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Securing the Home Market

A New Approach to Korean Development

Alice Amsden

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Contents

Acronyms ii

Summary/Resumé/Resumen iii

Summary iii
Resumé iii
Resumen iv

Part I: Introduction 1

Introduction 1
Nationalism 9
A weak private sector 13
Why the homing instincts? 13
Expropriation 18
When the "wrong" property rights are "right" 20

Part II: From Home to Foreign Markets 21

Counting market failures 22

Conclusion: Role Models Defined 28

Bibliography 32

UNRISD Research Papers 39

Tables

Table 1: R&D expenditure as a percentage of gross domestic product 3
Table 2: Share of BRICs total world output, rank of developing country output by industry, 2007 8
Table 3: Companies from emerging economies in the *Fortune Magazine* 500 international firms, 2008 *(revenues)* 17
Table 4: Comparison of small- and medium-size enterprises in the Republic of Korea, Japan and Taiwan 23
Table 5: Royalties and licensing *($ millions)* 29

Acronyms

BDNES	Brazilian Development Bank
BRICs	Brazil, Russian Federation, India and China
BRICKs	Brazil, Russian Federation, India, China and Republic of Korea
CEO	chief executive officer
FDI	foreign direct investment
FOE	foreign-owned enterprise
IOC	international oil company
NAFTA	North American Free Trade Agreement
NOC	national oil company
OECD	Organisation for Economic Co-operation and Development
OFDI	outward foreign direct investment
OPEC	Organization of the Petroleum Exporting Countries
POE	privately owned enterprise
R&D	research and development
SME	small and medium enterprise
SOE	state-owned enterprise
UNCTAD	United Nations Conference on Trade and Development
US	United States
USTR	Office of the United States Trade Representative
WTO	World Trade Organization

Summary/Resumé/Resumen

Summary

Since the eclipse of neoliberalism in the late 1990s, the developing world's industrial policies have begun to be rediscovered. To capture the essence of an industrial policy (in both the short and long run), it must be examined empirically, as in the decolonized world, through the eyes of the great "role models" that have used it intensively, one for manufacturing (the East Asian role model) and one for natural resources (the Organization of the Petroleum Exporting Countries/OPEC developmental role model). From the vantage point of market theory, industrial policies correct market failures. From the viewpoint of the decolonized generation's role models, they "secure the home market" on the road toward overseas expansion; they are fundamentally nationalistic and vary by country, starting with the overhaul of foreign property rights (for example, the nationalization of foreign oil concessions in the Middle East, seizure of Japanese overseas investments in the Far East, "velvet privatization" in Brazil and appropriation of German properties in post-colonial Europe). The developmental state that an industrial policy serves may be authoritarian, discounting individualism—after decolonization, electoral politics were absent in every developing country except Costa Rica and India—but inherently nationalistic; practically, democracy must be assessed by the degree to which a population is satisfied to be living under a specific national state, not the degree to which specific leaders of that state are popularly elected.

This paper, one of the late Alice Amsden's posthumous works, explains the role of industrial policy in the twentieth and twenty-first centuries, in particular in promoting nationally owned enterprises, securing home market, generating jobs and enhancing technologies and skills through the examination of various cases including the Republic of Korea, Brazil, India, China and Taiwan Province of China. Amsden argues that the origins of industrial policy in Asia and the Middle East are associated with "getting the property rights wrong", a basis of nationally owned enterprises, and elaborates on the conditions making the "wrong property rights" right. Having tangible skills at hand to manage newly nationalized properties is highlighted as a crucial condition. Given the weakness of the private sector in the decolonized world and developing countries, in particular the weakness of the medium-sized enterprises with anywhere from 100 to 300 workers, the policies to promote them—most of which involves deviations from free market principles—are particularly crucial to make the "wrong property rights" right.

Alice Amsden was the Barton L. Weller Professor of Political Economics at MIT, in the Department of Urban Studies and Planning and Researcher at MIT Center for International Studies. She passed away in March 2012.

Resumé

Depuis l'éclipse du néolibéralisme à la fin des années 90, on commence à redécouvrir les politiques industrielles du monde en développement. Pour saisir l'essence d'une politique industrielle (à court et à long terme), il faut l'examiner de manière empirique, comme dans le monde décolonisé, à travers la lunette des grands modèles qui en ont fait un usage intensif, celui de l'Asie orientale pour les industries manufacturières et celui de l'Organisation des pays exportateurs de pétrole (OPEP) pour l'exploitation des ressources

naturelles. Selon la théorie du marché, les politiques industrielles corrigent les défaillances du marché. Vues au travers des modèles de la génération de la décolonisation, elles “s’assurent le marché intérieur” avant d’envisager de conquérir les marchés d’outre-mer; elles sont fondamentalement nationalistes, varient selon les pays et commencent par réviser les droits de propriété des étrangers (par exemple, nationalisation des concessions étrangères de pétrole au Moyen-Orient, confiscation des investissements japonais en Extrême-Orient, “privatisation de velours” au Brésil et appropriation de biens allemands dans l’Europe post-coloniale). La politique industrielle est au service d’un État développemental qui peut être autoritaire et faire peu de cas de l’individualisme—après la décolonisation, il n’y avait pas de considérations électoralistes dans les pays en développement sauf au Costa Rica et en Inde – mais qui est foncièrement nationaliste; pratiquement, la démocratie doit se mesurer au degré de satisfaction de la population de vivre dans un État-nation précis, et non à la mesure dans laquelle les dirigeants de cet État sont issus d’élections populaires.

Cette étude, l’une des œuvres posthumes de feue Alice Amsden, explique le rôle de la politique industrielle au vingtième et au vingt-et-unième siècles, qui est en particulier de promouvoir des entreprises nationales, de s’assurer le marché intérieur, de créer des emplois et de développer des technologies et des savoir-faire. À cette fin, elle examine divers cas dont ceux de la République de Corée, du Brésil, de l’Inde, de la Chine et de la province chinoise de Taiwan. Alice Amsden fait valoir que la politique industrielle en Asie et au Moyen-Orient a pour origine l’erreur faite avec les droits de propriété, d’où la création d’entreprises nationales, et expose longuement les conditions à remplir pour corriger cette erreur. Il faut avoir sous la main les compétences nécessaires pour gérer les biens nationalisés depuis peu: cette condition est présentée comme essentielle. Étant donné la faiblesse du secteur privé dans le monde décolonisé et les pays en développement, en particulier celle des entreprises de taille moyenne comptant entre 100 à 300 employés, il est crucial de mener des politiques qui visent à les promouvoir, quitte, dans la plupart de cas, à s’écarter des principes de la liberté de marché, pour corriger l’erreur faite initialement avec les droits de propriété.

Alice Amsden était professeur d’économie politique, titulaire de la chaire Barton L. Weller au MIT, au département des études urbaines et de l’urbanisme, et chercheuse au Centre des études internationales du MIT. Elle est décédée en mars 2012.

Resumen

Desde el eclipse del neoliberalismo a finales de los noventa se ha iniciado un proceso de redescubrimiento de las políticas industriales del mundo en desarrollo. Para captar la esencia de una política industrial (tanto a corto como a largo plazo), esta debe analizarse empíricamente, como en el mundo descolonizado, a través de la lente de los grandes “modelos a seguir” que la han utilizado de forma intensiva, uno para la manufactura (el modelo del Asia oriental) y otro para los recursos naturales (el modelo de desarrollo de la Organización de Países Exportadores de Petróleo, OPEP). Desde la panorámica de la teoría de mercado, las políticas industriales corrigen los fracasos del mercado. Desde el punto de vista de los modelos a seguir de la generación descolonizada, dichas políticas “aseguran el mercado interno” con miras a la expansión hacia el mercado exterior; las políticas industriales son básicamente nacionalistas y varían con cada país, comenzando

por la reformulación de los derechos de propiedad extranjera (por ejemplo, la nacionalización de las concesiones petroleras extranjeras en el oriente medio, la incautación de las inversiones japonesas en el lejano oriente, la "privatización aterciopelada" en el Brasil y la apropiación de propiedades alemanas en la Europa poscolonial). El Estado desarrollista al que sirve la política industrial puede ser autoritario, descartando el individualismo –tras la descolonización, no existía el mundo político electoral en ningún país en desarrollo salvo Costa Rica e India– pero inherentemente nacionalista; en términos prácticos, la democracia debe evaluarse conforme al grado de satisfacción de una población al vivir en un Estado nacional específico, y no el grado en que líderes específicos de dicho Estado son elegidos por la vía popular.

Este documento, uno de los trabajos póstumos de la fallecida Alice Amsden, explica el papel de la política industrial en los siglos XX y XXI, particularmente en la promoción de las empresas de propiedad nacional, asegurando el mercado, generando empleos y mejorando las tecnologías y aptitudes a partir de un análisis de varios casos, entre ellos el de la República de Corea, Brasil, India, China y Taiwán, Provincia de China. Amsden sostiene que los orígenes de la política industrial en Asia y el medio oriente se asocian a una "percepción equivocada de los derechos de propiedad", lo que daría pie a la creación de las empresas nacionales, y profundiza en las condiciones que permitirían corregir la "percepción equivocada de los derechos de propiedad". Como condición fundamental se resalta el contar con aptitudes tangibles para gestionar las propiedades recientemente nacionalizadas. Habida cuenta de la debilidad del sector privado en el mundo descolonizado y los países en desarrollo, y en particular la debilidad de las empresas medianas (con 100 a 300 trabajadores), las políticas para promoverlas —que en buena medida obligan a separarse de los principios de libre mercado— son de una importancia crucial para lograr corregir la "percepción equivocada de los derechos de propiedad".

Alice Amsden fue profesora Barton L. Weller de economía política del Departamento de Estudios Urbanos y Planificación del MIT, e investigadora del Centro de Estudios Internacionales del MIT. Falleció en marzo de 2012.

> After comparing various schools of economic thought, I have come to the realization that principle of state ownership is most profound, reliable and practical. Moreover, it will forestall in China difficulties that have already caused much anxiety in the West [income inequality]. I have, therefore, decided to enforce the principle of the people's livelihood simultaneously with the principles of nationalism and democracy, with the hope to achieve our political objective and nip economic unrest in the bud (Sun 1924).

