



The Worst Innovation Mercantilist Policies of 2015

BY NIGEL CORY | JANUARY 2016

Countries that use “innovation mercantilist” policies think that prosperity occurs by using protectionist and trade distortionary policies to expand domestic production and exports of high-tech goods and services.

Innovation is the central driver of growth. As a result, an increasing number of countries are seeking to become innovation leaders. Unfortunately, as the global race for innovation leadership intensifies, many countries choose policies grounded in “innovation mercantilism”: a strategy that seeks prosperity through the use of protectionist and trade-distorting policies to expand domestic technology production. These policies often have misguided and short-sighted “beggar-thy-neighbor” aims of replacing imports with domestic production or unfairly promoting exports. Accordingly, the global economic system has become increasingly distorted over the last decade as more and more nations adopt innovation mercantilist policies to support domestic firms, including forced local production, forced technology transfer, and intellectual property theft.

These innovation mercantilist practices do not just damage other economies; they damage the entire global innovation system, leading to less overall innovation and productivity growth. Moreover, they often do not even help the countries embracing the practices, particularly over the long run; instead, mercantilist policies lead them to neglect the greater opportunity to spur growth by raising the productivity of all sectors, not just a few high-tech ones.

This third annual report documents what the Information Technology and Innovation Foundation (ITIF) believes to be the 10 worst innovation mercantilist practices proposed,

drafted, or implemented in 2015. Policies were chosen based on their global detrimental effects, so some nations have more than one policy included, due to the widespread impact of their mercantilist practices.

SUMMARY OF THE WORST MERCANTILIST POLICIES IN 2015

- **Canada:** Continued to misuse international intellectual property law to undermine pharmaceutical patents.
- **China:** Introduced security and industry rules, especially requirements for “secure and controllable” equipment, which effectively exclude foreign technology products. China also expanded requirements for forced local data storage.
- **China:** Used its semiconductor industrial policy to unfairly support domestic firms while discriminating against foreign firms.
- **India:** Introduced local content requirements as part of its National Telecom Machine-to-Machine Roadmap.
- **India:** Introduced local content requirements in solar power projects.
- **Indonesia:** Introduced local content requirements for smartphones and forced local data storage.
- **Nigeria:** Implemented local content requirements for information, communications, and technology products and forced local data storage.
- **Russia:** Implemented forced local data storage requirements.
- **Russia:** Forced the local production of pharmaceuticals and medical devices.
- **Turkey:** Tried to misuse World Trade Organization safeguard protection measures in order to protect a nascent smartphone manufacturer.

THE NATURE OF INNOVATION INDUSTRIES

In recent years, a growing number of economists have come to see that it is not so much the accumulation of capital but rather innovation that drives countries’ long-term economic growth.¹ Innovation—the implementation of new or significantly improved products, services, processes, business models, or organizational methods—has become the central driver of economic well-being and competitiveness for most economies.² Innovation also plays an indispensable role in helping address global challenges, such as developing sustainable sources of food, improving education, combating climate change, meeting the needs of growing and aging populations, and increasing incomes.

But innovation does not fall like manna from heaven. It requires businesses and government to commit resources and take risks as part of an overall ecosystem which

supports businesses' ability to innovate. What then are the attributes that define these innovative businesses and, by definition, innovation industries? First, true innovation industries are ones for which the rapid and regular development of new processes, products, or services—many of them disruptive in nature—is critical to their competitive advantage. For example, industries such as biotechnology and semiconductors are innovation industries, as their success depends not on making a particular drug or semiconductor cheaper, but on creating the next-generation product.

Second, the marginal cost of selling the next product or service is significantly below the average cost of producing it in innovation-based industries. The digital content industry (e.g., software, movies, music, books, and video games) is perhaps the most extreme example of this. In some cases it can cost hundreds of millions of dollars to produce the first copy, but additional digital copies can be produced at virtually no cost.

Finally, innovation industries depend more than other industries on intellectual property (IP), particularly on science and technology-based IP. For example, software depends on source code, life sciences on discoveries related to molecular compounds, aerospace on materials and device discoveries, and the content industries on digital copyright-protected content.

As a result, to maximize innovation by innovation industries, the global trading system needs to get three key factors right:

To maximize innovation, the global trading system needs to get three key factors right: 1) ensuring the largest possible markets, 2) limiting non-market based competition; and 3) ensuring strong IP protection.

