India's Life Insurance Corporation has a direct sovereign guarantee backing the life insurance products that it sells; private sector competitors have no access to such a guarantee).</li> </ul>	Major constraints in absence of provisions for exceptions to address market failures
<b>Regulatory Cooperation Measures</b>		
	Highly controversial area, no working model, and leaked drafts were rudimentary and rough. As a first effort in this area, the TPP is unlikely to make significant headway beyond transparency measures scattered in other chapters and mechanisms for participation in standards setting.	Dynamic constraint – influence on norms. Will be affected also by results of TPP. May be exclusionary or inclusive, depending on the nature of conformity assessment or mutual recognition regimes.
<b>Labour and Environmental Measures</b>		
	Standard texts require states to enforce their own labour laws and promoting the adoption of International Labour Organization (ILO) standards; similar provisions apply to environmental laws to restrict exploitation of low standards for international competitive advantage.	Dynamic constraint – influence on norms. Adoption of private sector standards serves to extend the constraint.
<b>Currency Manipulation Measures</b>		
	No working model; unlikely to be included.	No immediate constraint, but the TPP will serve as a training ground for possible approaches

From the table above, it is clear that the exercise of industrial policy will be affected by additional constraints on certain kinds of policies together with specific efforts required by governments and firms to meet higher and more complex standards resulting from the new framework of disciplines. The extent to which these constraints are binding will, however, depend on the particular circumstances of individual countries. Mega-regionals will thus affect the exercise of industrial policy in the following main ways.

First, the mega-regionals strongly restrict access to new border measures, including new tariffs in new areas and new duty waivers that aim to attract foreign direct investment (FDI) and prohibit new export duties. However, since advanced countries' 'sensitive' sectors, which feature some of these measures, are likely to be excluded from the prohibition under grandfathering provisions, the mega-regionals will be seen by some as providing support for the thesis of 'kicking away the ladder.' For those with aspirations to join mega-regionals, the opportunity cost of not accepting these constraints is significant: trade diversion and potential preference erosion in the major markets.

Second, the rules tend to favour larger companies, and particularly multinational enterprises (MNEs). To redress this to some extent, the mega-regionals contain special provisions to facilitate the participation of small and medium enterprises (SMEs).

Third, they favour certain innovation models over others: the pharmaceutical package restrains re-innovation in pharmaceuticals, as it delays and raises the costs of introducing generics; copyright extension impedes derivative innovation; and digital rights management is not aligned with open-source/community-based innovation models, which involve many small players making cumulative and often 'grain-sized' innovations. While some proponents may see the main target of enhanced intellectual property (IP) measures as being China, many other countries seeking to pursue knowledge-based economies will be affected. Again in a situation where policies appear to favour advanced countries that own the lion's share of global IP, the affected countries could perceive an element of 'kicking away the ladder' in this area as well.

Fourth, they constrain the direct role of the state in development through rules governing state-owned enterprises (SOEs). Key 'asks' include (a) no technology transfer requirements —'no shotgun joint ventures (JVs); and (b) no subsidies coupled with requirements that competitive activities be conducted on commercial principles. Where SOEs address 'coordination' market failure, the constraints may be particularly felt in early stage development, as the SOE climbs the learning curve. If the SOEs are addressing market failure, it is difficult to decide how the principle of 'competitive neutrality' applies – for example, the pricing criteria for an SOE seeking to correct market failure would be different from that of a purely private enterprise and thus its

operations would not reflect normal commercial principles; correction of market failures may, inter alia, require subsidies. Fifth, the rules for global commerce will confront developing countries with more demanding compliance requirements. Standards will generally become increasingly more sophisticated (consistent with the more advanced capabilities in the most advanced countries, which are driving policy in the TPP). The evolution of standards will also be more dynamic. This reflects the role of private firms driven by competition in developing standards and, through their participation in consultative mechanisms, by their role in promulgating standards. The evolving dynamic is most likely going to be the strongest in new areas, such as the digital economy.

Sixth, the TPP will extend the WTO Agreement on Government Procurement (GPA) to negotiating parties that are non-parties to the GPA. This will limit the options for those who wish to consider government procurement as a useful policy tool to facilitate diversification into new, dynamic areas (Weiss, 2013). It is noteworthy that there will be exceptions within the GPA, excluding certain areas (for example, much of the US support for advanced industrial areas falls under the general rubric of 'defence,' which is carved out from global disciplines on national security grounds). Given the differences in industrial structure across countries, the provisions and exceptions under the government procurement regime of the TPP will have a differential impact on countries with differing incomes/institutional levels.