Part I: Introduction

Introduction

Since the eclipse of neoliberalism in the late 1990s, the developing world's industrial policies have begun to be rediscovered as something "new". There is, in fact, always something new about an industrial policy because it has no deductive theory to fix it analytically. Unlike a free trade policy, for example, an industrial policy cannot be defined abstractly with predetermined assumptions; its mix alters with new users, applications, constraints and policy tools, whereas the free trade model stays stationary through time and space.[1] To capture the essence of an industrial policy (in both the short and long run), it must be examined empirically, as in the decolonized world, through the eyes of the great "role models" that have used it intensively: one for manufacturing—the East Asian role model; and one for natural resources—the Organization of the Petroleum Exporting Countries (OPEC) developmental role model.[2] From the vantage point of market theory, industrial policies correct market failures. From the viewpoint of the decolonized generation's role models, they "secure the home market" on the road toward overseas expansion; they are fundamentally nationalistic and vary by country, starting with the overhaul of foreign property rights—for example, the nationalization of foreign oil concessions in the Middle East, seizure of Japanese overseas investments in the Far East, "velvet privatization" in Brazil and appropriation of German properties in post-colonial Europe. The developmental state that an industrial policy serves may be authoritarian, discounting individualism—after decolonization, electoral politics were absent in every developing country except Costa Rica and India—but inherently nationalistic; practically, democracy must be assessed by the degree to which a population is satisfied to be living under a specific national state, not the degree to which specific leaders of that state are popularly elected.[3]

The "otherness" of the economies operating under great inductive role models was noted at the elitist Bilderberg Conference held in Toronto in 1996. "If the present is any guide to the future, East Asia may contribute over 50 per cent of the growth in the world economy without having become fully part of the institutions that undergird the current international economic order. This order was crafted over the past half-century of Euro-

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1 The most formal definition of industrial policy is a set of measures to coax industry (manufacturing, services, mining and agriculture) toward an outcome that market forces alone are unlikely to generate, within a specific time period (Komiya 1988).

2 This paper is based on a chapter of my book on role models: *The Rational Revolution: Developing from Role Models, Deserting Deductive Theory* (currently unpublished), Harvard University Press, Cambridge. A role model is an inductive institution for learning and an analytical tool to understand economic development.

3 The growth of individualism has long captured the interest of sociologists and theorists of modernization. Adam Smith contrasted societies held together by ties of affection, obligation and gratitude and societies held together merely by a mercenary exchange of good offices for an agreed valuation, *toennies, gemeinschaft* and *gesellschaft*, Durkheim's mechanical and organic solidarity or Thomas and Znaniecki's contrast between polish peasants in Poland and Polish peasants in Chicago all highlight the increasing scope for the exercise of individual choice as the division of labour proceeds, interpersonal contacts become more multiple and fleeting, people become more geographically and socially mobile and security is increasingly assured by police and courts and bank balances and insurance companies rather than by the support of kin and friends. And the assumption is that where that scope for individual choice exists, human nature is such that individuals will take advantage of it (Dore 1987).

American global dominance. It is now increasingly unsettled by the rise of China and other East Asian economies" (Freeman 1996:403–408) and, it should be added, by Middle Eastern and some Latin American countries.

Nationalism is a concept altogether absent in market theory, which neglects place and history and the "spiritual principle" of a particular view toward a shared history, taken as an essential quality of nationalism (Renan 1882). While market theorists claim that industrial policies have mellowed over time, becoming more market friendly, the developing world's role models, and the "demi-monde" in which they manoeuvre to escape the effects of the World Trade Organization (WTO) law, suggest that their nationalism has simply evolved.[4] Continuity also characterizes the developmental state, which is now oriented toward laying the groundwork for a technology-based economy and buffing up the performance of small- and especially medium-size firms, rather than building heavy industries.[5] In the first stages of industrialization, securing the home market is the crux of a nationalist industrial policy—resource nationalism in the Middle East, statism in the Far East and both in Latin America, especially Brazil.[6]

One aspect of nationalism, ownership of corporate assets, has been an issue of industrial policy since the decolonized generation's independence movements. For at least seven reasons, economic development now depends more than ever on national ownership of productive assets, private or public, which has kept industrial policy alive. Ownership is defined by equity share and corporate control. Without private or public nationally owned enterprises to secure the home market:

i. outward foreign direct investment (OFDI) is unfeasible (a foreign firm cannot undertake a foreign investment on behalf of another country);7

ii. supplying outsourcing services to developed countries is dysfunctional (outsourcers, by definition, look overseas for a national firm to undertake their production);

iii. establishing brand names is impossible (a brand name is company specific, and a company originates in a given country, making a brand name also specific to a country);

iv. dislodging a foreign legacy position in a natural resource industry is undoable (to supplant a foreign concession, a domestic firm is required);

v. reversing brain drain of top national talent is more difficult (a glass ceiling may obstruct nationals from reaching the position of chief executive officer (CEO) if a company is foreign owned, hence the yellow glass ceiling for Asians, the black glass ceiling for Africans and the coffee glass ceiling for Brazilians);8

vi. the illegality of local content rules under WTO law is binding—while foreign-owned enterprises (FOEs) cannot be subjected to local content regulations, state-owned

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4 Many different terms are used to describe this demi-monde or underground. One researcher talks of the "murky protectionism" found in the international environment for mergers and acquisitions (Hemphill 2010).

5 Peter Evans (2008) stressed both continuity and discontinuity. The developmental state will continue to play a crucial a role in economic growth and social transformation in the twenty-first century, just as it did in the latter half of the twentieth century, "but it will have to depart fundamentally from existing models of the developmental state in order to achieve success".

6 Economic nationalism was never wholly dormant. In the case of el pulpo (the octopus), or the United Fruit Company, which established a monopoly on bananas in Latin America, "over time, the strengthening of nationalist government policies (in Colombia) caused the industry to pass to local independent banana growers and local entrepreneurial banana export ventures" (Dye 2008).

7 For a review of outward FDI from emerging economies—empirical and theoretical—see Sauvant (2011).

8 Discrimination also exists at the national level, if China's allegations that Australia is discriminating against it are true. Australia's Labor government applies special scrutiny to projects involving state-linked investors looking to take control of strategic businesses. A 2008 bid by Chinalco to take a controlling stake in Rio Tinto was abandoned. In 2009, China Non-Ferrous Metal Mining Company was blocked from buying a controlling stake in rare earths miner Lynas Corporation. Australia also blocked state-linked China's Minmetals bid for OZ Minerals, saying its Prominent Hill mine was too close to a rocket testing range (Taylor 2011). For reverse brain drain from Silicon Valley to India and China, see Wadhwa et al. (2011).

enterprises (SOEs) can, and private national enterprises have more incentive to build their own local supply chains;9 and

vii. foreign firms conduct almost no research and development (R&D) in the decolonized world, except in large markets such as China, where new products are developed and produced so competing in high-tech industries will be more difficult—for different rates across countries in R&D as a share of income, see table 1;[10] Mexico, with one of the highest rates of foreign direct investment (FDI), has one of the lowest rates of R&D.

Table 1: R&D expenditure as a percentage of gross domestic product

Country	1990	1995	2000	2004
Brazil	n.a.	0.87	1.01	0.91
Chile	n.a.	n.a.	n.a.	0.67
China[a]	n.a.	0.57	0.9	1.13
India	0.70	0.63	0.77	0.71
Republic of Korea	n.a.	2.37	2.39	2.85
Mexico	n.a.	0.31	0.37	0.47
Taiwan	n.a.	1.81	1.97	2.38
Turkey	0.32	0.38	0.64	0.67
France	2.32	2.29	3.34	2.15
Russian Federation	2.03	0.85	1.05	1.28
United Kingdom	2.15	1.95	1.86	1.73
United States	2.65	2.51	2.74	2.59
Japan	2.81	2.71	3.04	3.17

Notes: n.a.: not available [a] Before 2000, only large- and medium-sized enterprises were included. **Sources:** OECD (2008); National Statistics of Taiwan (various years).

According to a Korean study of China's industrial policy, "there is a widespread consensus that in order for China's industrial structure to advance from its focus on assembly and manufacturing to a more technology-oriented industry, it is important to acquire independently developed technologies and brands. The leaders in such technology innovation must be Chinese companies" (Korea Institute for Industrial Economics and Trade 2006[11]). The emergence of Chinese companies, moreover, was influenced by extensive experimentation in policy making. "China's experience attests to the potency of experimentation in bringing about transformative change (in contradistinction to abstract market models), even in a rigid authoritarian, bureaucratic environment. Large-scale experimentation stimulated policy learning and economic expansion" (Heilmann 2008:1–30).[12] In India, too, policy changes are needed "to

9 A "legacy clause" prohibits increasing taxation for the duration of a tax contract. In Chile, for example, "Mining companies currently pay a royalty between 4 and 5 per cent. The new bill initially sets the royalty from 4 to 9 per cent on mining sales on a sliding scale. It raises the royalty from 5 to 14 per cent starting in 2018. With the royalty change, the government aims to raise $1 billion over the next three years for reconstruction after a massive February earthquake. The new royalty cannot be forced on companies currently covered under a 12-year tax invariability clause signed in 2005, though the government hopes many major miners will adopt the new scheme. Chile's mining sector includes private multinationals BHP Billiton, Anglo American and Xstrata in addition to state copper giant Codelco" (Reuters 2010). Only Codelco could be made to pay the new royalty immediately, redistributing revenues to Chile's central government Mineweb (2010): "Chile's senate approves revamped mining royalty bill".

10 "The Chinese market is surging for electricity, cars and much more, and companies are concluding that their researchers need to be close to factories and consumers alike. Applied Materials set up its latest solar research labs here after estimating that China would be producing two-thirds of the world's solar panels by the end of this year" (Bradsher 2010).

11 Full details for this citation could not be found as the paper was edited for publication after the author's death.

12 A study of the Chinese automobile industry mentions experimentation as a positive factor: "The reasons the Chinese state has been successful in promoting the automobile industry are that the industry had accumulated technological capabilities before the reform, there was room for experiments in the decentralized central-local relationship, there was a strong catch-up consensus supported by nationalism

encourage fabless semiconductor companies, which also would result in intellectual property creation and ownership, both of which are a must for a stronger India" (Subramaniam 2010).