1. **Ensuring the largest possible markets:** For innovation industries with high fixed costs of design and development but lower marginal costs of production, larger markets are critical; they enable firms to cover those fixed costs, so unit costs can be lower and revenues for reinvestment in the next generation of innovation higher. This is why firms in most innovation industries are global. If they can sell in 20 countries rather than 5, expanding their sales by a factor of 4, their total costs increase by much less than a factor of 4. That is why numerous studies have found a positive effect of the ratio of cash flow to capital stock on the ratio of R&D investment to capital stock.³ But a host of different innovation mercantilist policies act to limit global market size either at the enterprise or establishment level.
2. **Limiting non-market-based competition:** Large markets enable firms to sell more. But if larger markets come with larger numbers of competitors, total sales per firm can remain the same or even fall. Conventional wisdom holds that this competition is good for innovation. However, many studies have demonstrated that innovation and competition can be modeled according to an inverted “U” relationship, with both too much and too little competition producing less innovation.⁴ Some mercantilist policies—including discriminatory government procurement, protected state-owned enterprises, and government bailouts—enable weak firms to enter into or remain in a market, siphoning sales from stronger firms and reducing their ability to reinvest in innovation.

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3. **Ensuring strong IP protections:** Firms in innovation-based industries depend on intangible capital, much of it intellectual property. By raising the private rate of return closer to the social rate of return, intellectual property protection addresses the knowledge-asset incentive problem, allowing inventors to realize economic gain from their inventions, and thus reinvest in the next generation of innovative activities. However, if competitors are able to enter and/or remain in the market because they obtain an innovator's intellectual property at less than the fair market price (either through theft or coerced transfer), they are able to siphon off sales that would otherwise go to innovators.⁵

It is in this context that innovation mercantilist policies are so damaging, for not only are they growing, but they also negatively impact the most important sectors of the global economy. But, as noted, not only do innovation mercantilist policies harm the global economy; they also harm the nations that use them. Such trade-distorting policies do promise to deliver some short-term gains for nations in employment and economic growth; however, ultimately they lead to a number of adverse consequences. First, they raise the cost of key capital goods, such as information and communications technology (ICT) products, which reduces capital goods use by the majority of industries, lowering innovation and productivity. Second, they limit countries' participation in global value chains for the production of high-technology products. Third, they lead to broad economic inefficiencies. Fourth, they cause reputational harm that can damage a country's attractiveness as a location for foreign direct investment. Fifth, they tend to isolate nations from the global economy while often failing to achieve their intended aims. Sixth, such policies are fundamentally unsustainable, in part because they engender reciprocal protectionist policies by other countries, which undermines the global economic order, and lead to unbalanced and unsustainable "dual economies" in the countries implementing these policies.

These countries need to recommit, and indeed expand their embrace of, competitive markets, open trade, and economic liberalization. Strong productivity- and innovation-enhancing policies should be at the core of their economic strategies, which includes investment in education, research, physical and digital infrastructures, and technology adoption and commercialization. Such an approach will prove a far more effective path for broad and sustainable economic and employment growth than short-sighted mercantilist trade and economic policies.

The following innovation mercantilist policies are just a sampling of unfair trade practices that nations proposed, drafted, or implemented in 2015 and that the global trading system needs to address as a top priority.

Canada's Undermining of International Patent Law

The Canadian government continues to allow the courts to apply an unrealistic evidentiary burden on pharmaceutical patent applications in order to benefit Canadian generic drug producers.⁶ In 2015, Canadian courts continued to rule in favor of local generic producers in the cases brought against patent applications for three drugs: Nexium, Ciali, and

Canada's approach to patents is pure innovation mercantilism: It allows Canada's generic drug companies to take the IP of foreign firms without contributing any innovation.

Diamicron. All three patent applications failed under the “promise utility” doctrine used by Canada’s courts.

Since 2005, Canadian courts have revoked 22 patents for failing to meet their definition of “usefulness,” which is a key part of the World Trade Organization’s (WTO) Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement. The TRIPS criteria for obtaining a drug patent are clear: The drug must be new, non-obvious, and useful. In the pharmaceutical sector, a patent is typically issued prior to a drug’s clinical testing, because if it is commercially viable, it is therefore vulnerable to theft and copying. So patents are filed upon the discovery of a chemical formula. Without the patent, innovative pharmaceutical companies would not have the incentive to research and develop this formula, which can cost tens of millions of dollars and take years to bring to market, because the end product would be unprotected.

Given the clearly defined steps, most TRIPS-compliant countries make it straightforward to meet the conditions required to obtain a patent, especially in fulfilling the usefulness criterion. In the United States and Europe, this means identifying a practical and credible utility that standard pharmaceutical companies can easily meet in disclosing how a proposed drug can be useful in treating a specific disease.

By using such an unrealistic evidentiary burden, Canada’s courts make Canada an outlier in the application of a basic tenet of international intellectual property law. Canadian courts have retroactively examined the usefulness condition under the “promise doctrine,” which was established in 2010 by the Canadian Federal Court of Appeals. The doctrine raised the evidentiary requirements for the usefulness criteria by forcing inventors to demonstrate, or “soundly predict,” a “promise” of the patent. In effect, this means that a drug must not only be useful for some purpose (as in the United States and Europe), but that it must be useful for *exactly the purpose* that is specifically promised in the patent filing.