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## RESPONSES: WHAT'S LEFT?

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The global governance model promoted by the mega-regionals leaves open essentially problem-free access to four general approaches:

- the traditional horizontal agenda,
- governments coordinating private sector energies to achieve a consensus vision,
- building capacity to address the emerging and more challenging global rules regime and market requirements, and
- the role of the government as an investor.

We consider these in turn.

## THE HORIZONTAL AGENDA

The horizontal agenda remains largely untrammelled by the mega-regionals. In the developed world, horizontal industrial policy mostly involves public support for research and development (R&D) and education (e.g., Aiginger, 2014). In the developing world, it involves mainly improving the physical and institutional enabling framework for private sector activity. However, while a workable physical and institutional framework is a necessary element for development, it is not always sufficient, as evidenced by dissatisfaction with the lack of rapid economic development under this approach. Moreover, the framework might not actually be the binding constraint. There is evidence that businesses and governments are able to devise ad hoc ways around difficulties in the business climate. For example, businesses have some ability to exercise 'business climate control,' as evidenced by the differences in actual operating conditions for business under the World Bank's Enterprise Surveys versus the Doing Business surveys documented by Hallward-Dreimeier and Pritchett (2011). Similarly, there are diminishing returns to physical infrastructure; so, it stands to reason that at some point economic development opportunity may lie elsewhere, such as incubating private sector start-ups, supporting R&D, addressing coordination failures, etc.

## THE CONVENING POWER OF GOVERNMENT

Intervention in this mode focuses on long-term societal objectives and interests. A long-term vision for a country's industrial evolution provides a signal that helps address the market failure related to the coordination of private sector activities across firms and industries and reduces perceived risk of starting up new industries (see, e.g., Rodrik, 2011). In addition, the government can act as a matchmaker – "matching winners" in Justin Lin's new structural economics

(Lin, 2012). Also, governments can influence the quality of growth by changing incentives (e.g., from capital/finance-intensive growth to job-intensive growth) to address the distortions of the supply side era without necessarily engaging in vertical industrial policy.

## BUILDING COPING CAPACITY

The TPP's higher standards will require additional effort on the part of government and the private sector to implement procedures and practices beyond what is currently required. To some extent, TPP members will find support for implementing these higher standards from measures within that agreement itself – for example, in the provisions in the chapters on development cooperation and SME facilitation. Moreover, a number of industrial policies aimed at building coping capacity should not meet up against binding constraints from the TPP. These would include export promotion policies that help SMEs engage in global supply chains, support for certification of products and services, and so forth. In this sense, the TPP is likely to preserve more policy room for aggressive trade-oriented industrial policies than defensive industrial policies aimed at nurturing domestic economic activity. However, as mentioned above, a number of specific steps will have to be taken to upgrade capacity to meet the new, emerging standards, which will not be easy for all developing economies, in particular the low-income countries. These economies will need external support. TPP negotiators should consider inclusive systems that facilitate access to such assistance by other, non-TPP members.

## THE GOVERNMENT AS ENTREPRENEUR

The state can make direct investments to advance industrial diversification. Aghion and Cagé (2012), Mazzucato (2013), and Ciuriak and Curtis (2013) emphasize the role of the

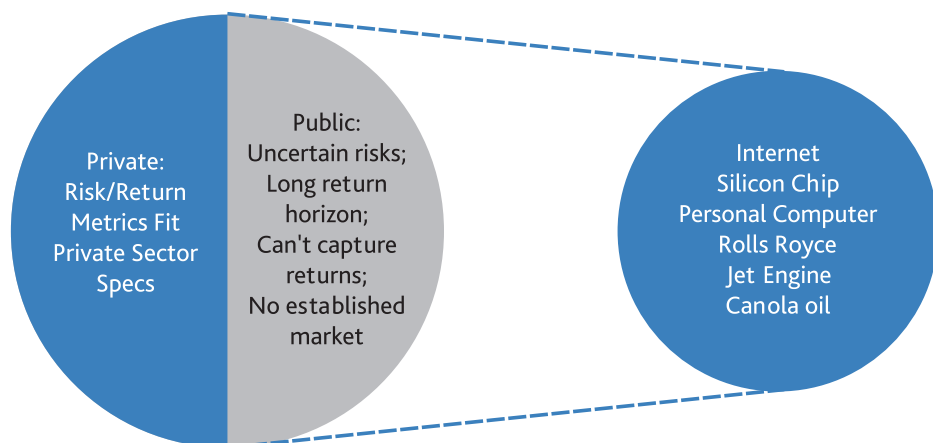


FIGURE 1:

Conceptualizing the Role of the Private vs. Public Sectors in Investment

state in innovation and launching new products in areas where private capital does not venture. In focussing on the state's role as a risk-taker and investor, it is helpful to think in terms of risk/return metrics. Some combinations of risk and return will elicit private sector investment. Private capital will flow to projects where the risk is bounded and calculable and where the returns are appropriable and realized in a sufficiently short time frame.

But, there are many investments that do not feature these metrics. Mazzucato (2013), for example, documents the government's role in developing the enabling technologies for the iPhone, including the Internet, wireless systems, global positioning, voice activation, and touch-screen displays. See the figure below for more examples.

Engaging in R&D that involves large, risky, or uncertain projects that may establish new breakthroughs in enabling technologies is, of course, mainly for advanced governments with sufficient capital (and sufficient patience). However, the fact that important investments in an economy will likely go unrealized by the private sector, because of their risk/return profile, makes it clear that governments should act as investors in all economies.

In some cases, public sector support for R&D can be effectively delivered through incentives to the private sector. However, tailoring incentives can be a problem if there is uncertainty surrounding the investment. Moreover, the overhead cost of monitoring the use of incentives is non-trivial. This is especially true for fiscal incentives, because of the fungibility of money. Furthermore, the usual problem in developing countries that causes governments to engage directly in the economy is that the country lacks private firms to do the job.

In some cases, it may be convenient to create a public enterprise to carry out the task. Such an enterprise could eventually be privatized once the market failure is corrected. However, in some cases, the resulting operation should remain in public hands, run by risk-averse bureaucrats who are rewarded not for bottom line returns, but for the competent management of a public trust. It is useful to consider an example, because of the general prejudice that has developed against public sector enterprise: the development of an Ebola vaccine. One such vaccine was developed in Canada by the National Microbiology Laboratory in Winnipeg, which is part of the Public Health Agency of Canada, and then licensed to a private firm, which shelved it, because it was not profitable to develop. The catastrophic outbreak of Ebola in West Africa in 2014, which plunged several countries into economic crisis and resulted in over 5,000 deaths, may have been prevented had the development of the drug remained in public hands – notably, the experimental drug used to cure two doctors who contracted the disease was also based on this research. Sometimes, profitability is not necessarily the right metric for projects. One such case is where there is catastrophic risk, and there are undoubtedly others.

It may also be expeditious to pursue the acquisition of technology by acquiring firms. Ciuriak and Bienen (2014) develop a case for state-assisted acquisition of firms to populate the industrial landscape of developing countries ('transplanting development'). This takes the concept of competitive neutrality to heart and turns it to a developmental purpose. Multinational firms can and do acquire other firms to expand their capabilities; developing countries should be able to do so as well. The key objective should be technology acquisition – the major economic miracles have been fashioned by states with a singular focus on technology upgrading. In such cases, where the government intervention is to address coordination failures, the resulting operation should be turned over as quickly as possible to the private sector with an interest in making the most of the operation (this follows from the premise that the intervention is for coordination failures; in such cases, the benefits of the product largely accrue to the individual, and the appropriate test of whether it should be produced is willingness to pay). Government intervention in this mode should not run afoul of SOE restrictions, since the public sector engagement is basically in the public-private partnership (PPP) mode: ownership interests acquired by the government would be held only for a short period, with governance modelled after private sector norms.