The benefits of attracting FDI in the oligopolistic industries of emerging economies must be carefully compared with the real alternative, of actively abetting nationally owned substitutes, by encouraging diversification of existing companies or establishing green-field start-ups. In the past, the benefits of FDI were supposed to become evident simply by comparing the alternative of no FDI, but today this comparison is inadequate (Moran et al. 2005).[13] The national/international comparison is all the more important since FDI in the 1990s boomed under favourable neoliberal policies. FOEs should always be warmly welcomed in competitive industries because with no entry barriers they cannot "crowd out" national enterprises—whether privately owned enterprises (POEs) or SOEs (Amsden 2009). But in oligopolistic industries, where markets are imperfect and experienced international firms can crowd out aspiring national firms before they have accumulated enough experience to compete, a policy choice must be made between the two. In India, the state continues to put limits on foreign investment even as it liberalizes Indian industries. Non-tariff barriers are still common in several areas such as cars, fruit, meat, vegetable oils and other agricultural products[14]. There are still FDI caps on strategic sectors (*Economist* 2005). Though the state implemented measures meant to make the environment more attractive to investors, such as establishing a securities and exchange commission (Khanna and Palepu 2004), limits on sectors signal India's continuing ambivalence toward FDI (Bajpai and Sachs 2000).[15] The same is true of members of the Far East manufacturing role model and the resource nationalism of the Middle East role model.

Given substitution between FOEs and POEs, the methodologies to measure productivity spillovers from FDI must also be re-examined. In China, using new data and methodologies, the productivity spillovers of its foreign investment have been found to be nil, although this finding is not necessarily generalizable (Hale and Long 2011).[16] At the same time as the importance of national ownership has increased, inflows into select emerging economies of FDI have risen sharply. China and India rank first and second in attracting global FDI (although China has expressed increasing doubts about international joint ventures on the grounds that little in the way of foreign technology is acquired in exchange for access to China's vast domestic market) (Nam 2010).[17] As much as 60 to 70 per cent of China's FDI comes from Chinese-owned firms.[18] In Brazil, between 1980 and 1995, foreign companies increased their share of total output phenomenally, from 33 to 72 per cent in the computer industry, from 30 to 57 per cent in the electrical machinery industry, and from 41 to 64 per cent in the chemical

that provided requisite performance standards for building up national industries, and there was a continued attempt on the part of the government to continue to improve its industrial policy propelled by popular opinion" (Chu 2009:1–42).

13 See section III of Moran et al. (2005), which makes no mention of privately owned enterprises (POEs) in its assessment of FDI on a host country's economic development, especially the R&D-intensive sectors of automobiles and electronics.

14 See Economist Intelligence Unit 2005 (www.eiu.com).

15 For India's economic reforms, see Ahluwalia (2002) and Bajpai (2002).

16 According to two economists, one at the Federal Reserve Bank of San Francisco and the other at the University of Electronic Science and Technology of China, "many of the empirical estimates of productivity spillovers from FDI to domestic firms in China are biased upward. When controlling for these biases, our firm-level analysis using a large number of specifications and FDI measures from two different data sets failed to find evidence of spillovers in properly specified estimations" (Hale and Long 2011:151).

17 FDI in the Russian Federation in the late nineteenth century provided ample technology to Russian industry, which was technologically relatively sophisticated to absorb it. The Russian government played a controlling role (McKay 1974).

18 For China's nationalist policies in the telecommunications equipment industry, see Fan (2006a, 2006b).

industry.[19] The banking sector was sharply internationalized. The rivalry between FOEs and POEs poses a major challenge to the "new" industrial policy in R&D-intensive businesses. In poorer countries, no conflict exists: there are insufficient FOEs and POEs; both should be sought and supported. Different policies from those in emerging economies are utilized to industrialize, mainly tariff protection, in the range of 20–50 per cent.[20]

New industrial policy is challenged because FOEs scarcely undertake local R&D, as noted above, whether operating in the Republic of Korea or Taiwan, where foreign R&D is around 1 per cent of total R&D (Statistical Communiqué of the People's Republic of China 2010) or Brazil or Turkey—in Brazil, the Mecca of the multinational, the government undertakes more R&D than the private sector, and an estimated 70 per cent of business R&D is performed by public enterprises.[21] Multinational firms tend to keep their new product development close to corporate headquarters, as Vernon's (1966) product cycle theory predicts, and even if subparts of product development are outsourced to lower-wage countries, their depth and breadth are nowhere near what occurs at corporate headquarters, as measured by R&D expenditures (Amsden and Chu 2003). Yet, industrial policies in emerging economies aim to increase output and employment in industries with high international competitiveness and R&D content, such as electronics, chemicals, pharmaceuticals, machinery and automobiles (Amsden 2001).[22] If R&D-intensive industries are dominated by FDI, and FDI does no R&D, the challenge of industrial policy is greater than ever.

Making the journey to the world frontier even more vexatious in high-tech industries, the private sector in the developing world remains "weak". After colonies won their struggle for national independence they began the even harder struggle to win their economic independence, or what we call securing the home market. The colonial system discouraged manufacturing activity. Its colour bar discriminated against hiring local professionals, and comparable conditions existed in Latin America—Brazil's earliest computer companies, IBM and Burroughs, relegated local talent to low-skilled jobs (Langer 1989). The result was a perception of riskiness on the part of POEs in competing against FOEs; it was easier to collaborate with them as junior partners than to compete against them as equals. If big business preceded big government in the United States, the reverse sequence has characterized the developing world (Chandler 1980). Industrial policies are distinct between the North and South if only because of this sequencing difference, which lies at the root of a different property rights regime.

This may be illustrated with what was once a new technology: phototonics. At the same time that American government laboratories were doing advanced research on phototonics, the United States had:

> thousands of companies using phototonics as their main technology. California, Massachusetts, New York, New Jersey, Colorado and Florida are home to hundreds of organizations and companies that can deliver complete R&D, engineering and manufacturing capabilities using phototonics. These companies consist of a diverse

19 For the Chinese government's second thoughts about FDI in the automobile industry, see Nam (2010).

20 For FDI in the world's least developed countries, see UNCTAD (2001).

21 See Amsden (2001), Amsden and Chu (2003) and Reddy (2011).

22 China, once favouring international joint ventures to develop its automobile industry, has declared its policy a failure due to the failure of international automobile makers to transfer technology (Nam 2010).

> array of large and small companies that serve the aerospace, telecommunications, health care, homeland security and defense, testing and measuring, storage, and semiconductor industries. All these are part of a national system of innovation that was contemplated with investments in education, and partnerships with government and companies that has resulted in a virtuous circle of economic and technological development (Pereira and Plonski 2011:456).

In a country like Brazil or the Republic of Korea, if it were trying to commercialize phototonics, nothing remotely resembling these "thousands of companies" would exist.

In Turkey, which qualified for Marshall Plan aid, when the European Cooperation Agency "set out to modernize the Turkish economy, it aimed at making state agencies into regulatory bodies that would ensure harmony among social classes". But "given the lack of autonomous interest groups (entrepreneurs and a working class), it first had to foster private capital accumulation and labor unions" (Keskin Kozat 2006:2). In the United States, by contrast, the government stepped in with investment and enterprise to fill needs for infrastructure, mainly in transport and banking; but when development enhanced the resources of the private sector, so that private entrepreneurial sources of investment were available as needed, a "state out" policy was substituted and opportunities were left to the private investors and firms (Scheiber 1986).

In the decolonized world, securing the home market has aimed in the 2000s to strengthen complex national systems of production, as FOEs enter high-tech industries but undertake little R&D. Where successful, import substitution in oligopolistic industries has parented export-led growth; in large numbers, POEs have moved from serving the home market to exporting overseas (Amsden in progress).[23] Simultaneously, OFDI by nationally owned enterprises, a novel frontier for industrial policy, has become a new form of expansion, diversification and technology acquisition. The China Investment Corporation, for example, bought a 14.5 per cent stake in a trading firm. China "sees an opportunity to improve China Inc's understanding of how global commodity markets work. There is lots of pent-up demand for such experience in China, and that is enough of a reason to invest in an Asia-based commodities broker" (Kaufman 2009). Local suppliers to Trinidad's oil and gas sector lack scale, so local content policies now include public support to help suppliers expand overseas (Mottley 2008). Saudi Arabia's state-owned petrochemical arm bought General Electric's Plastic Division in 2007 and acquired a China-based chemical plant overnight, with an R&D department attached. Malaysia's ethnic Bumpitura majority, no longer subsidized to form its own small companies at home, is being offered equity shares in foreign multinationals acquired by the Malaysian government (Shari 2009).[24] In the Russian Federation, OFDI often surprises outside observers by its landmark deals. One of them was the purchase in September 2009 of a 55 per cent stake in General Motors' German affiliate Opel by a consortium of the Canadian car maker Magna and the Russian state-owned bank Sberbank. With this deal, the Russian Federation has bought into the industrial heartland of the world economy and could potentially access more advanced technology (Panibratov and Kalotay 2009). The outward expansion of Brazil's companies has received government financial support, including targeted credit lines, to strengthen technological

[23] The nationality of a firm's ownership depends on the majority of its shareholders and the control of its corporate board. For a comparison of the advantages of POEs over FOEs, see Amsden (2009).

[24] When the 2008 financial crash left Japan's parts and components manufacturers with declining demand and a strengthening yen, the Korean government encouraged local firms to "explore the friendly takeover of Japanese companies" (in 2002, the Republic of Korea's outward FDI in China exceeded that in the United States) (KIET 2009).

capabilities (UNCTAD 2010). The form of nationalism exhibited by industrial policies today is different from that exhibited in the past, so industrial policies themselves are different.