For example, the case of *Pfizer Canada Inc. v. Apotex Inc.*, 2011 FCA 236 dealt with the use of the drug Latanoprost, used for treating glaucoma. The patent filing included test results that demonstrated the drug worked with minimal side effects in cases involving both animals and humans. At the time of the patent filing, no long-term studies had been performed. Canada’s Federal Court of Appeals concluded that the patent was invalid because the promised usefulness could not be soundly predicted at the patent filing date. To reach this conclusion, the Court stated that glaucoma is a chronic disease, and therefore the patent examiner should have known that it required prolonged treatment. As a result, even though Pfizer’s patent assertion made no claim that the drug was intended for ongoing use, the Court concluded that the “promise” of the patent was to treat glaucoma on a chronic basis without causing substantial side effects. Because only single-dose studies had been conducted at the initial patent filing stage, it could not be soundly predicted that the compound would lack side effects after repeated and prolonged use.

As in the 2015 cases, the Canadian courts have continued to apply this impractical evidentiary burden that asks inventors to predict at the date of filing—before research and development and clinical trials have been completed—specifically how useful a patented drug will be. It has introduced considerable uncertainty into the process, as firms have no

way of knowing what “promises” a Canadian court might subjectively find in the patent application, or how much evidence the court will require to satisfy those promises (i.e., in vitro testing, animal testing, or comprehensive human clinical trials). For example, in the case of Pfizer’s drug Latanoprost, two panels of the same court reviewed the patent: One found usefulness while the other did not. The end result is that firms, and even patent reviewers, must deal with an unpredictable process.

These challenges are not about “usefulness,” but rather the profitability of Canadian generic drug producers. Most of these patent cases, including the retrospective patent challenges to drugs already under patent protection, are initiated by Canadian-based generic drug companies for their own self-interest: to get a patent revoked in order to allow them to copy intellectual property and sell their own version of drugs in Canada. The 2015 cases included Canadian generic drug companies Mylan and Apotex. The fact that generic firms are the basis for these challenges proves the irrationality of the situation: If you are a competitor, why challenge the patent of a competitor if that drug is not useful? Why seek the right to produce and sell that drug if it is not useful? Adding to the suspicions that this is an industrial policy to help Canada’s generic drug producers is the fact that other non-pharmaceutical patents have not experienced the same rate of rejection (only two since 1990, and no new ones since 2004).

Canada’s approach to patents is grounded in innovation mercantilism, as it allows Canada’s generic drug companies to unfairly take intellectual property without contributing genuine innovation. The Canadian government’s unwillingness to reform the process further undermines the country’s attractiveness as a location for investment and research development in innovation industries. The fact that Canada’s patent manual was revised to reflect this “promise utility” shows how institutionalized this approach has become in the Canadian patent system.

The Canadian government needs to restore certainty and clarity by ensuring that patents are assessed using commonly accepted criteria in place around the world. Why would an innovative pharmaceutical company invest in Canada when it knows if its drug is “useful” and therefore successful, it is more than likely to face and lose a legal challenge from a generic drug producer? And this is after the company has spent considerable time and money developing and testing the drug. This is one reason why the Canadian biopharmaceutical industry remains quite small: smaller than Sweden’s, even though Canada’s economy is more than three times larger. The uncertainty and risk of the current system means innovative pharmaceutical companies will avoid investing in Canada until they can be sure that their intellectual property receives the same protection under TRIPS as their drugs commonly receive in countries around the world.

China’s Use of Security and Industry Legislation to Exclude Foreign Technology Firms and Force Data Localization

In 2015, China reinforced forced data localization requirements and expanded a range of discriminatory policies that target foreign technology firms. China included these measures as part of new insurance, banking, cybersecurity, counterterrorism, and national security rules and legislation.⁷ While China used a mixed set of pretexts—the Snowden revelations,

the need for banking and insurance sector reforms, and new legal frameworks for security issues—to introduce these laws, what was really driving the changes was the Chinese central government’s aim to refine and expand its innovation mercantilist agenda. These policies build on China’s ongoing aim to either force foreign technology companies to disclose valuable intellectual property to domestic firms or to force them out altogether in order to protect domestic tech “champions.”

The new Chinese legislation (the national security law and both the banking and insurance laws) adopts equipment and access requirements that severely restrict, if not outright exclude, foreign technology companies. New rules that only “secure and controllable” equipment be deployed in many sectors are being used as a pretext to keep foreign firms out of the market.⁸ Foreign technology companies are the clear target of these rules, given their competitive advantage in IP-based advanced technologies. China even made a preemptive push for compliance by trying to get U.S. tech firms to sign an explicit “pledge” that they would abide by the contentious new national security law.⁹ These equipment and access requirements add to the already considerable risk many foreign tech firms face in having their IP passed onto Chinese competitors.

China’s “secure and controllable” equipment rule targets foreign tech firms and breaks the rules China agreed to in joining the WTO in 2001.

