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INDUSTRIAL POLICY -- BETTER, NOT LESS

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"Industrial policy" has long been one of the most toxic phrases in the whole of the economics vocabulary. The great neoclassical mainstream of the discipline has reflexively rejected the very idea, as in the claim of Nobel laureate Gary Becker, "The best industrial policy is none at all" (1985). John Williamson, crystallizer of the Washington Consensus about appropriate development policy, said, "Little in the record of industrial policy suggests that the state is very good at 'picking winners'" (2012). Lawrence Summers (former chief economist of the World Bank, US Treasury Secretary, presently professor of economics at Harvard) said, government "is a crappy VC [venture capitalist]" (quoted in Nocera 2011). The Economist magazine said, "The government has a terrible record of picking winners" (2011).

William Easterly (ex World Bank economist, currently professor of economics at New York University) dismissed the effectiveness of East Asian industrial policy, saying, "[T]he track record of dictators picking winners is very poor, so why are we so sure that this factor contributed to the success of the Gang of Four [East Asian tigers]?" (2009, 129). An interviewer pressed him on how he reconciled his faith in more or less free markets with evidence that the typical developing country had better economic performance in the 1960s and 1970s, when governments intervened more, than later, when governments intervened less:

"It is a bit of a *mystery* why they did well....the growth had a lot of *mystery* for me....It is *mysterious* to those who advocate hands-off markets." (Easterly, 2002, emphasis added).

By the time Easterly invoked the "mystery" he had been analysing development issues for 21 years, most of them in the World Bank.

These and other orthodox economists converge on a single truth: "industrial policy" is "government picking winners"; and everyone knows that governments can't pick winners.

However, recently, and in particular since the Great Western Crash of 2008, "industrial policy" has enjoyed something of a renaissance. Prominent development economists (including Dani Rodrik, Ricardo Hausmann, Ha-Joon Chang, Joseph Stiglitz, Mariana Mazzucato and Justin Yifu Lin) write about it in at least partly positive rather than negative terms. Lin's advocacy is particularly significant, because from 2008 to 2012 he was chief economist and senior vice president at the World Bank, which gave him a powerful platform for disseminating ideas. The OECD published a flagship report with "industrial policies" in the title, *Perspectives on Global Development 2013: Industrial Policies in a Changing World* (2013). UNCTAD and the ILO published *Transforming Economies: Making Industrial Policy Work for Growth, Jobs and Development* (2014, edited by J. Salazar-Xirinachs et al.). The United Nations Industrial Development Organization (UNIDO) now makes "inclusive and sustainable industrial development" its banner headline, and organizes industrial policy promotion events. Mariana Mazzucato's *The Entrepreneurial State: Debunking Public vs. Private Sector Myths* (2013) became a widely reviewed best-seller: translated into six European languages so far, top of Amazon's "economic policy" list for six months, sales of around 10,000.

Section one describes the concepts and values on which the antipathy to industrial policy rests; and the institutionalization of the antipathy in the operating procedures of the World Bank. Section two summarizes some reasons for the recent – apparent -- resuscitation of the merits of industrial policy. Section three discusses the scope today for a developmental state a la Japan, France, South Korea and Taiwan of the post-war decades. Section four outlines a recent debate about how a government should identify priority industries or products; in particular, to what extent it should target only activities *within* the economy's current comparative advantage. Section five turns to organizational issues: the political and organizational features which make for high capacity to implement industrial policy, at the level of state-society relations and the level of particular agencies. Section six concludes on the future of industrial policy.

Before proceeding, two preliminary points to set the broad historical and conceptual context. First, the past two centuries since the Industrial (Energy) Revolution show, on the one hand, a dramatic Great Escape from lives that were "nasty, brutish and short", in Thomas Hobbs' phrase (Deaton 2013). On the other hand, the number of *non-western* countries which have become developed is less than ten -- even stretching the categories of "non-western", "countries" and "developed". The list plausibly includes: Japan, Russia, Taiwan, South Korea, Hong Kong, Singapore, Israel. Such a low total suggests that the vast "development industry" created since the Second World War can hardly be counted a success. The non-western success cases had or have two conditions in common: first, external state enemies capable of conquering the territory; second, a much more active and directive state than is consistent with prevailing neoclassical development strategies. (Hong Kong is a partial exception to the second condition.)

This striking finding should serve to keep minds open to today's potentials for industrial policy, broadly construed.

The second preliminary point concerns the role of industrial policy -- understood as targeted efforts to change the production structure of an economy in order to accelerate economic development – compared to macro policy. Industrial policy is an "inner wheel", whose effects depend on macro "outer wheels"; in particular, on the exchange rate, which is about the most important price a government has to get right in order to enable industrial policy to be effective. (The wage rate, interest rate and inflation rate are other important prices.) However, the literature on how to do industrial policy well tends to treat the exchange rate as belonging to another realm. We can see how wrong this is from the Eurozone. No amount of industrial policy in southern Europe will enable it to close the gap in competitiveness with Germany, which reflects, above all, Germany's tripartite agreement in 1999 not to allow wages growth in line with productivity growth plus the inflation target of two percent, but to keep wages growth clearly below that line. Southern Europe has had no such arrangement for supressing wages growth and therefore inflation. So, given the fixed nominal exchange rate across the monetary union, one big economy gained market share and accrued large current account surpluses while the others lost market share and accrued large deficits. The Eurozone will not be stable without correcting these macroeconomic features, whatever support to southern European industry. That being said, the rest of this essay follows the convention of focusing on the inner wheel of industrial policy.

I. What does the antipathy to industrial policy rest on?

The long-standing antipathy to industrial policy derives from a deep-rooted antipathy in economics to "government" as an economic agent. It is worth tracing the roots of this antipathy.