Externally, industrial policy is operating under conditions of more intense global competition and, simultaneously, a more competitive supply of investment capital. As indicated in table 2, in a broad range of industries, emerging economies now compete with each other neck-and-neck; Brazil, the Russian Federation, India and China (BRICs) are engaged in "full-set" competition, covering virtually all modern industrial sectors. Each of the BRICs account for a significant share of almost every industry, measured at the three-digit level. Because of each other's success (including the Republic of Korea—the BRICKs), it can be said that monopolistic practices to secure the home market in the early stages of industrialization have given rise to intense competition. A new regime of competitors has created more economic opportunities for still less developed countries, suggesting a dynamic process at play—if Angola's national oil company (NOC) needs to expand, it no longer has to accept the conditions imposed by the "Seven Sisters",[25] it has recently formed a collaboration with the NOCs of Iran and Malaysia.[26] Competition to develop Mongolia's coalfields involves bids from Brazil's mining giant Vale, India's ArcelorMittal, a joint venture between Chinese and Japanese companies, and a consortium between Japan, the Republic of Korea and the Russian Federation. More competitors have also signified more customers. Brazil's former chairman of Vale made the storied comment that he prays daily for China's health because China has doubled its demand for Vale's iron ore (Kosich 2010).[27] China's impact on world markets is conveyed by the headline "Copper falls as China cools" (Desai 2011). More intense competition and a greater supply of investment capital have driven industrial policy to look further afield for investment opportunities than established high-tech industries, where competition is brutal from the East Asian manufacturing corridor. There is a search for new opportunities based on geographical advantages and local capabilities—Brazil's environmentally friendly Amazon projects are exemplary (BNDES 2010). There is a recombination of elements to reach innovative solutions. In the Korean telecommunications sector, core features of the Korean model have been recombined in creative and unanticipated ways to meet the twin challenges of economic openness and knowledge-based industrialization. The chosen industries to invest in depend on the "knowledge of a business" embodied in the investor (an established national company or an individual returning from overseas), not in the perceived factor proportions of the investment itself.[28] The know-how of an existing company is what determines the choice of a new business opportunity, not the comparative advantage inherent in the industry in which that opportunity falls. The large-scale project may succeed or fail (as Pakistan's multi-billion dollar free port of Gwador has failed) depending on the broad "knowledge of a business" of a country's elite, involving both industrialists and government officials.

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25 "Seven Sisters" refers to seven oil companies that dominated the global petroleum industry from the mid-1940s to the 1970s.The group comprised Anglo-Persian Oil Company (now BP); Gulf Oil; Standard Oil of California (SoCal); Texaco (now Chevron); Royal Dutch Shell; Standard Oil of New Jersey (Esso); and Standard Oil Company of New York (Socony) (now ExxonMobil).

26 China began having a favourable effect on the Middle East as early as the mid-1990s. "One of the crucial developments was the growing economic, political, and military and diplomatic relations between China and the Middle East. These led to dramatic improvements in the development of OPEC's member states" (Al-Farhan 2003:27).

27 Currently, China is consuming as much as 40 per cent of total global base metals production (Candy 2010).

28 In one account, a real estate deal maker, Richard A. Baker, moved into high-end real estate (buying Lord & Taylor and Hudson Bay). According to one manager, "I think because of his real estate background, the floor space is almost a sacred area," Mr Hoffman stated. "It's like tenants paying rent: 'We've got to find what will maximize the return for it'" (Clifford and Lattman 2011).

Competition among the BRICs, as shown in table 2, reveals the enormous lead of China vis-à-vis the rest (as well as the Republic of Korea, it should be added). China's world market share is huge in most industries, and its rank among developing countries is almost always first. China is both a competitor to developing country manufacturers and a buyer of their output and supplier of their capital needs.[29] Brazil and India may rank second in market share in the developing world, but it is a second that is far behind China's first. Although market economists regard the import substitution history of both Brazil and India as failures, both countries are close to the top in the developing world in a wide range of industries. Therefore, we can see the BRICs less as a role model unto themselves, even though all have large public sectors and share other characteristics and, instead, regard them as regional leaders, with China strengthening the East Asian role model, Brazil building an original role model in Latin America, and India and the Russian Federation leading manufacturing in a wide swath of land running north–south from South Asia to Northern Europe.

Table 2: Share of BRICs total world output *(%)*, rank of developing country output by industry, 2007

Industry	Brazil		Russian Federation[a]		India		China	
	Per cent World[b]	Rank Devl.[c]	Per cent World	Rank Devl.	Per cent World	Rank Devl.	Per cent World	Rank Devl.
Textiles	2.1	5	<	–	4.2	2	36.7	1
Apparel	2.0	4	<	–	<	–	28.7	1
Leather and footwear	2.2	6	<	–	2.0	7	39.1	1
Wood	3.7	2	<	–	<	–	12.5	1
Paper and products	2.1	2	1.5	–	<	5	12.9	1
Petroleum products	6.0	2	<	–	1.8	6	15.7	1
Chemicals	1.9	3	<	–	3.5	2	12.5	1
Rubber and plastic	2.2	2	<	–	1.4	5	18.3	1
Non-metallic mineral products	2.5	2	2.2	–	2.1	4	16.1	1
Basic metals	1.3	4	2.3	–	2.9	2	36.3	1
Fabricating metal products	2.4	2	<	–	<	6	9.4	1
Machinery	1.6	2	1.5	–	1.4	3	15.9	1
Computing machinery	1.1	3	<	–	0.3	8	3.2	2
Electrical machinery	2.0	3	0.8	–	3.1	2	30.8	1
Communication machinery	1.9	4	<	–	0.7	9	7.2	1
Medical and precision	2.4	2	4.4	–	<	4	5.1	2
Motor vehicles	1.5	4	<	–	1.6	3	–	11
Other transport	6.7	2	1.0	–	2.4	3	35.9	1

Notes: [a] Not in the developing world. [b] Share (%) of total world output (100%). [c] Rank of share in developing (Devl.) country output. < : less output than the top 15 or so countries. – : not applicable for the Russian Federation; not available for India and China. Example: In the case of textiles, Brazil's share in total world output = 2.1%. Among the output of textiles produced by developing countries, Brazil ranks fifth. **Source:** United Nations (2009).

Ironically, intense global competition has converged on a new "level playing field", one that operates underground; there is less rather than more transparency in the new industrial policy compared to that of the 1990s, when the WTO and the North American Free Trade Agreement (NAFTA) were first founded. The subterranean level playing field

29 "Chinese and Indian firms are increasingly snapping up mining assets as the credit crisis (of 2009) sidelines Western rivals" (Webb 2009).

that now exists is paved with subterfuges that *all* countries, emerged and emerging, employ to evade the liberal intent of WTO law.[30] The new nationalism has a great advantage over the old one. Before, new firms and industries were supported by protective tariffs: a race to the bottom. Now, with the banishment of protection by the WTO (except in the poorest countries), new firms and industries are subsidized using science and technology: the high road.[31] To secure the home market under WTO domination, then, what are the actual policies that the world's role models are mastering? After examining the concept of nationalism, these are discussed below.

Nationalism

The industrial policies of the decolonized generation are drenched in nationalism, aiming to secure the home market by engaging the state, POEs, SOEs, resource nationalism and the right to formulate national measures to enhance technological capabilities and economic growth ("policy rights").[32] The importance of policy rights over human rights half a century after decolonization is hinted at in a popular survey in North Africa conducted by the news service Magharabia.com in 2011:

Poll question: Is sovereignty more important than human rights?

Yes	4,027 (49.1 per cent)
No	3,819 (46.5 per cent)
I don't know	360 (4.4 per cent)
Total responses	8,207

Although responses would probably differ by region, the issue of sovereignty in the decolonized world remains supreme. After waging national movements for political independence, securing the home market became industrial policy's overriding objective. But by the mid-twentieth century, the word "nationalism" carried a harshly negative connotation maligned by the carnage it had created in Germany, Italy and Japan. Still, the nationalism of the Axis powers is fundamentally different from that of the decolonized generation, notwithstanding Japan's formation among its neighbours of the Greater East Asia Co-Prosperity Sphere. German, Italian and Japanese nationalism was based on ruthless unification at home and aggressive expansionism abroad. That of the decolonized generation is based on political disunity at home, the reality and vulnerability to economic interference *from* abroad.[33] National disunity was inherited from colonial rule, which left open the door to post-independence foreign intervention, if not military then financial and political, not least of all foreign constraints on the freedom of the decolonized generation to formulate its own industrial policies. Because the rich write history, the twentieth century's negativism toward nationalism has strengthened the universalist idea of a level playing field and identical economic policies for the North and

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30 www.wto.org/english/tratop_e/region_e/regrul_e.htm, accessed in 2011.

31 For nationalist policies in the Indian steel, auto and software industries, see D'Costa (2009).

32 Among the forms of resource nationalism faced by mining companies (sometimes referred to as "creeping expropriation") are: (i) imposition of a resource rent, such as the Australian government's proposed 40 per cent resource tax; (ii) amendments to royalty rates, such as South Africa's new royalty regime; (iii) imposition of greater controls on foreign participation, such as Venezuela's revocation of multiple mining licenses; (iv) encouragement of in-country beneficiation, as in Brazil; (v) institution of new mining codes that increase the government's direct or indirect revenue share, such as in Indonesia; (vi) "use it or lose it" (use a concession to produce taxable revenues or forego it), such as the Democratic Republic of the Congo's dispute with First Quantum Minerals; and (vii) preference for state exploitation of national minerals, such as the withdrawal of the massive Tavan Tolgoi coal project from auction by the Mongolian government (Ernst and Young 2010).

33 "While these national liberation movements in the Third World were in theory modeled on the nationalism of the west, in practice the states they attempted to construct were generally the opposite of the ethnically and linguistically homogeneous entities which came to be seen as the standard form of 'nation–state' in the west" (Hobsbawm 1990:164).

the South, rich country and poor country alike. Although nationalism differs between rich and poor, this makes no difference for policy universalism in the minds of developed countries. By assumption, in Enlightenment thinking, one policy fits all: market policies themselves are supposed to be neutral with respect to the level of a country's wealth.