For example, China’s new banking regulations attempted to use the same “secure and controllable” provisions to effectively exclude foreign technology companies from the banking sector.¹⁰ In January 2015, China adopted new banking regulations that set annual targets for Chinese banks to reach in terms of their use of “secure and controllable” equipment, culminating in 2019 when three-quarters of their equipment would have to meet this requirement.¹¹ China suspended this rule after criticism by trading partners.¹² As this rule has only been suspended, and not withdrawn, it still impacts many foreign firms. Chinese banks have avoided purchasing foreign products because of the regulatory uncertainty, but also because they understand that the government wants them to buy domestic products where possible.

In 2015, China demonstrated its commitment to forced local data storage requirements.¹³ Article 31 of the new cybersecurity law requires “critical information infrastructure operators” to store citizens’ personal information and other important data collected or generated in China. The draft insurance rules also expand the previous requirement for insurance firms to locate their servers in China by specifying that all insurance business data that originates in China must be kept in China.¹⁴ Given these requirements, China’s decision to remove forced localization requirements in the final version of its counter-terrorism law is only a slight reprieve from broader localization.¹⁵ Exceptions in the cybersecurity law for the cross-border transfer of data are only possible following a “security assessment” by the Cyberspace Administration of China.¹⁶ The details of this assessment are unknown as they are yet to be developed.

As ITIF asserts in *The False Promise of Data Nationalism*, the claim that data must be stored locally to maintain privacy and security is patently false.¹⁷ Without doubt, national and cyber security are legitimate concerns for all governments. Many governments, including the United States and Australia, also use national security reviews of foreign investment. What sets China apart is its consistent use of regulatory and legal mechanisms to

systematically discriminate against foreign companies. These new security, banking, and insurance rules continue the Chinese government’s ongoing efforts to restrain or force out foreign technology companies.

China’s Semiconductor Industrial Policy Unfairly Supports Domestic Firms While Discriminating Against Foreign Firms

As ITIF has long argued, China is pursuing an autarkic, innovation development strategy that seeks to support specific Chinese high-tech sectors, including the semiconductor sector.¹⁸ In the 18 months since it launched its flagship policy for the semiconductor sector in June 2014—the National Guideline for Development of the Integrated Circuit (IC) Industry—China has mobilized over \$100 billion for the sector, mostly through national- and city-level funds and funding from state-owned enterprises.¹⁹

China claims that its “large” trade deficit in semiconductors—\$232 billion in 2013—justifies its efforts to replace foreign imports with domestic production. China import-substitution aims for the sector were made clear in the “Made in China 2025” initiative launched in May 2015: 40 percent self-sufficiency in semiconductors by 2020, rising to 70 percent by 2025.²⁰ China’s justification is a facade and ignores the fact that approximately half of these semiconductor imports are re-exported from China as part of global production networks.²¹ Moreover, the fact that China has a trade deficit is simply irrelevant. China also enjoys a large trade surplus—\$54.5 billion in the first half of 2015—with the United States in advanced technology products.²²

China’s semiconductor development plan funds an aggressive business acquisition campaign by its firms in order to move up the design, development, and production value chain. China has had to go offshore to purchase semiconductor firms because its largely government-directed innovation system has been incapable of developing next-generation semiconductors. China has used foreign acquisitions to piece together different parts of the highly segmented, specialized, and global semiconductor sector.

Chinese state-backed or state-owned firms spent close to \$15 billion in controlling or minority investments in 10 semiconductor firms in key stages of the semiconductor development process.²³ For example, in September, a Chinese firm acquired Singapore’s STATS ChipPAC, a large and highly regarded semiconductor assembler.²⁴ In October, Unisplendour, a unit of China’s state-backed Tsinghua Holdings, launched a bid to become the largest shareholder of Western Digital (a major player in data storage) in a deal that still faces U.S. regulatory approval. This follows Unisplendour’s \$2.3 billion purchase of a 51 percent stake in Hewlett-Packard’s Chinese server unit in May and a failed \$23 billion bid for memory chip maker Micron Technologies in July.²⁵ In August, Chinese investors bought Integrated Silicon Solutions (ISSI), a U.S.-based memory supplier, for \$730 million, in a deal that was largely motivated by gaining access to ISSI’s patent portfolio.²⁶

China also leverages its status as the world’s largest and fastest-growing consumer of semiconductors to dictate if/when foreign firms can enter and on what restrictive terms.²⁷ For example, in February 2015, Qualcomm, one of the world’s largest chip makers, paid a

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massive \$975 million fine to the Chinese government in an antitrust case. Following this, in June 2015, Qualcomm announced that it had agreed to set up a new joint venture with a Chinese firm that involved the transfer and development of advanced semiconductor technology.²⁸ Western Digital's deal with Unisplendour follows a long-running dispute it has had with China's Ministry of Commerce, which imposed restrictive conditions on its 2012 acquisition of Hitachi Global Storage Technology.²⁹ Also, while Tsinghua Holding's bid to acquire Micron Technology failed due to U.S. national security concerns, the companies are still discussing ways to collaborate in the future, possibly through a China-based joint venture or a minority stake in Micron Technology by Tsinghua Holdings (in order to access its IP).