It goes back to the beginnings of the Industrial (Energy) Revolution in Britain, around the mid 1700s, when philosphers tried to explain the mystery of spreading prosperity. Adam Smith is generally credited with making the key breakthrough. We know it today as the idea of the Invisible Hand – a phrase Smith used only once in *The Wealth of Nations*, but the idea permeates the book. Buyers and sellers who come together without government intervention or guild restrictions will find the ideal price for a good or service. When this mechanism operates across almost all goods and services in a national economy (almost all, because Smith recognized that certain services, such as lighthouses and defence, could not be provided in this way), the wealth of the nation expands, and with it, the size of markets. As markets grow, producers reap the cost advantages of economies of scale (which Smith illustrated with the famous pin factory example). Consumers benefit from cheaper, higher quality goods, and from new goods made viable by new technology and economies of scale. Economic growth then becomes cumulative. The alluring paradox is that the mechanism depends on people acting only in their own self-interest, but the result is the community's betterment (Madrick 2014).

The leaders of the neoclassical revolution in economics (dating from the late 19th century) elaborated on Smith's basic idea, and placed it at the conceptual – and moral – heart of their model (Fourcade 2009). The "free market" is the vehicle for maximizing everyone's utility (or satisfaction or happiness), because it enables free individuals to harmonize their preferences and to combine their land, labor and capital in the most

productive combinations across the economy. Moreover, the free market produces an equilibrium "by itself", both for individual commodities like potatoes and across the entire economy between general supply and general demand, including in the labor market. The neoclassicals came to invest almost god-like properties in "the free market". On the other hand, they airbrushed away their predecessor classical economists' focus on struggles between classes for control of ownership, rents, income, and power. Instead of classes or other collective entities they analysed incentives on rational class-neutral "representative agents".

From the neoclassical way of seeing came the idea that the market is "natural" and free of coercion, therefore good; "government" is "artificial", coercive, therefore to be tightly limited. On the belief continuum of economics, with taken-for-granted truths at one end (prices tend to rise when demand increases) and ridiculous possibilities at the other, beneficial industrial policy is along towards the latter end. Economists can hardly consider the matter dispassionately, because opposition to whatever they class as a ridiculous possibility is what unites them most profoundly.

Here is Robert Solow, a celebrated growth theorist and Nobel laureate, commenting recently on the state of his subdiscipline of macroeconomics:

> There has always been a purist streak in economics that wants everything to follow neatly from greed, rationality, and equilibrium, with no ifs, ands, or buts. Most of us have felt that tug.... The theory is neat, learnable, not terribly difficult, but just technical enough to feel like 'science'. Moreover, it is practically guaranteed to fit nicely with the general turn to the political right that began in the 1970s (2008).

The anti-government content of this "turn to the political right" was expressed recently by Bernard Arnault,

CEO of the French luxury group LVMH, said to be the 10th richest person in the world. He boasted:

> "Business, especially international ones, have ever greater resources, and in Europe they have acquired the ability to compete with states.... Politicians' real impact on the economic life of a country is more and more limited. Fortunately" (quoted in Halimi 2013).

The neoclassical image is of factors of production moving fairly easily from one use to another *in response to price signals*, like a shifting mass of toothpaste or syrup. Developing countries may have more institutions or segmentations which block resource mobility than developed countries, and a prime role of the developing country government should be to remove them.

In this frame "deregulation" means more (good) free market, and "regulation" means more (generally bad) state. Industrial policy entails more regulation, more intervention, and is therefore to be avoided, except in very particular circumstances.

Economists and others have deployed two broad kinds of theoretical arguments to support this conclusion about industrial policy. First , industrial policy generally involves giving taxpayer resources or foreign aid to firms for investments which are not privately profitable. This generally constitutes an inefficient use of scarce public resources. So why use resources inefficiently? Second, industrial policy officials face great uncertainty and no particular incentives for solving myriad local problems facing firms; whereas individual entrepreneurs have superior localized knowledge and powerful incentives to solve their own problems. For both reasons economies with no government attempts to "pick winners" will have better long run development performance than those where governments attempt to "distort" the market by giving preferential treatment to certain industries over others.

But the argument does recognize a *theoretical* case for policy deviation from sectoral neutrality in the presence of "market failures" due to "spillovers", or what Alfred Marshall called "externalities". Infant-industry protection is the best known example, where protection to selected industries could be justified on grounds that market failures inhibit the growth of certain industries which would be competitive if given a temporary period of protection, yielding positive net welfare gains.

However, the argument says that public "intervention" is only justified when (1) markets fail to produce social optima (due to some form of externalities), *and* (2) the intervention can be presumed to move the outcome closer to the social optima at a cost less than the gain. It then asserts that in the real world, both conditions are rarely satisfied. With several more steps in between the conclusion is drawn that, "Governments cannot pick winners, but losers can pick governments".

The strong claims for this way of seeing are captured in Lawrence Summers' dictum:

"The laws of economics, it's often forgotten, are like the laws of engineering. One set of laws works everywhere."

Summers later set out the laws as the "three –ations: privatization, stabilization, liberalization". He explained that these ideas are so widely accepted as guides for government policy that there is -- rightly – no room for debate about them, except on operational details (quoted in Klein, 2009).

The conclusion, as expressed by Tim Leunig of the London School of Economics:

"The government should be providing conditions that help all businesses – namely, effective infrastructure, a skilled workforce and better planning. We

should make no attempt to pick winners – whether individual companies, specific sectors, or manufacturing as a whole" (2010, 14).

If special help is given to industry it should be "functional" or "horizontal", such as subsidized credit for small and medium enterprises to offset possible failures of capital markets to supply such firms -- but the credit must be equally available to small and medium enterprises in all sectors. Note Leunig's equation of industrial policy with "picking winners".