State investments can also be used for defensive purposes. A number of governments have launched sovereign patent funds (SPFs) to buy up patents to protect their national firms from 'patent assertion' entities (or so-called trolls). These SPFs include IP Bank China and Tianjin Binhai International IP Exchange (China); France Brevet (France); IP Bridge (Japan); IP Cube Partners and Intellectual Discovery (Korea); and IP Bank-Taiwan and Taiwan Medtech Fund (Taiwan). As Levine and Kim (2013) observe, "The advent of state-sponsored intellectual property dealers adds a fresh geopolitical element to the debate about patent trolls and how to protect legitimate inventions without stifling innovation." Lee-Makiyama and Messerlin (2014), meanwhile, sound the alarm that the emergence of SPFs "calls for different priorities on SOE disciplines in next-generation free-trade agreements (FTAs), such as the TTIP or the TPP. In fact, it makes little sense to argue over SOE exports while refraining from counteracting the potentially more disrupting and systemic effects of SPFs that also spill over on innovation as well as the global trading system." However, competitive neutrality does not preclude the state from, in effect, fighting fire with fire to preserve the ability of their economies to generate knowledge-based growth.

For everything, there is a season. And, that includes public sector engagement in the economy, as well as disengagement.

# CONCLUSIONS AND RECOMMENDATIONS: THE WAY AHEAD

The mega-regionals will likely work to constrain the degrees of freedom for industrial policy in several ways, principally in terms of limiting the use of border measures, limiting the scope for technology acquisition, limiting the role of SOEs, and limiting the scope for policy-led development of the digital economy through localization of data processing. In another dynamic, the mega-regionals will raise the bar in terms of compliance with the rising and changing standards of the global trading regime, including raising private sector standards and requiring additional proactive engagement of governments to help their economies cope.

The mega-regionals will not constrain broadly accepted horizontal industrial policies or the convening power of government to shape industrial development.

In terms of rules, the mega-regionals emphasize the substantive content being developed by other organizations, such as the World Customs Organization and the Organization for Economic Co-operation and Development (OECD). These would affect de facto the operational conditions in large parts of global markets as the global value chains will lead to their implementation extending beyond those economies that would be part of the mega-regionals.

Especially as regards standards, private standards in such areas as sustainability and labour will become more relevant in TPP and TTIP countries, thereby raising the bar for firms in developing countries — and, thus, requiring greater industrial policy support from governments to enable firms to participate in global value chains. The procedural standards, meanwhile, will influence which standards become internationally adopted. In the latter respect, the access afforded to private sector participation in rule-making will be largely taken up, even more than currently is the case, by multinationals, which are based disproportionately in advanced countries.

Greater government participation and focused policy efforts in different countries will be needed both to meet the new and additional requirements resulting from the disciplines and standards linked to mega-regionals and to meet the aspirations for enhancing national competitive capabilities. This means that the level of interest in industrial policy is unlikely to abate. The key issue for the present analysis is not 'what's right?', but rather 'what's left?' and 'what's smart industrial policy?'

What's left depends to some extent on where a country is on the development ladder. Industrial policy is always about acquiring new capabilities for an economy and, thus, about diversification. In advanced countries, the new capabilities that are being sought lie mainly in the handful of new areas; in the middle-income countries that have established a foothold in most sectors, it is mainly about upgrading technology and forging global links with trade and investment, thus, improving capabilities and potential opportunities; in the low-income countries, it is mainly about diversifying into a range of new activities.

Broadly accepted horizontal industrial policies will not be constrained and neither will the government's convening power to shape industrial development. Importantly, there will still be ample room for public sector investment to help generate the diversification that is synonymous with economic development.

The question of 'how' is still largely undefined in terms of positively identifying what industrial policies should be used; in this regard, the main contribution of the mega-regionals is in the opposite sense, namely to define what industrial policy should not be. These disciplines will keep evolving through the in-built mechanisms of the mega-regionals and as policymakers realize the growing overlap between trade, investment, and global value chains. Smart industrial policies will orient themselves toward reaping the benefit of the synergies between these three (trade, investment, and global value chains).

The framework for industrial policy going forward that emerges from this discussion is a combination of classic horizontal policies to create enabling conditions, a role for the public sector to articulate a coherent picture for the country's economic evolution that provides signals to coordinate private agents, a further role in building capacity to cope with the evolving rules-based system, and public investment to accelerate the development of the private sector. Thus, while the mega-regionals will constrain the scope to meet developmental objectives in many dimensions, a range of policy options will still be available as we have outlined above. The content of these policies will evolve as linkages through domestic and global value chains illuminate the steps to facilitate greater and more effective participation in the global economy.

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