China's approach to its semiconductor sector shows that it wants to have it both ways: using the free market to purchase foreign firms, while disregarding free market principles and processes and international trade rules at home in order to support domestic firms, including by restricting or driving out foreign firms.

India Introduced Local Content and Forced Data Localization Requirements as Part of its National Telecom Machine-to-Machine Policy

In May 2015, India launched a new National Telecom Machine-to-Machine Roadmap for the development and deployment of Internet of Things (IoT) technologies. While the Roadmap contains many impressive elements, it unfortunately extends discriminatory policies to government procurement and the "Make in India" initiative.

India used the Roadmap to introduce local content requirements in telecommunications equipment by linking to the Indian government's procurement initiative—the Preferential Market Access (PMA) plan. The Roadmap calls for devices, such as sensors and microchips, to be included in the PMA, which aims to have local manufacturers produce 60 percent of ICT products procured by the Indian public sector by 2017, rising to 80 percent in 2020.³⁰ By building on an already distortionary and discriminatory policy, the Roadmap would have a counterproductive impact on the adoption of IoT technologies: It limits access to best-in-class products from around the world and increases costs by eliminating competitive pricing.

The Roadmap also introduces the possibility of India's first forced local data storage requirement. The plan requires that all IoT gateways and application servers that supply customers in India must be located in India.³¹ India uses the need for national security as justification, but the notion that data must be stored locally to protect privacy or to be secure is patently false, as ITIF states in *The False Promise of Data Nationalism*.³²

India Maintains Local Content Requirements for Solar Energy Projects

In 2015, India implemented local content requirements for firms bidding on some projects related to the Jawaharlal Nehru National Solar Mission (JNNSM). India has allocated \$1.4 billion to the JNNSM, which aims to construct 100 gigawatts of solar power by 2022.³³ In March 2015, India announced phase II of the ANNSM. In subsequent tender documents, the Indian government stated that it would evaluate current market conditions and decide on the share of the projects to be reserved for domestically manufactured solar cells and

Indonesia's mercantilist policies go against the rules of the Trans-Pacific Partnership trade agreement, which President Joko Widodo said he wants to join.

modules.³⁴ For the June 2015 tender, India offered to contract for 2,000 megawatts of grid-connected photovoltaic solar power by 2017. Of this, 250 megawatts are to be reserved for domestic content providers.³⁵ In 2014, the United States filed a complaint against India at the World Trade Organization's dispute settlement body, as these rules discriminate against foreign firms. In August 2015, the WTO dispute panel found that India had violated trade rules by imposing this local content requirement.³⁶ Despite this, India plans to continue the policy and will appeal the decision.

Indonesia Implemented Local Content Requirement for Smartphones and Forced Data Localization

In 2015, Indonesia implemented measures that force the use of local content in smartphone manufacturing and force localization of data storage. On July 3, 2015, Indonesia introduced policies that require 4G LTE smart phones sold in Indonesia to contain 30 percent local content by January 2017, rising to 40 percent in 2019. Wireless modems using 4G LTE networks will also have to have a minimum local content of 40 percent by 2017. Indonesia's import substitution policy goes beyond manufacturing and component assembly and aims for 20 percent of the required local content to stem from research and development conducted in Indonesia (which would be hard to quantify and would require foreign tech firms to set up a design development center in Indonesia).³⁷

Indonesia also moved ahead with plans for forced data localization. In mid-2015, Indonesia's Ministry of Information Communications and Technology released a draft regulation that implements a 2012 e-commerce regulation that forces the local storage of data for "the purpose of law enforcement, protection, and enforcement of national sovereignty to the data of its citizens." This law also requires the disclosure of software source code to the government (articles 8 and 9).³⁸

Indonesia's push for mercantilist policies comes from the top. President Joko Widodo and Communications Minister Rudiantara both explicitly linked these statist and distortionary policies to Indonesia's supposed need to reduce the country's trade deficit, specifically in communications equipment.³⁹ This is part of the Indonesian government's broader strategy to play a larger role in the control of strategic industries, primarily through the new Industry Law, which came into force on January 15, 2014. In the ICT sector, Indonesia imposed a new 20 percent tax on imported cell phones (introduced in 2013) and a requirement that importers of mobile phones, PDAs, and tablets must have local production or assembly by January 2016.⁴⁰

The main loser from these policies will be Indonesian consumers, who will have to pay more for phones that are likely to be far from the most advanced. For example, the first Indonesian company capable of producing 4G smartphones, Polytron, found that manufacturing in Indonesia increased the costs of making a smartphone by 50 percent when compared with China. Such costs inevitably translate to higher prices and as shown by ITIF, will clearly reduce smartphone adoption and use in Indonesia.⁴¹

Nigeria Implemented Forced Data and IT Localization

In 2015, Nigeria pushed ahead with a requirement to force local data storage and mandated local content requirements for a range of ICT hardware. These policies stem from the Guidelines for Nigerian Content Development in ICT, issued in draft form in 2014. Several of the provisions in the Guidelines stipulate the implementation of procurement restrictions, local content requirements for ICT hardware, the creation of an indigenous development plan, and restrictions on cross-border data flows.