Operationalizing the antipathy to industrial policy

This line of argument does not just float in the ether of academic journals and conference speeches. It has been translated into a set of policy prescriptions known as the Washington Consensus, more accurately called the Washington-London-Brussels Consensus.

The ideas of the Washington Consensus have been further crystallized out in the operating procedures and loan conditions of the World Bank (as well as those of other regional development banks and western bilateral aid agencies, and in the policy advice of the OECD). Ever since the mid 1990s the World Bank has undertaken an annual exercise from September to May whereby experts score each of its borrower countries by the Country Policy and Institutional Assessment (CPIA) formula. The resulting score affects the Bank's policy dialogue with all of its borrowers, and directly affects the amount of lending to low-income countries (as well as grants from the Global Environmental Facility). The formula distinguishes more than a dozen major policy and institutional domains, and deploys several indicators within each domain. The scoring criteria reflect the Bank's belief in a set of *best* policies and *best* institutions for *all* developing countries, despite avowals that the organization does not believe that "one size fits all".

To get the top score on "trade policy" a country must have a nearly completely free trade regime, with no tariff more than 16%, very low average tariff, very low variability across sectors, no quantitative restrictions and no export subsidies. In other words, the CPIA formula presumes that *the optimal degree of openness is maximum openness*. To get the top score for financial institutions the country must have no targeted concessional credit (for example, to priority industries).[1] To get the top score on "labor market institutions" a country must have almost no worker protections, because worker protections constitute frictions in the toothpaste or syrup.

The CPIA exercise has been supplemented by other ranking exercises, notable the Doing Business reports. The scoring criteria for Doing Business continue the same presumption that market liberalization and privatization are key to development.

Those who claim that "nobody really believes the Washington Consensus anymore" overlook the way that the main ideas have been deeply institutionalized in operating procedures and loan conditions; and the way that the consensus extends across western capitals, as signalled by Washington-London-Brussels Consensus (WLB Consensus hereafter).

II. Return of industrial policy?

Despite the gravitational pull of the neoclassical vision, the idea of industrial policy lives on, and indeed is currently enjoying a renaissance. The renaissance can be explained as a response to several trends.

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[1] The Bank's criticism of the Japanese government for violating this principle in its aid program in Southeast Asia prompted the latter to press the Bank to make a comprehensive study of East Asian development. For this story, and the larger history of the Bank's policy for financial markets, see Wade (1996).

First, the Great Recession in the western world (more than six years old as of this writing) has dented the supreme confidence in the neoclassical economic development paradigm and its WLB Consensus. The Recession has had the useful effect of somewhat opening minds previously closed.

Second, recent detailed studies show that – contrary to widespread understanding -- the US government has been vigorously undertaking a form of selective industrial policy for several decades, especially since the 1990s; and that this whole project has been effective by any reasonable criterion. Agencies such as the Defence Advanced Research Project Agency (DARPA), National Institutes of Health (NIH), National Institute of Standards and Technology (NIST), and the Central Intelligence Agency have taken the initiative to create and steer knowledge-pooling networks linking (a) firms which otherwise compete with each other, (b) sources of finance, and (c) universities, public labs and private labs. The aim is to accelerate innovation in agency-identified directions. This form of US industrial policy has escaped public attention, partly because there is no superordinate "industrial policy agency" akin to Japan's Ministry of International Trade and Industry (MITI) in the post-war decades; and because the agencies have tried to keep their network-building and direction-setting programs below the radar of conservative public attention (Wade, 2014b; Mazzucato, 2013; Block and Keller, 2011; Lind, 2012; Schrank and Whitford, 2009).

The contradiction between the fact of vigorous US industrial policy – where state agencies are active in helping to "pick (more accurately, make) winners" – and general understanding that the US does not do industrial policy has prompted the quip that the most successful US

industrial policy is to persuade the world that the US does not do industrial policy.

A third reason for the recent upsurge of attention to industrial policy is the dramatic fall in "emerging economy" growth rates post-2010, which dented the confidence that emerging economies' high growth rates from 2003 to 2010 would be sustained well into the medium-term future, powering their catch-up in the world economy. The sharp fall in emerging economy growth rates – a reflex partly of falling demand for natural-resource-based exports -- is another fact helping to open minds to the potential for industrial policy to spur production diversification and upgrading. In the new situation people give more attention to the previously little noticed trend: in the period from 1980 to the early 2000s a majority of middle-income countries – in Latin America, Sub-saharan Africa, Middle East and North Africa, and South Asia -- *fell behind the West* in relative average income, whereas more of them had raised their per capita incomes relative to the capitalist core in 1960-80, the era of supposedly bad "import-substituting industrialization" (Wade 2004, 2014a). This falling behind occurred while many of these economies where under "structural adjustment programs" of the World Bank and similar organizations, whose content derives from the WLB Consensus. After the 2008 Crash, people paid more attention to evidence suggesting that structural adjustment and Summers' "three –ations" (privatization, stabilization, liberalization") were not so favourable a foundation for development as they had been led to believe.

Fourth, there is accumulating evidence that many middle income countries, which might be first in line to graduate to developed economy status, are stuck in a "middle income trap". This has become a popular phrase, but it hides an important distinction between a middle

income trap and a middle capabilities trap. Even when a middle income country converges upwards in income (thanks to high prices for its commodity exports), it may be stuck in a capabilities trap. For example, its non-natural-resource-based firms may find that they cannot compete with firms producing standardized products in lower-wage countries; and cannot compete with firms producing more technology-intensive goods and services in higher-wage countries (Paus 2012, 2014).

One indicator of the capabilities trap is that Latin America's ratio of regional manufacturing value-added to regional GDP fell from 27% in 1980 to 18% in 2009. 18% is about the same as the ratio of the much higher-income eurozone. East Asia's equivalent figure is about 31%.