The philosophical defence of nationalism among colonized people—their right to a nation–state—was provided by Edmund Burke with India in mind, and Mahatma Gandhi supplied the definition of civilization that made colonial nationalism defensible. While British liberals defined civilization in terms of a stage in development, a definition that justified colonialism by rationalizing the need for a more developed economy to cradle civilization in a less developed one (this was even true of the great economist John Stewart Mill), Gandhi defined civilization in terms of moral behaviour: according to this definition, the simplest economy is as capable of being civilized as the most complex one (Gandhi 1909).[34] Morally, poorer countries should be allowed to choose the policies that suit them best, and to be considered intelligent enough to decide what is suitable; this morality is as valid as that of equality among nations competing in markets, the justification for universalism and internationalism.

For Burke, "the British were insistent on denying the fact that India had a history of its own", one with society and social order. By contrast, "orientalism" (depiction of Eastern cultures by Western commentators) held that India was "all state and no society", despotic and doomed to decay (Mehta 1999:184). Today, orientalism takes the form of demonizing the Middle East's Muslims. In the Far East, it takes the form of "China bashing" and before that "Japan bashing". In the 1990s, while experts acknowledged East Asia's high-performing growth, it was attributed to "market-friendly policies" rather than to a nationalist role model (World Bank 1993). In the 2000s, despite highly positive outcomes of industrial policies in the BRICKs, Singapore and Taiwan, internationalists ceaselessly criticize government economic intervention and attribute positive economic outcomes to non-intervention (Pack and Saggi 2006). Privatization is a strident battle cry.

Given India's own place and shared history, Burke argued that it deserved the freedom of self-government to choose its own economic policies, or what could be called "policy rights", analogous to an individual's human rights. But Burke's argument for political freedoms, last espoused in 1795, was not to be realized for more than 150 years. The argument that a nation should enjoy the liberty to choose its own economic policies has still not been accepted by the market mavens of the Enlightenment. Only the individual enjoys inalienable economic rights. The nation remains conceptually outside the market framework and natural law, never attaining par with the single economic agent. The decolonized generation's nationalism exists in reality, not in theory. Nor is there a compelling motive among nationalists to formalize such a theory. The incentive is strong to avoid reprisal and avert the Enlightenment's eye. "Hide brilliance, cherish obscurity", as China's leader Deng Xioaping is reputed as having said.

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34 As cited in Mehta (1999), which won the J. David Greenstone Book Award from the American Political Science Association in 2001 for the best book in history and theory, is also the source for Burke's analysis. Mill "assumed that Indians had to first grow up under British tutelage before they could absorb the good things—democracy, economic freedom, science—that the West had to offer", while Gandhi insisted that "true civilization was about moral self-knowledge and spiritual strength rather than bodily well-being, material comforts, or great art and architecture" (Mishra 2011).

In India, the public sector remains an important policy instrument despite liberalization and the fact that it is no longer seen as an engine of growth. India's public sector is expanding well beyond those industries that provide public goods to non-traditional areas. Privatization has been limited mainly to loss-making enterprises even though India's 10 biggest companies remain state owned (*Economist* 2004). In December 2006, the government signalled its continuing lack of interest in privatizing key SOEs although, uncomprehendingly, it sold its share in Maruti, a highly profitable automobile joint venture with Suzuki Motors. Similarly, in Brazil, the state-owned development bank (BNDES) not only preserved but also actually expanded its position in the domestic credit market from 1990 to 2006, despite the financial-liberalization policy that was implemented in that period (Hermann 2010).

Given defeat in the marketplace of ideas—the conventional wisdom is that of a liberal economic order whereas reality is otherwise—how has the South's economic nationalism managed to survive given the omnivore of the Enlightenment? From the 1950s through the 1970s, the economic development of the South was of no threat to the North, and thus its unorthodox policies were tolerated, if only barely. Indifference from the North was comparable to what Japan enjoyed after its opening by American gunboats in 1868. Japan avoided being colonized by the United States as post-Civil War Reconstruction diverted speculators' attention to business opportunities in Dixie away from plundering Japan (Norman 1940).[35] Following the Second World War, American investors had their eye on Canada (their best trading partner and locus for FDI) and Europe (soon to become a wealthy free trade zone). Negotiations in Washington were focused on reducing trade barriers in the global North, not the impoverished South (which took only one-quarter of US exports). As former US President Richard Nixon said regarding Latin America, "nobody gave a damn".

By the mid-1980s, as Japan became an economic threat to the United States, as OPEC jeopardized America's oil supply and Latin America's debt crisis endangered economic stability, Washington promulgated a new international economic order. In the mid-1990s it ushered in global organizations (for example, WTO and NAFTA) and liberal rules to universalize market policies. Still, a fundamental contradiction in the North's liberalism helped the South's nationalism survive. As a point of principle since the Truman administration, the United States does not lend on subsidized terms to any foreign *private* investor (nor allow any multilateral bank of which the United States is a member to lend on such terms), on the chance that such a loan might undermine the profitability of an American private investor, or deny a private US lender the chance to handle such a business transaction (although the North's private lenders typically also only lent to the South's governments, which could promise a sovereign repayment guarantee; there was no credit market for private Southern borrowers until the 1990s). The principle of governments lending only to other governments, strictly implemented to this day, strengthens nationalism. The South's governments are conduits for foreign aid and loans, which they then on-lend to hand-picked private and public borrowers on stipulated terms.

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[35] "Japan's comparatively successful transition to a modern state was accomplished in part because, for reasons of their own, the Western powers did not attempt to clamp Japan in the vise of neocolonialism during the period when the country was most vulnerable. The threat, however, nevertheless remained, and the game of international power was played by Western rules. Japan acquired extraterritorial rights in China before it had shaken free of similar foreign privileges in her own land" (Krehm 2004).

It is a fact that foreign loans to the South typically have stringent policy conditions attached, and on-lending by the South's governments to its private sector also carries conditional performance standards, which help make credit allocation efficient (Amsden 2001). Yet, the WTO prohibits nations to attach conditions to FDI. Empirically, it is claimed that "developing countries can serve their interests best through vigorous trade and investment liberalization and by turning away from the suggestion by some of their members that performance requirements (such as mandatory joint ventures, technology sharing obligations and domestic-content targets) should regain legitimacy in the World Trade Organization" (Birdsall et al. 2005:136–152). But there is plenty of counter-evidence, and it is supported by theory (local content regulations, by their very nature, tend to raise quality and productivity), as discussed in the next section. The developing world defeated a drastic multilateral initiative that would have spared FDI from virtually any national controls.[36] Nationalism won the day. The resource nationalism of the world's oil and mining industries is premised on strict controls on FDI.

By the mid-2000s, with the rise of the BRICs, Washington was in a less privileged position to push liberalism to the extremes envisioned a decade earlier. In 1998, the US trade representative under US President Bill Clinton brazenly boasted:

> It is vital to the long-term prosperity and prestige of the United States…to take full advantage of our strong global position and continue to push our trading partners for even more open markets and economic liberalization. If we abdicate our strength, we risk missing a prime opportunity to advance those policies and values that have been so instrumental in making our economy the strongest and most efficient in the world (USTR 1998:11).

Only seven years later, as raw material prices began to soar, there was less reference to "push" and "strength". Brazil had become a thorn in Washington's flesh inside the WTO by interpreting every rule to the letter, the Russian Federation was still not a WTO member, foreign investment in India had prematurely slowed and China was flagrantly undervaluing its exchange rate and criticizing the joint venture.[37] Like Brazil, India uses WTO anti-dumping rules as a protectionist device to limit imports. It is one of the major users of anti-dumping duties, and in 2001 it was the largest initiator of anti-dumping cases. The BRICs and other emerging economies are enjoying stronger policy rights.

Above all, Europe and the United States were themselves undermining their own liberal values, making it easier for the decolonized generation to do so. NAFTA is at the heart of American foreign economic policy—Washington, unlike the WTO, injected politics into trade. Yet, NAFTA is the antithesis of free trade since it provides preferential treatment to members only.[38] The attempt to limit subsidies inside a country's borders was weakened in Europe and the United States by a military–industrial complex and a science and technology infrastructure that provided a wide range of subsidies to private actors, the surface pavement of the underground level playing field (Block 2011). The new industrial policy has thus remained fixed on securing the home market and focused on state economic intervention, the national ownership of firms and resource nationalism. India's laws on intellectual property are now strong, but enforcement is still weak due to

[36] See Becker and Henderson (1999) and Third World Network (2009).

[37] Whether deliberate or not on the part of the Indian government, foreigners were turned off by India's bureaucratic hurdles, red tape, corruption, poor infrastructure and concerns about intellectual property rules enforcement (Wessner and Shivakumar 2007).

[38] For the interaction of free trade agreements and financial crises, see Third World Network (2009).

corruption and a lack of resources for enforcement, about which the Indian government is doing little. The new industrial policy differs from the old less in substance than in context and form.

A weak private sector

The business historian Alfred Chandler (1962) referred to securement as the "functional and strategic competition" for market share, suggesting that the struggle over the home market is competitive, driven by both market forces and the visible hand of professional management. A firm's share in gross national product is a good measure of its success or failure in securement. Yet, the market in which Chandler's competition occurs, late nineteenth century America, engaged mostly American firms; the foreign challenge was minimal, making comparisons with decolonized countries misleading (see Chang 2002). Because of the private sector's weakness in developing countries compared to foreign firms, the job of securing the home market and influencing market share fell to newly politically independent states.

Securing the home market began with decolonization and is still in full swing over half a century later. As the Korean Academy for the Motor Industry acknowledged, "it is difficult for the automakers to globalize without building a solid market base at home" (Wu 2009). China's TCL Company was formed in 1981 with a $5,000 loan from a local government in Guangdong province, and became a Chinese brand name in televisions, personal computers, air conditioners and cell phones. TCL aims to become a global household name, "but first it has to succeed at home, where it faces local competitors battling for turf on the basis of low wages, and multinationals leveraging their reputations and know-how" (McGregor 2001:23). Taiwan's electronics firms now produce roughly 90 per cent of their output in China, but their headquarters and R&D remain in Taiwan. Brazil's Vale, a global leader in iron ore, operates on six continents and has acquired such giants as Arizona-based Phelps Dodge (copper), which was once a quintessential imperialist in Latin America, London-based Anglo-American (gold) and Canada's Inco (nickel).[39] But "for all its newly spread wings, Vale's strong base is firmly in Brazil" (Stier 2008). In the case of Saudi Arabia, its power is based solely on its possession of oil reserves. "The Saudis are haunted by the prospect that one day there will be no more oil below the sands. When that day comes, the oil companies will leave, the migrant workers will probably follow and Saudi companies staffed by Saudi workers will have to take their place. This is a prospect that has instilled an acute sense of pragmatism in the Saudis and their developmental policies" (Al-Farhan 2003).