On October 14, 2015, the Nigerian government issued a final notice outlining compliance requirements.⁴² In a classic case of misguided state-directed development, the policy requires all multinational companies to submit details of their Nigerian content programs by November 16, 2015. This needs to include details on the number of indigenous jobs created and local capacity building and ICT skills programs. The latest notice fails to clarify a number of outstanding questions about the policy, such as the apparent lack of a legal basis for the local content requirement and the possible requirement for majority Nigerian equity ownership in ICT firms.⁴³

Russia's forced data localization policies are estimated to lead to economic losses equivalent to \$5.7 billion and a \$2.6 billion decrease in investment.

Further, the Guidelines include a number of misguided, unrealistic, and counterproductive policies, such as a 50 percent local content requirement in the ICT sector within three years of the policy coming into force, a procurement program for computer hardware that only allows purchases from government-approved sellers, the requirement of locally manufactured SIM cards, and the use of Nigerian companies to build cell towers and base stations. Nigeria also wants ICT companies to “host all subscriber and consumer data” locally, and Section 14.1.3 calls for all government data to be hosted “locally inside the country.” It also requires ICT companies to use Nigerian companies for at least 60 percent of all value-added services on their networks within the first two years of the policy, increasing to 80 percent within three years.⁴⁴

Nigeria’s Minister of Communications Technology, Omobola Johnson, used the fact that 60 percent of the computers sold in Nigeria in 2012 were manufactured by HP and Dell as the rationale for the import substitution program.⁴⁵ But this simplistic assessment is misguided and fails to get to the heart of what drives innovation and investment, as well as the nature of ICT production networks and the extensive and complex supply chains involved. These policies will do little to help the poor quality, expensive, and noncompetitive ICT products manufactured by domestic companies in Nigeria. But, as noted above, they will slow down overall ICT adoption rates. ICT is just the latest sector to be targeted in Nigeria, as the U.S. State Department points out in its 2015 investment climate statement on the country, noting that “Nigeria’s trade regime remains protectionist and distorting, with restrictive import tariffs and outright import prohibitions in place intended to spur domestic agricultural and manufacturing sector growth.”⁴⁶

Russia Implemented Forced Data Localization

On September 1, 2015, Russia implemented a law that forces firms that collect Russian personal data to store the data inside Russia. The ramifications of this law are significant.

Firms that intend to continue doing business in Russia that do not currently process or store personal data inside Russia will have to spend considerable sums establishing data centers or transfer data to Russian storage providers. The law also requires firms with the personal data of Russian citizens to notify Russian federal authorities about the actual location of servers, which raises security concerns.

Firms breaching the law can be fined or have their websites blocked.⁴⁷ As a law firm noted, Russia's recent legislative changes could significantly limit the ability of cloud and other online services from publishing online content and for users to access Russian data remotely.⁴⁸ A study by the European Centre for International Political Economy on the data localization law shows that it will lead to economic losses equivalent to 0.27 percent of Russia's GDP in 2015, or approximately \$5.7 billion. The study also estimates that it would reduce investment in Russia by 1.41 percent this year, worth \$2.6 billion.⁴⁹

Many foreign technology and Internet companies have had to move personal data in-country. Apple, Google, Samsung, Uber, and E-Bay have indicated they plan to comply by setting up servers or moving data to Russia. Facebook reportedly told Russian authorities that it would not be ready to comply by September 1, 2015, and added that it has very few data centers around the world and therefore would not commit to putting one in Russia.⁵⁰ Russia told Facebook, Twitter, and Google that the government does not plan to check their compliance until at least January 2016, essentially giving the firms an informal extension.⁵¹

It is unclear how this law impacts the cross-border transfer of personal data, which is allowed by Russian law. It requires that data on Russian citizens must *first* be recorded, systematized, accumulated, stored, amended, updated, and retrieved in a Russian database, but it does not stipulate if and how data may then be transferred to secondary databases outside of Russia. It is also unclear who is covered, since the law does not state whether Internet companies that serve Russian customers but do not have a permanent physical presence are covered. Furthermore, it will be difficult for global Internet companies to track which personal data comes from Russia.⁵² For example, Twitter, which does not have an office in Russia, was initially told in July that it would not be subject to the law because it did not collect enough personal data, but in November Russian regulators told Twitter that it must store data locally.⁵³ The impact may therefore come down to implementation, which creates uncertainty and further raises the costs and impact of the law.