A case in point is that most of Brazil's Carnevale costumes are now made in China; and Chinese-made intermediate and final goods were everywhere in evidence at Brazil's World Cup venues in June-July 2014.

Even the Southeast Asian economies, contrary to common understanding, are no longer advancing in high value-added manufacturing activities. True, Malaysia, Thailand, and Indonesia experienced deep structural change out of natural resources and into manufacturing after the mid 1970s, especially in electronics, electrical engineering, textiles and autos; and built up production and management skills to match the productivity levels of developed countries in standardized commodities. No other developing countries beyond Northeast Asia experienced such growth of manufacturing capacities.

But in contrast to Taiwan and South Korea at the equivalent stage of development, none of them – not even the wealthiest, Malaysia – has built an indigenous capacity to design, innovate and commercialize into new and more profitable sectors, and few firms have created even

regional brand names. All of them remain heavily dependent on subsidiaries of multinational corporations (MNCs) for their higher-tech manufacturing exports. Most important, backward links from MNC operations into the domestic economy are thin, with the result that domestic value-added in manufacturing remains low.

Indeed, as China advances in these respects (including dense backward links from MNC operations to domestically-owned firms, and also domestic innovation capacity), it is leap-frogging the Southeast Asian economies, putting them under even stronger competitive pressure.

A recent study of Malaysia finds that real wages declined in 2002 – 2008, and the average skill intensity of production also declined. It concludes,

"Malaysian industry appears to be sliding *down* the technological slope, and the incentives for workers to improve their skills are weakening... technological capabilities are relatively static (and may even be declining)... industrial competitiveness is marking time" (Yusuf and Nabeshima, 2009, 26, emphasis added).

Governments of middle income countries – worried about being caught in the middle income trap -- have become more willing to challenge the long-standing argument of mainstream economics and the World Bank, that "the best industrial policy is none at all".

The above circumstances and evidence have helped to give discussion of "industrial policy" a legitimacy not seen for decades.

III. The developmental state Mark II

The classic developmental state -- a la Japan, France, South Korea, Taiwan and Brazil during some or most of the second half of the twentieth century -- focused on developing the capacities of *indigenous firms across a*

broad range of major global industries, able to act as first-tier suppliers to MNCs and even to compete head-to-head with them. Today only a few economies with very large internal markets -- China, India and Brazil most conspicuously – have this as an option. High entry barriers in the face of existing MNC dominance and neoclassically-inspired trade and investment rules make such an objective non-viable for most (Pirie 2013).

But if the developmental state Mark I (where the capitalist state leads the creation of a diversified and autonomous industrial base) is now viable only for very large developing countries, that is not the end of the story. There is scope for developmental state Mark II.

First, WTO rules are more constraining for some policy instruments than for others: more constraining for tariffs, quantitative restrictions, local content requirements; medium constraining for government procurement, intellectual property, export subsidies in agriculture; and least constraining for devaluations, investment incentives, trade finance and export taxes, for example.

Second, the state can act more, or less, strategically in attracting selected portions of global value chains into its territory. It can bargain hard with a multinational corporation so as to maximize the transfer of skills into the heads of citizens, or it can let the corporation decide by itself how many citizens to employ in which stages of which operations. Throughout the fast catch-up phase the South Korean and Taiwanese governments bargained hard with incoming MNCs, in a way that governments in many other developing countries (Chile and Hong Kong, for two) did not.[2] Indeed, some studies argue that policy makers

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[2] Enos and Park (1988) report that in the 1970s, when the governments of South Korea, Chile and Hong Kong ordered the same ethylene plant from Dow Chemicals, the Koreans pressed Dow much harder to employ nationals across the several stages of the project; and the ratio of nationals to regular Dow employees increased in each of the two subsequent plants Korea ordered from Dow. This case fits

in South Korea and Taiwan continue to practice activist industrial policy, even as they keep their interventions much more covert than in the past. [3]

In other words, the leaders of a state may buy into the prevailing liberal ideology that they can best promote development by concentrating on improving the institutional and physical framework for markets, in the hope that, *having made a level playing field in line with the criteria of the World Bank's CPIA and Doing Business reports, the players will turn up to play*. That is, private profit-seeking investors, domestic and foreign, responding to incremental price signals, will diversify and upgrade production sufficiently to keep incomes rising. Or the leaders of the state can use the remaining room for policy manoeuvre to promote non-incremental jumps in the product and technology space, in the spirit of developmental state Mark II. In countries as varied as Britain, Argentina, and Nigeria state leaders *could* still today undertake entrepreneurial roles,[4] even accepting that anything like the developmental states of East Asia of the post-war decades — building up indigenously-controlled major industrial sectors in cars, chemicals, petrochemicals and electronics — is unlikely (Wade, 1990, 2003, 2004).

Indeed, new evidence suggests that since 2008 and the long slump, many developed and developing country states — whatever they say — have moved further away from "level playing field" policies and intensified *policy selectivity* by sector, location and ownership. This is the

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the Korean motto, 'We never learn anything twice', a motto I heard during my field work in Korea in 1979 (Wade, 1982).

[3] See Chu (2009), who argues, "In seeking to attain its development goals, the Korean state articulates visions and deploys public resources to structure the market and shape innovation".