Why the homing instincts?

Despite globalization, the home market is a relatively profitable and comfortable market in which a firm can reach scale economies, build a supplier network and learn to raise productivity because it is naturally protected by tastes, transport costs, import duties, local supplier loyalties and government procurement practices (in the early phase of the cotton gin, even an innovator as great as Eli Whitney depended on US military contracts for his material existence) (Green 1956). Securing the home market is also necessary for an

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[39] Brazil's government, through state pension funds and the state development bank BNDES, has a 51 per cent stake in Vale as well as a so-called golden share that allows it to veto or change Vale's directors, but it has no power to interfere in Vale's strategic decisions (Mineweb 2010).

economy or empire to expand spatially; an imperialist of any sort needs the home base to supply its rear.

But the home market is not cheap if it exacts penalties in the form of low skills and poor infrastructure. It is prohibitively expensive if it "crowds out" national firms altogether, due to the entrenchment of foreign monopolies that enjoy legacy concessions in minerals and a headstart in acquiring tacit knowledge and brand names in manufacturing (Amsden 2009). If costs outweigh benefits, the local business elite has an incentive to cooperate with foreign firms rather than compete against them. This calculation, however, has a social and political dimension because a firm itself is a social and political construction. The top talent of any country may succeed in reaching the highest positions of pay and responsibility only in businesses that are nationally owned, for example: (i) Morris Chang, chief executive of Taiwan's premier semiconductor company, left a high executive position at Texas Instruments because he claimed he had hit the "yellow glass ceiling"; he would never make it to CEO at Texas Instruments;[40] (ii) Korean electrical engineers working in American companies in the United States "became acutely aware of the glass ceiling in the company, and of their disadvantages due to cultural and language barriers—it is very, very rare to make it to the level of vice-president" (see Pyun 2012:31); (iii) West African executives complain of similar experiences in hitting a "black glass ceiling at Unilever"; and (iv) Brazilian computer experts hit a "coffee glass ceiling" at IBM and Burroughs in the 1960s.[41] Therefore, the business community may support industrial policies that discriminate in favour of national firms, and national firms may then attract top talent. If a firm does enjoy the natural protection and social benefits of the domestic market, it may be obliged politically to contribute to it in return with a snowballing effect—the greater reciprocity, the easier to impose performance standards in exchange for subsidies (Amsden 2001).[42] But if national entrepreneurs are simply risk averse as a matter of history or culture, then the whole society suffers unless the government intervenes.

The weakness of the developing world's private sector was evident in the 1920s, when Turkish merchants "already enjoyed greater opportunity than they could cope with, and were content to remain on the receiving end of a division of labor organized by and favoring foreign capital" (Keyder 1987). The Great Depression, however, wiped them out and with them, Turkey's export model. By 1929, "the bureaucratic faction in power had emerged victorious" (Akgöz 2012). China, the inventor of silk, accounted for 51 per cent of silk exports in 1859–1961 but only 11 per cent in 1936–1938, due partly to feeble government efforts to control pebrine egg disease (Federico 1994). The nature of ownership and control also contributed to low quality and poor management. Cantonese silk weavers rented capacity from the clans, gentry and landlords who had built "wild chicken" filatures as a form of real estate speculation. The separation of ownership and

[40] The chairman and CEO of Taiwan Semiconductor Manufacturing Co. (TSMC), Morris Chang, is to be awarded the 2011 Institute of Electrical and Electronic Engineers (IEEE) Medal of Honor for his contributions to the world's semiconductor industry, the IEEE comfirmed. Describing Chang as a pioneer in the integrated circuit sector, the IEEE stated that his "visionary leadership shaped the technology policy for an entire nation and revolutionized how the semiconductor industry does business around the world". According to the IEEE, which bills itself as "the world's largest professional association for the advancement of technology", the medal, which is sponsored by the IEEE Foundation, represents its highest honor. It will be presented to Chang in San Francisco on 20 August 2011. (CNA English News, TSMC Chairman to Receive IEEE Medal of Honor, 11 August 2011 http://focustaiwan.tw/).

[41] Morris Chang, personal interview, Taipei, 2001. See Amsden and Chu (2003). There are other forms of discrimination against emerging economies, such as informal barriers against their acquiring foreign property. See, for example, Taylor (2011), for a discussion of China's accusations of discrimination in Australia.

[42] Performance standards and nationalism are discussed by Chu (2010) in the case of the Chinese automobile industry.

management discouraged technical innovation and the expansion of plant size (Eng 1984).

In the 1930s, Korean businessmen cheered when Japan invaded China because it meant a new market for them (and a chance to observe Japan's "forced industrialization" of Manchuria first hand) (Eckert 1996). Their involvement with Japanese firms endured in the 1960s, and the Republic of Korea's business community vociferously favoured the Republic of Korea's renewal of diplomatic and commercial ties with Japan, broken at the time of military surrender, although opening exposed them to Japanese takeover and export competition. The Republic of Korea recognized Japan in 1965 under US political pressure, but the beginnings of a new industrial policy curtailed Japanese foreign investment and provided protection and subsidies to the Republic of Korea's textile mills, which operated with higher costs than Japan's and could not compete on the basis of market-determined prices (Amsden 1989).[43]

More than 80 years after the Manchurian incident, the Korean government was still complaining about the private sector's passivity toward economic development, even in a country where the private sector is more capable than in almost any other developing country. According to a government study of the medical services business, "the general failure to export medical services (or attract them to the Republic of Korea) includes the passive approach adopted by domestic medical institutions toward foreign markets (especially China's, whose supply of medical services has fallen behind demand)" (Korea Institute for International Economics and Trade 2009).

In the 1940s, the "Quit India" movement was wildly popular with the poor but was perceived as a "real threat" by Indian industrialists. Some "met repeatedly with British officials, trying their best to allay its suspicions as to their role in the independence movement" (Chibber 2003:86–87). The Bombay Plan in 1945 for economic development met with an "icy" reception from capital as a whole, despite the fact that its most prominent and progressive business representatives had written the document. "The critical factor that blocked the building of a successful developmental state in India was the widespread and organized resistance of the business class" (Chibber 2003:95).

After the First World War, Egypt's "embryonic" national bourgeoisie "was so weak that it had to rely for political support on more powerful groups such as the large landowners and foreign business community with often quite different economic interests" (Owen 1981:293). In the 1950s, Egypt's military leaders, most notably Gamal Abdel Nasser, staged a bloodless coup to accelerate economic development. They favoured the private sector as the agent of change. But soon "the regime shaped its ideology in a growing disillusionment at the performance of the private sector", the Middle East's largest and best firms organized into industrial associations (Tignor 1984). Instead of taking the lead, private Egyptian enterprise limited its horizons to gaining greater legal freedoms to fire workers and evade foreign competition (Tignor 1999). It speculated in land instead of investing in productive assets. It identified itself so closely with foreign capital that it was horrified when, in 1956, Egypt nationalized the Suez Canal and "localized" top management positions (the Anglo-French Suez Canal Company's archives revealed that

43 The prestigious Pearson Commission noted about Third World competitiveness: "the American (and European) market is one in which the less-developed countries' price advantage alone is usually not sufficient" (Pearson 1969:349).

not a single Egyptian had been hired as a manager since 1858, when construction under Ferdinand de Lesseps first began).

Argentine companies in the 1950s were on average small in scale, family owned and unprofessionally managed. Argentina's premier private national company, the SIAM group "was held together by the owner in person. He would walk through the factory at least two or three times a week, talking with the chiefs and foremen and settling problems on the spot. … This highly personalized control was more suited to a small *taller* than a big factory". The owner, Siam Di Tella, was persuaded by a Westinghouse executive to hire an industrial engineer to design a more efficient organization. An engineer arrived from Westinghouse and designed a hierarchical organization. After months, he admitted that "results have only in part been obtained" (Cochran and Reina 1962:314–315). As late as the 1990s, when Argentina was undergoing draconian liberalization driven by a business elite that embraced FDI, of 271 large Argentine enterprises, 117 had no organizational chart that was technically acceptable. Barely 79 had a manual containing organizational procedures (Schvarzer 1995:147). R&D expenditures were almost nil; Argentina's NOC, dating to 1922, was privatized in 1991 and became committed to a technology policy of "buy" rather than "make" until it was merged with Spain's oil and gas multinational company Repsol.

In Brazil, the nationalist economic developmentalism of the Vargas regime (1930–1945) was excused on account of the private sector's failure to meet Brazil's wartime needs. High on the list was the steel industry, which the state ultimately established (Trebat 1983). "This image of a feeble private sector has lingered to this day" (Capstone 1988:12). Despite a description of Nigeria's private business sector in 1945 as a "formidable presence" (Tignor 1999), Lewis (1967:29–30) noted that "Nigerian governments have given thought to the development of small industrial enterprise and have spent some money for this purpose. They have experienced much frustration…what Nigerian entrepreneurs lack most is managerial competence". Along with money, "they need the right product for the market, adequate supervision of labour, better plant layout, proper inventory control, improved accounting, and so on". Nigeria's attempts at indigenization in the 1970s and 1980s were well designed but hard to implement because "the vast majority of indigenous businessmen did not share its interests or objectives" (Biersteker 1987:297).

By 2000, the decolonized generation had come a long way in its ranking among the world's largest enterprises, measured by sales in the top 500 international firms rated by *Fortune Magazine*. The total went from four in 1962 to 33 in 1992 and then down to 25 in 1999 (Amsden 2001). After stagnating under neoliberalism, the number jumped to 76 in 2008, as Chinese enterprises came on board. Still, the weakness of the private sector is suggested by the fact that over 50 per cent of the emerging economies' 76 ranking firms in 2008 were state owned, mostly in oil and banking. Although the press routinely called China a "juggernaut", only 35 Chinese companies (30 of them state owned) were on the 2008 top 500 list of *Fortune Magazine* (see table 3). The private sector still had a long way to go in joining the world's largest companies, noted not only for their scale economies but increasingly for their knowledge acquisition (Chandler et al. 1997). Consequently, industrial policy also had a long way to go in beefing up the private sector.