As is usually the case when governments impose data protectionism, the stated motivation is security and privacy. The claim is that if data is required to be kept in country, either it will be more secure or governments will be better able to prosecute those who violate privacy laws. But neither assertion is true. As ITIF has shown in *The False Promise of Data Nationalism*, data is no more likely to be secure or insecure in Russia than anywhere else in the world.⁵⁴ The second issue—privacy—is just as flawed. The location of the server has no effect on privacy, as local government authorities would still have legal jurisdiction over companies that collect and store data on Russian citizens, no matter where the data is actually stored. What it does do is raise the risk of an incident as companies are forced to

use local data service providers who are not best-in-class and are therefore more vulnerable to technical or security breaches.

Russia Forces Local Production of Pharmaceuticals and Medical Devices

In 2015, Russia accelerated its mercantilist “Pharma 2020” strategy of forced localization for pharmaceutical production. Prime Minister Dmitry Medvedev made Russia’s approach clear: “For localization foreign companies, [the plan] is an opportunity to recoup faster the investment they have made here; whereas for those who do not have plants [in Russia], it is an incentive to set up local production as soon as possible.”⁵⁵ Russia wants to force foreign pharmaceutical companies to localize production or force collaboration with domestic firms. Russia uses subsidies, price preferences, procurement restrictions, and other policies as part of an explicit import substitution goal of making local production account for at least 50 percent of total domestic pharmaceutical sales by 2020.⁵⁶

On February 5, 2015, Russia introduced policies to restrict state and municipal government procurement of certain imported medical devices if there are at least two offers from local producers.⁵⁷ Along the same lines, in December, Russia introduced a policy to restrict government procurement of certain foreign drugs. Imported medicines will not be allowed to participate in public procurement if there are offers from at least two domestic suppliers.⁵⁸ Russia also favors domestic production through a reimbursement system that allows only domestic companies to request an annual adjustment of prices registered by the Ministry of Health. Russia also introduced a 15 percent price preference in state and municipal government procurement to locally made medicines.⁵⁹

Russia’s damaging mercantilist policies go beyond simple import substitution and aim to capture research and development that, absent Russia’s mercantilist approach, would not occur in Russia. In September 2015, President Vladimir Putin—who launched the initial strategy—outlined how Pharma 2020 was focused on building an innovative drug development and manufacturing sector, not simply the importation and compounding (the combining and mixing of ingredients) of drugs.⁶⁰ The economic inefficiencies and distortions that these policies create are substantial. AstraZeneca, Novartis, Bayer, Sanofi Pasteur, and Abbott have each opened local production facilities, often in partnership with a Russian firm.⁶¹ It is hard to imagine that these investments would have been made without the use of these discriminatory and distortionary policies.

Russia claims that it is not subject to national treatment obligations under the General Agreement on Tariffs and Trade, as these policies relate to government procurement. Russia only became a member of the WTO on August 22, 2012. The United States supported Russia’s accession to the WTO, as it considered it important to include Russia in the rules-based global trading system.⁶² Given its use of procurement policies that favor domestic production, it will be interesting to see if Russia fulfills its commitment to accede to the WTO’s Government Procurement Agreement (GPA) in 2016, which it committed to doing when it joined the WTO.

Months after a Turkish firm began manufacturing smartphones, Turkey tried to misuse WTO safeguard rules to provide tariff protection. This would have effectively excluded foreign smartphones from competing in Turkey.

Turkey Misuses WTO Safeguard Measures to Protect a Domestic Cell Phone Manufacturer

In 2015, Turkey tried to misuse WTO safeguard measures to protect a local smartphone manufacturer. On December 5, 2014, Turkey informed the WTO that it had launched an investigation into using safeguard duties—the ability to add new tariffs—to protect Vestal, a domestic consumer products manufacturer. Vestal asked the government to launch this investigation, as it claimed it was facing a sudden surge in phone imports. By coincidence, Vestal’s request to the government came three months after it manufactured its first domestically made smartphone. What makes Vestal’s petition unusual is that it is the first such safeguard application for cell phones, as such cases usually involve bulk commodities such as steel, agricultural exports, and clothing. If Turkey accepts Vestal’s request to increase tariffs on smartphone imports it would reduce the share of foreign phones from Turkey’s market, including those from Apple, Samsung, Huawei, and ZTE.

The European Union’s (EU) and Taiwan’s submissions to the WTO investigation pointed out the weakness of Turkey’s position. As Vestal had only been manufacturing phones for a short time, Turkey could not demonstrate it had suffered from a surge in imports, never mind the fact that there had been no such surge. “It is almost impossible in this case to establish any kind of injury (to Turkey’s cell phone sector),” said the EU. Taiwan contended that data submitted by Vestal showed the growth of imports had not been “recent, sudden, sharp, and significant” as required by the WTO to justify safeguard tariffs.⁶³

Turkish Economic Minister Nihat Zeybekc pointed toward the government’s true intentions in comments just prior to Turkey informing the WTO about its intentions, stating that “from notebooks to cell phones, we want them to be produced in Turkey.”⁶⁴ Unjustified safeguard measures would drive up the cost of smartphones, while forcing the use of less than world-class technology. Such tariffs also go against the aims of the expanded Information Technology Agreement, which Turkey is moving toward joining.⁶⁵

LOOKING AHEAD TO 2016

We cannot know with any certainty what practices will be in the Worst Innovation Mercantilist Policies of 2016 report. But judging from the first three years of this report, some mercantilist policies are trending and likely to reappear, especially local content requirements and forced data localization.