[4] While even a state like Britain *could* undertake an entrepreneurial role, the December 2013 report of the UK House of Commons liaison committee about the future of the civil service identified a fundamental problem in the pervasive "belief in incremental change versus long-term vision" (Jenkins, 2013).

finding of Vinod Aggarwal and Simon Evenett (2010), who draw on the Global Trade Alert (GTA) data set for the US, major EU countries, China, India, Brazil, Argentina and others. Much of the resulting "industrial policy" (though generally not called that) is directed at "green" products and processes, which softens neoclassical censure (though not as much as "military" does). States have generally avoided tariffs and quantitative restrictions (which, as noted, are in the "more constrained" category of WTO rules). They have employed modes subject to "medium" or "low" WTO restraint, such as public procurement, discriminatory subsidies and bailouts ("murky protection").

In short, since 2008 the quantum of industrial policy has gone up, especially for green investments. WTO rules have affected the *composition* of industrial policy instruments, rather than curbing the *quantum*.

The developmental state Mark II is all the more important for the many middle-income countries which find themselves in the competitive squeeze described earlier: their producers cannot compete with low-wage countries in standard goods, and do not have capabilities to compete in exports of skill- and knowledge-intensive goods and services. China's position as workshop of the world across a wide range of manufactured products — more accurately, assembly workshop of the world, drawing on parts and components produced elsewhere, particularly in regional value chains spanning East and Southeast Asia — intensifies the squeeze on others. Across whole swathes of manufacturing, China has enjoyed absolute cost advantages over producers elsewhere, not just relative cost advantages, and its exports have been knocking out manufacturing employment in both middle- and high-income countries. The idea that governments should hew to neoclassical principles in response to this competitive squeeze and limit themselves to investing in the basic

ingredients of state fiscal and legal capacity, and leave the outcome to the Invisible Hand mechanism, is, put politely, debatable.

IV. "New structural economics" and industrial policy

One leading figure in the revival of discussion about industrial policy is Justin Yifu Lin. He was chief economist at the World Bank from 2008 to 2012, and the first-ever non-G7 national in this key ideas-controlling position (all previous World Bank chief economists were citizens of either the US, Britain or France). Lin is a Taiwan-born Chinese who defected from Taiwan to China, went to Chicago University to do a PhD in economics and then to the Australian National University to teach. The latter qualifications are imprimaturs of reliability in the eyes of the American economics profession.

Drawing on his knowledge of East Asian industrialization and of theories about stages of growth (such as the work of the Japanese economist Akamatsu beginning in the 1930s: Ozawa, 2009), Lin pushes the idea of "new structural economics", on the premise that "development" is not only about higher levels of *income and consumption* (the focus of the Bank's "poverty reduction" mandate and of the Millennium Development Goals) but also about changes in *production structure*.

Lin argues, first, that market prices give signals for *incremental* change; but can block larger economic diversification and innovation. Second, governments can usefully push or incentivize firms to diversify and upgrade their production, and give more encouragement to some activities ahead of others. However, third, government efforts should remain within the economy's *existing* comparative advantage, because firms operating within

existing comparative advantage are more likely to attain and sustain private profitability (without being dependent on continued government support). Fourth, comparative advantage will itself evolve over time as endowments change; so investing in line with today's comparative advantage alters tomorrow's endowment structure, which alters tomorrow's comparative advantage, which permits sustainable (because privately profitable) production diversification and upgrading relative to today.

The underlying image is not of a stock of toothpaste (endowments) moving from sector to sector and from inputs to outputs via a production function, but of a vast, continuously improving Toyota-style production system, in which different products have different growth potential and opportunities and constraints are identified *as they emerge over time*. Learning and self-discovery by actors, private and public, are the central processes. They drive technical and organization mastery over *broader ranges of activities* (as distinct from narrow Ricardo-style specialization). Policy reforms aim not at a vast Washington Consensus "wish list" derived from an idealized image of a modern free market economy, but at more specific constraints and opportunities revealed by the continuous improvement process in the specific country.

Lin calls his approach the "comparative-advantage-following" strategy, in contrast to the "comparative-advantage-defying" strategy. He spells out six operational steps for a specific country (2010, 2012):

(1) Government (G) identifies a list of goods and services produced over the previous two decades in dynamically growing countries with similar endowment structures and average GDP 100% higher.

(2) Among the resulting list, G gives priority to those products which some domestic private firms have already started to produce, and helps remove obstacles to their growth and upgrading.

(3) Some listed products may be completely new to domestic firms; in such cases, G could adopt specific measures to attract firms in the higher-income countries identified in step (1) to invest in these industries.

(4) G should pay attention to private enterprises' independent discoveries of successful products not included in the list, and provide support to scale up those industries.

(5) In developing countries with poor infrastructure and unfriendly business environment, G can invest in industrial parks or export processing zones and make improvements to attract domestic private firms and/or foreign firms willing to invest in the targeted industries.

(6) G should give limited incentives for domestic firms or foreign investors that work within the list of products in step (1) to compensate them for the *public* knowledge created by their private investments.

<u>The relevance of comparative advantage?</u>

Both while World Bank chief economist and subsequently, Lin stresses that targeted public support must be confined to activities *within* the economy's existing comparative advantage. This is a useful defence against the standard accusation that any sectorally targeted support amounts to "government picking winners". But he has been reluctant to identify criteria for distinguishing investments within and without the economy's existing comparative advantage.

For example, the Korean-born Cambridge University-based economist Ha-Joon Chang emphasises more than Lin that what an economy produces today determines the skill and comparative advantage of tomorrow – an effect which is external to private decision making and will be "undersupplied" if resource allocation is left to private agents.

Chang challenged Lin to interpret the following cases:

(1) Japan pushed into steel, autos, ships and the like in the late 1950s and early 1960s, when its per capita income was only 19% that of the US (1961, at market exchange rates);

(2) Korea pushed into heavy and chemical industries in the late 1960s, when its per capita income was only 6% that of the US; and

(3) Korea pushed into semiconductors in 1983 when its per capita income was still only 14% that of the US.