Table 3: Companies from emerging economies in the *Fortune Magazine* 500 international firms, 2008 *(revenues)*

Country (number of entries; G=state-owned)	Ranking	Industry (sector)
China (35) (G=30)	9, 13, 15, 92, 99, 125, 133, 145, 155, 170, 185, 218, 220, 242, 252, 263, 281, 318, 327, 331, 335, 341, 359, 372, 375, 380, 385, 411, 415, 419, 425, 426, 428, 444, 494	Oil, finance, telecommunications, electricity, steel, railway, trade (two Hong Kong-based), shipping, metals, construction, autos
Republic of Korea (13) (G=1)	40, 69, 72, 87, 199, 213, 305, 355, 362, 438, 441, 471, 475	Electronics, holding, autos, steel, electricity, heavy industry, finance, explosives, oil and gas, beverages, construction
India (6) (G=5)	105, 258, 264, 289, 318, 402	Oil and gas, steel, chemicals, finance
Taiwan (6) (G=1)	109, 291, 306, 323, 342, 436	Electronics, oil, petrochemicals
Brazil (5) (G=2)	34, 148, 174, 205, 400	Oil, finance, steel, minerals
Mexico (4) (G=2)	31, 273, 370, 421	Oil, telecommunications, electricity, cement
Singapore (2)	275, 300	Manufacturing services, agro-industry
Malaysia (1) (G=1)	80	Oil
Saudi Arabia (1) (G=1)	186	Petrochemicals
Thailand (1) (G=1)	118	Telecommunications
Turkey (1)	172	Holding
Venezuela (1) (G=1)	27	Oil
Total entries=76		
Total G=45		
Comparison/size		
Google (US)	423	Electronics
Amazon (US)	485	Electronics
Hon Hai (Taiwan)	109	Electronics
Quanta Computer (Taiwan)	342	Electronics
Samsung (Republic of Korea)	40	Electronics

Note: Differences in accounting methods may influence results. **Source:** *Fortune Magazine* (2009).

Securement of the home market through large, national firm formation has not ceased altogether in "new" industrial policies, but attention has shifted to promoting public enterprises (after the wave of privatizations in the 1980s) and strengthening small- and medium-size firms (discussed in detail below in the case of the Republic of Korea). Instead of a mellowing out of industrial policy according to the World Bank, restricted to export promotion, industrial policy remains highly interventionist in the case of public enterprises and private small and medium enterprises (SMEs), which in practice tend to be exempt from WTO restrictions on subsidies. To compete against Europe's small specialty firms such as Prado in shoes, Moët in champagne, Dansk in design, MAN in diesel engines and Benz in cars, they have to invest heavily in brand names and flexible specialization (Piore and Sabel 1984). Securing the home market for specialized small-

and medium-size enterprises in high-end niche markets is likely to be harder for industrial policy to achieve than for large-size firms competing on the basis of economies of scale, although the weaknesses of SMEs cannot be circumvented by the establishment of public enterprises the way such weaknesses were circumvented in the large-scale private sector, seen with great clarity in all of the BRICs. Nor does FDI typically enter the small- and medium-firm size range in the developing world.

Expropriation

Industrial policy in the developing world began with attempts to use government policies to acquire FOEs and then either privatize them or manage them under state ownership. Securement at the firm level went furthest in East Asia due initially to war, and in the Middle East due to political aggressiveness. Securing the home market in both cases took radical forms—forceful appropriation of foreign property, which enlarged a business sector necessary for further development. Only India achieved the same end through the use of market forces. As noted earlier, Indian enterprises bought out British companies at rock bottom prices as political independence approached and foreign investors fled (Tomlinson 1981). Still, in the 1960s, state investment exceeded private investment in India, and soon after 1972 "the Indian government directly owned a greater share of the industrial economy than did private enterprise" (Tomlinson 1981:455–486). Government holdings in the private sector became large enough to rival in value government holdings of state enterprises (Encarnation 1989:35–36). Subsequent nationalizations of banks and insurance companies, the largest of which were British owned, dating to the Raj, increased the state's holdings further. Still, "despite their control over financial resources…state financiers intervened little in corporate planning and even less in daily management" (Encarnation 1989:44). The state-owned NOCs of OPEC members emerged from the outright nationalization of foreign concessions beginning with Mexico's pioneering success in 1938 and Iran's initial failure in 1953, when its popularly elected Socialist prime minister, a champion of oil nationalization, was deposed in a political coup backed by the Central Intelligence Agency (CIA) (Penrose 1971).

In East Asia, including China, the germs of new firms came from the seizure of Japanese properties in the aftermath of war. When the Soviet army marched into what was to become North Korea, it confiscated Japanese properties and redistributed them to North Koreans (also detaining Japanese managers to train them) (Park 1999). Likewise, when the Supreme Commander of the Allied Forces in the Pacific (SCAP) occupied what was to become the Republic of Korea, it transferred Japanese properties to a fledgling Korean government. The Dutch returned to Indonesia in 1945 to reclaim their properties confiscated by the Japanese army in 1942, but the Indonesian army (partly trained by Japan) seized all Dutch properties in 1958—banks, factories, trading houses and plantations (Lindblad 2008). No longer were national firms being crowded out by colonial relics. Japanese companies were gone, in Malaysia and Thailand as well, although the invaluable manufacturing experience gained under Japanese colonialism remained. Thus, whatever the overlap in industrial policy over time between the global North and South, the history of property rights of both systems differs fundamentally.

The reason behind the OPEC nationalizations was to secure the home market. Whereas the OPEC *cartel* was concerned with influencing price, the OPEC *developmental role model* resorted to nationalization to acquire control over domestic supply (Adelman 1986).

> Failure of the initial oil concession holder to develop the concession more intensively lies at the heart of the demands on the part of the host governments for the initial concession holders to relinquish undeveloped portions of the concession and to invite new firms to exploit these areas (the prelude to nationalization). The private integrated companies, on the other hand, seek to limit output and the rate of development in line with the growth of their markets (Wells 1971:224).

In Nigeria, a 1976 commission complained not of too little supply, but of no supply at all: "The oil companies and other multinational corporations and their home governments are generally reluctant to establish oil related enterprises in the developing countries because they do not, understandably, want to create new rivals to their established undertakings in the industrialized countries" (Nwokeji 2007:112–113). The supply of domestic oil determined the magnitude of government tax revenues, which in turn determined the finance available for major human and physical infrastructure projects.[44] By using industrial policies to establish NOCs, the home market was secured and diversification began up and down the energy value chain, first into petrochemicals and fertilizers—for diversification in the Persian Gulf, see Fasano and Iqbal (2003).[45]

Securement in the developing world's extractive industries 50 years later was repeating itself, whether in sub-Saharan Africa (Angola's oil sector accounted for 40 per cent of its gross domestic product and 80 to 90 per cent of its government revenues in 2010) or former communist transition economies.[46] With the same motive as OPEC members, the Mongolian government ceased issuing mining licenses in 2010 to gain control over domestic supply. The foreign concession of a rich copper and gold deposit was allegedly being held "as a money-making tool and not an investment in active exploration" (Rocha 2010). The US State Department responded by accusing Mongolia of "creeping expropriation" (US Department of State and Service 2005/2007). Despite Dutch Disease, "from the Caspian Sea to South America, Western oil companies are being squeezed out of resource-rich provinces. They are being forced to renegotiate contracts on less-favorable terms and are fighting losing battles with assertive state-owned oil companies" (Mouawad 2004:1). Nevertheless, securement has shifted in the oil business from controlling domestic supply to controlling domestic production of parts, components and services ("local content"). Under WTO rules, foreign-owned oil companies can resist national demands for greater "local content", which makes the national ownership of oil fields critical for creating more entrepreneurial opportunities and paid jobs through "hollowing-in".

Latin America was late because it missed the discontinuity of political decolonization after the Second World War; its political independence had occurred much earlier, in the beginning of the nineteenth century, and the cathartic upheaval in postwar foreign property rights experienced in ex-colonies, therefore, did not take place. Latin America's industrial policies had a harder time of securing the home market, for the seven reasons noted earlier, given the entrenchment of FOEs. Its technology transfer before the Second World War came not from colonial companies, which were later dispossessed, but from

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[44] See Adelman (1986) for the view that NOCs had a higher discount rate than multinationals for immediate production. For a review of the property rights debate, see Al-Moneef (1998).

[45] In the case of the Nigeria, whose oil industry began producing in 1956 under Shell, "an indigenous petroleum industry appeared promising in the early 1970s. Although a foreign-owned industry in the hands of IOCs yielded handsome economic rents, production depended on the calculations of overseas-based corporate headquarters. The industry had limited impact on the economy, in terms of domestic factor input, reinvestment, and other linkages" (Nwokeji 2007:113).

[46] For the Caribbean, see UNCTAD (2007).

émigrés, who may have settled permanently in Latin America but who may still have regarded themselves as "foreign", with favourable views toward FDI. With this past, Latin America's future lay in still more foreign investment. In the 1960s, 1970s and 1980s, Argentina, Brazil and Mexico always ranked among the top 10 destinations in the developing world for FDI. In those decades, their estimated share of world total FDI (bound for developing countries) was 31 per cent, 22 per cent and 21 per cent, respectively.[47] The decline was due to China's rise as a destination, but China's definition of "foreign investment" is for political purposes unusually inclusive and broad—China appears to have more FDI than it actually has by most developing countries' standards, certainly India's, enabling it to give the appearance of economic openness.