While the 2015 report did not include any European cases, as forecast in the 2014 report, some did come close. Based on pronouncements by European politicians and policymakers in 2015, ITIF raised concerns about the possible direction of the European Commission’s Digital Single Market initiative and its investigation into Internet platforms (which started without defining an actual problem and appears to be targeted mainly at U.S. firms).⁶⁶ On April 14, 2015, the EU’s digital commissioner, Günther Oettinger, stated that Europe’s online businesses were “dependent on a few non-EU players world-wide” and that it was necessary “to replace today’s Web search engines, operating systems, and social networks,” without naming the U.S. tech companies that lead in Europe.⁶⁷ His other comments about the need for Europe to have “digital sovereignty” from America add further concerns.

Whether the end result of these initiatives reflects these mercantilist sentiments will determine whether Europe gets nominated for the 2016 report.

Data localization policies will remain a major issue in 2016. Beyond the outcome of the Digital Single Market initiative, any moves toward greater localization in Europe will be influenced by whether the United States and Europe can successfully implement a new transatlantic data sharing agreement to replace the revoked Safe Harbor agreement. Any agreement will likely face renewed legal challenges in Europe, so the final impact may be some time off. It is critical that both sides implement a new agreement as soon as possible, given that the free flow of data underpins the U.S.-Europe trading relationship. The outcome holds broader ramifications for the emerging policy framework about the free flow of data and the building of bridges between different privacy regimes as other countries will likely emulate the outcome—whether good (international data pacts) or bad (forced localization on the pretext of privacy).

While the technological focus of mercantilist policies changes with the times, the age-old “beggar-thy-neighbor” import substitution justification never seems to go away. The next year is likely to see a continuation of these policies, given their prominence in China, Russia, India, Indonesia, and Nigeria. As outlined in the China semiconductor case, trade deficits are no justification for mercantilist policies. The state of trade in each country depends upon its respective comparative advantages: both natural and supported by government through non-trade distorting measures, such as investments in education, scientific research, and infrastructure. Each country, in joining the WTO, agreed to participate in a global trading system that is based on this comparative advantage for the exchange of goods and services. Taking a zero-sum approach to trade in technology undermines the trading system that has facilitated improvements in standards of living around the world.

One near certainty is that China will feature prominently in 2016’s report. Many critical details from laws and rules listed in this report will only become clear once government agencies start issuing implementing guidelines. The banking law’s detailed listing of products, quotas, and rules made it obvious that it would discriminate against foreign firms. Part of the challenge in 2016 will be countering policies that may be harder to target: vague descriptions, an opaque bureaucratic and corporate management system and relationship, and a staggered implementation timeframe. Even China’s decision to halt implementation of the banking law was a limited victory, given it was still able to pursue “secure and controllable” and other discriminatory policies in other areas. This makes it likely that China will continue to push as far as it thinks it can without provoking a meaningful response. As ITIF has advocated, it is time for the United States to use a strategy of constructive confrontation with China over its aggressive, mercantilist policies.⁶⁸ In 2016, the United States and others must be willing to bring pressure to bear on China until it follows the international trading laws it agreed to when it joined the WTO in 2001. Without a change of strategy by the United States and others, China is likely to continue breaking these rules. It was encouraging to see the United States file a WTO case against China for using a discriminatory tax scheme to favor Chinese aircraft manufacturers in December 2015.⁶⁹ But more is needed. China’s success or failure in pursuing such

mercantilist policies holds broader implications, as other countries are watching to see what China can get away with before introducing their own policies.

CONCLUSION

As innovation and trade policy have become increasingly intertwined, openness to trade—characterized by open market access, protection of intellectual property, and receptivity to foreign direct investment—has become a bedrock pillar of an effective global innovation policy system. However, this report and prior year’s reports show that many countries are still more than willing to pursue mercantilist, trade-distorting, beggar-thy-neighbor approaches instead of implementing across-the-board productivity and innovation-enhancing policies.⁷⁰

The global trading system retains the potential to be the most innovation-empowering it has ever been in history. However, the threat posed by innovation mercantilism is not receding. If the global trade system is to maximize innovation, all nations should strongly advocate for the correct policies while pushing back equally strongly against mercantilist policies. Pro-innovation trade policies include eliminating all tariffs on trade in high-tech products, curtailing non-tariff trade barriers, strengthening digital trade, encouraging market-based competition, and protecting intellectual property. By doing this, countries will not only enable robust innovation-enhancing trade and investment, they will also begin to form an alliance against mercantilist practices to demonstrate continued commitment to the principles of free and fair trade.

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