On the face of it these combinations of products and relative average income suggest that Japan and Korea invested heavily in products far above their existing comparative advantage (for example, far above the products being produced in countries with average income twice theirs at the time, in line with Lin's step one).

Lin replied that these moves were indeed *within* the range of the country's comparative advantage at the time. In Korea:

"POSCO [the giant state-owned steel company established in 1968 against strong World Bank advice, which soon became the most efficient maker of basic steel products in the world] built upon the success of development in garments, wigs, footwear, and other labour-intensive industries. With the success of these labour-intensive industries, Korea accumulated capital and the capital intensity of its endowment structure increased. From the perspective of the comparative-advantage-following strategy, the upgrading of a few firms into more capital-intensive industries became a necessity"

Lin further argued:

"Industries such as steel production and shipbuilding were among the most advanced industries globally in the nineteenth century, but by the mid-twentieth century they no longer held this leading-edge position. Investments in these matured industries therefore required a large amount of capital, compared with traditional labour-intensive industries, but their capital intensities were much lower than in the emergent industries. It is therefore not surprising that, with some government support for overcoming the difficulty of mobilizing a large amount of capital in an economy with an underdeveloped financial sector, these industries are viable in an economy that have achieved or are approaching lower-middle-income status" (Lin and Chang 2009:499)).

However, Lin's argument smacks of tautology: the fact that Japan and Korea succeeded in the given industries means that those industries with those technologies *must have been* within their existing comparative advantage. On the face of it, it is implausible to say, as in the above quote, that Korea's success in steel – within a few years POSCO was the most efficient steel plant in the world -- was just a comparative-advantage-complying extension of Korea's earlier success in "garments, plywood, wigs, footwear…". More generally, the principle that industrial policy should remain within existing comparative advantage seems to advise a Stone-Age economy trading with an ICT economy to continue to specialize in the production of stone-intensive products, as though this is the optimal equilibrium (Salazar-Xirinachs and Nubler, 2010; Wade 2014c).

The debate between Lin and Chang leaves unmentioned a surprising fact: that we know very little about how East Asian industrial policy makers – in Japan and Taiwan from the 1950s, South Korea from the 1960s -- went about identifying priority sectors or priority firms and then changing their support for the targeted industries and firms over time. The relevant people seem to have left no accounts of how they did it.

However, my own research on East Asian industrial policy identified two analytically distinct modes of targeted public support (Wade 1990, 2004). One is what I call "government leadership", where the government allocates public resources to industries where the private sector is not willing to invest on its own. POSCO is, of course, a dramatic case in point. The World Bank strongly advised against it, and no private firm would undertake it – though the government would probably not have allowed significant private ownership in any case, in such a vital "commanding heights" sector.

The second mode is what I call "government followership", where the government comes in to underwrite *some* of the bets that the private sector has already made or would be prepared to make on its own. An example of followership is the work of Taiwan's Industrial Development Bureau in its role as an industrial extension service (parallel to an agricultural extension service). Its employees (about 150 by the early 1980s, mostly engineers) visited factories up and down the country at frequent intervals, and among other things kept nudging the owners and managers to upgrade quality, diversify production, rearrange the production line, buy a new kind of machine tool, link up with subsidiaries of multinational corporations producing in Taiwan, and hunt out export markets. They kept a close eye on the parts and components being imported by big foreign or Taiwanese firms, and looked for promising opportunities to "persuade" the big firms to switch their sources of supply from imports to domestic producers (without having to take too big a hit in price or quality). They regarded import replacement and export promotion as "two wings of the same bird". Their nudging – far from "picking winners" – went on decade after decade, from the 1950s. Of course, the same bureau was also involved in promoting the "big lump" investments in upstream sectors, most of which were made by public enterprises.

Over time in any one sector, one can trace periods of "leadership" and of "followership" in various sequences; and also of the default mode, no targeted support at all.

In terms of this distinction Lin's advocacy of government support for activities within the economy's current comparative advantage is close to "followership". Chang's advocacy of public support for investments beyond current comparative advantage is close to "leadership". We can think of government leadership of the market as like "stretching" comparative advantage, on analogy with a rubber membrane.

What is missing from their arguments is the point just made, that over time in any one sector one may (should) see movement between the three modes; for example, a period of "government leadership" early on may give way to a much lower level of public support ("followership") and then to no targeted support; or initial no support may lead on to followership and then, for a limited time, leadership to make a big jump, then back to followership or no targeted support.

The "leadership" or comparative-advantage-stretching mode may well be used only in very specific parts of the economy, as in the Korean POSCO steel example, or China's entry into satellite production and launching in the 1970s. Interestingly, Lin himself acknowledges the merit of the leadership role, without using that name. At the tail-end of his debate with Chang he mentions as an afterthought:

"Some firms need to play the role of a 'lead goose' so as to pioneer the upgrading into new industries.... I see the lead goose as a *small but important leading wedge* in a dynamic process.... [But far from public resources being used to advance this leading wedge] the subsidies to the lead goose can derive mostly from intra-firm profits obtained in the operations in other operations in competitive markets" (499, emphasis added).

The difference between Lin and Chang might be reduced to a difference over the size and impact of this "leading wedge"; and over whether the size should be constrained by having to be mostly financed by intra-firm profits rather than by public finance. Chang would argue for a potentially larger wedge, with more public financing. On the other hand, the points made above about the limited scope for the developmental state Mark I today – because of changes in the world economy since the post-war decades and the classic developmental states -- tend to favour a position closer to Lin's.

At the end we come to the question of how much influence ideas of Lin, Chang, and others in the same vein have had on the thinking of international organizations.

V. Political and organizational determinants of industrial policy

The literature tends to concentrate on what the state should and should not do, using which instruments. It tends to leave unexamined the determinants of state effectiveness. We can think of these at two levels. One is the macro level of state–society relations. The second is the more micro level of state agencies, in particular, industrial policy agencies.

State-society relations

A state executive has a broad choice between (a) building generic state capacity (fiscal, legal, bureaucratic, military) or (b) using state power to redistribute resources to itself and its group at the expense of would-be incumbents, using repression or violence to ride roughshod over opponents. Where the state lacks experience of constitutional constraints and democratic accountability electoral victors are likely to follow the

second route and adopt winner-take-all strategies, shutting out the opposition and governing as they see fit (Besley and Persson 2011). Think of some of the Arab regimes which collapsed after 2010. It goes without saying that such a state is unlikely to be able to mount effective industrial policies.

On the other hand, where the state operates in conjunction with a cohesive capitalist class the prospects for effective industrial policy are considerably improved. The outcome is further shaped by whether the labor class is disempowered and depoliticized, or empowered enough to balance the cohesive capitalist class (Kohli, 2004).

The short answer to why the East Asian capitalist developmental states took the form they did is that (a) their societies faced external state enemies capable of overwhelming the whole society, which generated wide acquiescence to state discipline and taxation, including cohesion in the capitalist class; and (b) the owners and managers of capital consented to state direction in exchange for tight control over collective labour, in response to episodes of labour unrest early on. The famed "embedded autonomy" of the East Asian developmental state came out of co-determination between external military threats, class relations, and state fiscal and legal capacity (Evans 1995).

Making effective industrial policy bureaucracies

To get a grip on the second level – the effectiveness of specific state agencies, such as ones which deal with industrial policy – we can draw on *The Politics of Public Sector Performance: Pockets of Excellence in Developing Countries*, edited by Michael Roll (2014). It uses an inductive approach to identify characteristics of state agencies which distinguish themselves from the surrounding bureaucratic swamp by being effective in

carrying out their mission. The book refers to them as "'islands of excellence" or "pockets of effectiveness". The case studies range across Brazil (the National Development Bank), Nigeria (National Agency for Food and Drug Administration and Control), Surinam (State Oil Company), mainland China before 1949 (Sino-Foreign Salt Inspectorate), Taiwan after 1949 (Joint Commission for Rural Reconstruction), and state-owned enterprises in rentier states. From these case studies Roll induces several necessary (but not sufficient) conditions for "pockets of effectiveness".

The first condition is a strong head of government (or a small, coherent elite), which has strong interest in particular tasks — like industrial diversification and upgrading — being done effectively. His or her motives may be defence against external enemies, national prestige, or international prestige. Pressure from the World Bank, other regional development banks or aid agencies may be influential but not decisive.

Second, the head of government breaks with normal – that is, patronage — appointment criteria, possibly against a lot of elite opposition. Instead, criteria for appointment to top positions in the agency emphasise technical qualification, proven leadership and proven incorruptibility. The agency director (or CEO) comes from *outside* the inner elite, and is connected to it through "weak ties". This makes the CEO less vulnerable to the *"insider's dilemma*": the requirement that members of the elite patronage network allocate jobs, contracts, and other public resources to other members of the elite network, or else risk their own career and effectiveness from insider attacks. But stuffing an agency with officials recruited on patronage networks is very likely to render the agency ineffective, which could also risk the CEO's career.

So, prior to the appointment the tie between the CEO-to-be and the president is a weak one; they usually do not know each other very well, because the candidate comes from outside the inner elite. But – the third necessary condition -- once selected, the link between the CEO and the president must become a *strong* one, because the CEO depends heavily on the president's support to defend him/her against the established elite's attacks. However, the link to the rest of the elite remains *weak*.

Fourth, the strong tie to the head of government helps to secure the necessary bureaucratic autonomy — necessary because the agency will often conflict with politicians and firms with contrary interests (e.g. firms wanting continued protection despite non-performance). But autonomy does not mean separation or no contact, and it is not fixed and based on law. Paradoxically, *autonomy depends on political connections and is inherently relational*. Agency managers must constantly manipulate their external environment to secure their autonomy, using connections to politicians, corporations, unions and other powerful entities.

Fifth, the director must be free to appoint members to the management teams, and select staff committed to the mission ("principled agents"). Most come from outside political elite networks (some from private companies or overseas). Salaries and benefits are higher than in the regular civil service. However, the ethos of the agency is such that performance does not depend mainly on extrinsic incentives (money); staff work conscientiously mainly because of *intrinsic* incentives, because they see their job as meaningful for national development. Intrinsic motivation helps agency effectiveness because it reduces the director's costs of controlling staff. In the language of principal-agent analysis, it reduces the principal's cost of

controlling agents. This mechanism puts added responsibility on the director to foster the staff's organizational identity and internalized responsibility for the mission.

Sixth, an agency which aims to be a "pocket of effectiveness" in a bureaucratic swamp must change internal and external expectations of the agency's modus operandi. The two key instruments are: (1) standardization of procedures (for example, procedures for project appraisals and project decisions); (2) regular evaluations of agency performance. In relations with the outside, standardization of procedures enhances predictability for clients and reduces the incentives for bribes. In relations within the agency, standardization raises staff confidence in the information they receive from others, rendering it unnecessary for them to check it for themselves.

This is a useful check-list of factors making for bureaucratic effectiveness, which takes the discussion beyond the standard neoliberal claim, "governments [undisaggregated] can't pick winners". It would be interesting to trace these conditions across time in the industrial policy agencies of Japan, France, South Korea and Taiwan; and on US industrial policy agencies such as DARPA and NIH. (See further, Leonard 2010, Devlin and Moguillansky 2011.)

VI. The future of industrial policy

Many advanced and developing countries are worried about the erosion of manufacturing in the face of Chinese competition; many middle income countries are worried about being stuck in the middle income trap or the middle capabilities trap; many lower income countries are worried about being stuck as commodity exporters; and many governments, developed and developing, are trying to target investment in "green" industries.

These broad trends have helped to rekindle an interest in industrial policy, and national strategy more generally. More specifically, the arrival of China as a major "aid" donor and foreign investor in Africa, Latin America, and other parts of the developing world has forced recognition in host governments that if they are not to repeat their earlier failure to set the terms of engagement with western "aid" and foreign investment they must formulate national development strategies and ensure that Chinese investment meets their development agenda – not just China's.

Some middle-income governments draw inspiration from East Asian experience, and have been trying to use their growing voice in multilateral development banks to change norms in favour of doing industrial policy better, rather than simply less (Wade 2011).

At the same time, the theoretical and empirical basis of the Washington-London-Brussels Consensus looks shakier than it has looked for decades, including its core neoliberal prescription for "more market-less state". The US-initiated financial crash of 2008 tarnished the aura of "the self-regulated market" and raised the salience of re-specializing the economy away from finance.

Several prominent development economists have started to make the academic field bubble. Some of the recent writing suggests flaws in the earlier evidence used to discredit sectoral industrial policy; and draws attention to previously neglected soft-meso forms of industrial policy (such as the US form described earlier). Other development specialists have focused on the important question of how to constrain politicians and officials to provide services (including industrial policy) which meet a national interest test rather than a sectarian interest test (Besley and Persson, 2011).

It is often said that the rules of the international economic order constitute a big constraint on effective industrial policy; and it is true that World Trade Organization rules make a large part of East Asia's earlier development interventions actionable or illegal (Wade 2003). However, here the neglected distinction between hard and soft industrial policy is important, because most of what the WTO makes actionable or illegal is toward the hard end of the spectrum (protection, subsidies, quantitative restrictions and the like). The existing rules still leave scope toward the soft-meso end.

Governments should exploit this policy space, even as they try to modify the larger framework of rules so as to allow more use of harder measures. They should recognize that because the East Asian, French and Brazilian developmental state of the post-war decades is not a viable option today (except in a few of the largest developing countries) that is not the end of the story; scope remains for the developmental state Mark II, described above. In going beyond economists' and WLB Consensus prescriptions for limited government they are following in the footsteps of the western Europeans and North Americans as they caught up with Britain in the 19th century, and the East Asian Tigers as they caught up with the West in the second half of the twentieth century.

However, we should not underestimate the forces arraigned against any more positive role of government. We noted earlier how economics as a discipline has conspicuously failed to produce positive theories which match the pervasive role of the state in most economies, as distinct from theories (such as those of James Buchanan and George Stigler) which show the state as essentially self-serving and predatory, while the same theories give private firms a largely free pass. The failure reflects an

ideological idea of the good society embedded in the DNA of the neoclassical discipline, in which the government's appropriate role is to protect free markets and "fix" occasional market failure when the Invisible Hand mechanism does not produce satisfactory results. We also noted earlier how the operating procedures and loan conditions of western-run organizations like the World Bank institutionalize the idea of the free market as the optimal resource allocation mechanism.

We can now note how efforts to promote the idea of industrial policy in international organizations have encountered stiff resistance from within the staff and from member states.

When Justin Yifu Lin was chief economist of the World Bank only one vice president showed an interest in trying to put his ideas on industrial policy into modest practice, in the form of several pilot projects under the name "Competitive Industries program". For all that Lin insisted on the orthodoxy of his approach (its comparative-advantage-following limits), Lin himself admits that during his time as chief economist less than 10% of World Bank economists were sympathetic to his arguments (personal communication, 2010). My own field work in the Bank in summer 2010 revealed that many economists dismissed his arguments with the annoyance one might direct towards a fly. "For every Korea there are 100 failures. Who would you put your money on?", declared a senior figure in Lin's own vice presidency. [5]

Since Lin left the World Bank in 2012 even the modest emphasis on production diversification has largely disappeared in the wake of senior personnel changes. The chief economist's complex "is mainly run these days by a Director of Development Policy who strongly opposes any

[5] This field work was done jointly with Jakob Vestergaard of the Danish Institute of International Studies.

form of active government strategy" (personal communication July 2014). In the operations complex, the new Senior Director most relevant to continuing the Competitive Industries program closed it down on grounds that "she understands industrial policy only as the failed import-substitution policies implemented in Latin America in the 1960s". So post-Lin, the World Bank has had little part in the upsurge of interest in industrial policy or similar ideas under a different name.

In the case of the OECD and its *Perspectives on Global Development 2013: Industrial Policies in a Changing World*, several of the staff of seven delegated to produce the report made it clear they doubted the wisdom of industrial policy. Senior OECD managers kept asking, "Are we really sure the OECD should endorse industrial policy?". They resisted including the phrase "industrial policies" in the title right up to the last hours before publication (personal communication, 2013).

As for UNIDO, its big push for Inclusive and Sustainable Industrial Development is a kind of gamble for resurrection. Big western states have terminated or are terminating their membership of UNIDO; it faces a budget crisis; and appointed a Chinese national as director-general in 2013 (the highest ranking Chinese in the UN system), in the hope that China will be able to elicit more buy-in from developing countries and avoid staff cuts (such as those in UNDP, where about 20% of its 5,000 staff have recently been made redundant). Industrial policy is the substance around which the organization is trying to elicit this added buy-in from developing countries – even at the risk of further alienating western states which say that industrial policy is a bad idea.

In short, policy makers should be cautious about accepting economists' negative judgements about industrial policy; and doubly cautious about accepting

politicians' negative judgements of the kind implied by German Chancellor Helmut Schmidt, referring to national exercises in foresight, "People who have visions should see a doctor". END

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