The second-stage industrial policies of Brazil and Mexico have gone furthest in the energy and metals sector because national ownership is greatest in these sectors, exemplified by two NOCs—Petrobras and Pemex (by the 2000s, local content was near 100 per cent in PEMEX, but it was the only company from an emerging economy to appear on the 2008 *Fortune Magazine* international list of the top 50 money *losers*, having depleted one of its major oil fields) (UNCTAD 2007).[48]

When the "wrong" property rights are "right"

The origins of industrial policy in Asia and the Middle East are thus associated with "getting the property rights wrong". Through intimidation, acquisition, appropriation, expropriation or nationalization (overlapping terms, with or without due compensation), foreign property fell into national hands and the home market was secured. Under what conditions are the wrong property rights right? Securement succeeds when governments have tangible skills at hand to manage newly nationalized properties—the exceptions "prove" the rule—Argentina in manufacturing and Nigeria in petroleum, for example. Industrial policy implementation depends on "appropriate skills", and where no role model exists to enrich such skills, as in Africa and Latin America, implementation suffers.

After the Second World War, Argentina acquired 35 Axis properties, including the manufacturing subsidiaries of stellar German companies such as Mannesmann, Beyer and Bosch. Instead of failing from Peronist overkill, these properties failed to be restructured into "growth poles" due to lack of interest on the private sector's part and inexperience (or the wrong experience) on the public sector's part. "Policy implementation was difficult because there were no clear indications of the methods to use to reach the goals articulated in the First Five-Year Plan. Thus, for example, although the production of cotton yarn was among the industries to receive government attention, the bureaucracy failed to design a sectoral policy. Instead, it concentrated its attention on price controls, and the economy stagnated" (Belini 2009:199). Argentina could boast one of the leading theorists of import substitution industrialization, Raul Prebisch, but his writings did not provide a roadmap for making new manufacturing properties work.[49]

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[47] UNCTAD online database, www.unctad.org.

[48] Many developing countries still have restrictions on foreign ownership of land. In 2010, for example, Brazil announced plans to tighten restrictions on foreign ownership of farmland. The Agrarian Development Ministry stated that under current law, large rural properties can only be purchased by Brazilian citizens or residents, but foreigners bypass that rule by setting up companies in Brazil, which are controlled abroad, to purchase land. The ministry declared the restriction was necessary to ensure that Brazilians had secure access to food.

[49] A study of Argentina's publicly listed companies from 1895 through 1935 attributed the stagnation of Argentine industry to a failure of the private sector to accumulate technological capabilities and to the government's lack of policy-making capabilities (Pineda 2009).

Compare Argentina's experience with that of Indonesia or the Republic of Korea, both of which, starting with the Greater East Asia Co-Prosperity Sphere, learned "sectoral policy" directly from Japan. When Japan's properties fell into Korean hands, the Republic of Korea appeared poised to squander them much as Argentina had done with German assets. The sale of Japanese properties, like the disbursement of American foreign aid, was corrupt. But both the Republic of Korea and Taiwan "were knowledgeable about the ways in which the Japanese bureaucracy established production targets, financial and labor inputs, price-control machinery, and rules to enforce law and contracts", which raised profitability and reduced corruption (Kobayashi 1996:327–328). In Indonesia, "immediately after the takeovers at the end of 1957, many army officers were attached to agricultural estates as supervisors", until the most senior Indonesian employees of the former Dutch enterprises could be promoted to key jobs as managers or inspectors (Mackie 1961–1962:344). After the Suharto military takeover in 1965, nationalized properties became the basis for Indonesian enterprises (Kano 2009).

The roots of the Middle East's oil expertise go deep in history because of a long tradition of legal studies, which enabled countries to negotiate nationalization and compensation contracts with the majors (Reid 1981). Some top managers of new NOCs got their hands dirty working for one of the Seven Sisters. OPEC's first president, Fouad Rouhani, worked for British Petroleum in Iran—and then helped Tehran nationalize British Petroleum. Dr Edmund Daukoru, a former OPEC Secretary-General and Nigerian Energy Minister, worked for Shell. Dr El Badri, elected as OPEC's Secretary-General in 2007, worked for Esso in Libya. This apprenticing symbolizes the decline of the colonial era, based on a colour bar, when foreign concessionaires hired only foreign managers and engineers. The earliest phase of industrial policy, nationalization and localization was well under way. FDI supposedly works the best when governance is good and human capital is abundant. But nationalization may not work well under these conditions unless a particular set of skills is available that allows expropriated properties to be well managed.

Part II: From Home to Foreign Markets

The Korean government reported at the weekly economic coordination meeting on 6 April 2011 that it planned to invest $49.8 million to help local companies maintain their lead in the global smart television market. With this funding, the government would focus on developing new smart television platforms and network technologies such as user interfaces and a "giga-level" Internet foundation for providing smart television services such as video-on-demand, online games and other applications. In addition, the government realized that the lack of local content for smart televisions posed a major barrier to further growth. To solve this problem, the government and smaller enterprises would join hands and develop contents such as digital books and games and would also cooperate to create educational content.[50]

The biggest challenge to industrial policy came after nationalization, when aggressive measures were introduced to save foreign exchange and move beyond the manufacture of labour-intensive products. Import substitution was the chosen method, or manufacturing domestically those products whose demand was suggested by imports. Ultimately, the consensus became that import substitution was doomed without exporting; instead of

[50] Korea.Net, *News Focus*, 14 April 2011.

measuring the success of securement by market share alone, therefore, as Chandler suggested, it should also be measured by export share. As the connection between import substitution and export activity tightened, observers of trade and industry pointed out that import substitution progressed into export activity not necessarily when prices become "right" but when skills and scale economies expanded sufficiently under protectionism.

Import substitution in Asia's manufacturing belt was learned from Japan, product by product.[51] Sequencing was critical. First came securing the home market and then came leveraging know-how and scale and moving into foreign markets. This sequence was noticeable in Japan by the 1980s, if not earlier: "unit costs were reduced by increased domestic demand and mass production before the export–production ratio in growing industries began to be boosted" (Shinohara 1982:144; Krugman 1984). Japan's Supreme Export Council was closely imitated in the Republic of Korea (Rhee et al. 1984:1152). Under its guidance, import substitution became the mother of export activity. In exchange for protection and other subsidies, import substitution firms had to export a government-negotiated share of their output (Amsden 1989). Import substitution was subject to performance standards.

In the Republic of Korea, "the shift to an export-oriented policy in the mid-1960s did not mean the discarding of import substitution. Indeed, the latter went on along with the export-led strategy. … Export expansion and import substitution were not contradictory activities but complemented each other" (Lim 1999:146). In electronics, "the initial ISI [import substitution industrialization] phase of the 1960s was critical to the development of the manufacturing skills that enabled (the *chaebol*) to become the efficient consumer electronics and components assemblers of the 1970s. Indeed, ISI in consumer electronics parts and components continued in the 1970s after domestic demand from export production justified it" (Sridharan 1996:50). By 1984, heavy industry had become the Republic of Korea's new leading export sector, exceeding light industry in value, and virtually all of its heavy industries had come out of import substitution, just as textiles had done in the 1950s and 1960s (Amsden 1989).

Counting market failures

The weakness of the decolonized world's private sector has spanned the firm-size spectrum, but perhaps weakest of all are firms in the small- and medium-size range. Especially missed in the developing world is the medium-size enterprise, individually or in clusters, with anywhere from 100 to 300 workers. The small- and medium-size range tends to operate in fragmented markets, with tacit technology and frail organizations, making it difficult to generalize about good performance and policy design.[52] Artisanal traditions

[51] The difference between leader and follower is evident in the steel industry. "Independent technological development was responsible for the success of the steel industry in Japan" (Hiroto and Ken-ichi 1957:419), whereas in Brazil, Malaysia, Qatar, the Republic of Korea and Taiwan, which borrowed their technology from Japan, success resided in project execution capabilities and production skills. In the case of the bicycle industry, it was important in Japan "for the key role it played in facilitating the manufacture of machine parts and metal materials, thus helping to lay the foundations for Japan's flourishing machine industry" (Takeuchi 1992). By comparison with Taiwan's bicycle industry, whose key player, Giant, has managed to create a worldwide brand name, the key component of the bicycle, the derailleur, is still purchased from Shimizu, a Japanese company (Chu 1997). In the watchmaking industry, Japan first borrowed technology from the West, but then innovated its own watch mechanism, made possible by years of experience (starting in 1892), whereas the developing countries largest watchmaker, Hong Kong, never produced its own mechanism but imported it from Japan or Switzerland. For the real differences between leader and follower in the aerospace industry, including Brazil's, see Steenhuis et al. (2007).

[52] According to the World Bank study by Asli Demirguc-Kunt and Thorstein Beck, there *is* a general empirical conclusion: "In fact, there is no robust evidence that SMEs by themselves matter for growth or poverty alleviation. … More fundamental reforms must first be instituted to tackle the underlying reasons why firms do not fulfil their growth potential. These reforms should lead to a better business environment that promotes competition, protection of private property rights and a sound contract environment. All of these are proven to boost economic growth" (World Bank 2006). But our discussion of property rights (above) suggests that getting them "wrong" may have a strong positive impact on growth.

within this size bracket enriched Europe and sustained colonial America, but such emulation is difficult to achieve (McAllister 1989). In 1963, the anthropologist Clifford Geertz (1963:28), in an interpretative study of entrepreneurship in Java, Indonesia, wrote: "What the entrepreneurial group of Islamic small businessmen most lacks is not capital…or drive…or a sufficient market. … It lacks the capacity to form efficient economic institutions; it is a group of entrepreneurs without enterprises". The SMEs in the developing world tend to be at the opposite pole from those in Silicon Valley or Emilio Reggio, outstanding for their innovativeness. They may create jobs, but these tend to be low paid and unskilled (for Taiwan, with a relatively well-performing SME sector in the developing world, see (Amsden and Chu 2003). The weakness of SMEs has led to a vast number of industrial policies to raise their capabilities. Most of these policies involve deviations from free market principles. We count the number of policies that involve state intervention in the Republic of Korea a tedious exercise, but one that allows us to dispel the false impression of market theorists that the new industrial policy is light and lean as a result of the accumulation of experience in the industrial sector.[53]

The private sector falls short in the small- and medium-size range even in countries where early industrial policies excelled, such as the Republic of Korea. Although much is made about differences between the Republic of Korea and Taiwan in organizational structure, these differences exist mainly above the 299-employee firm-size mark. The Republic of Korea's large firms are larger and more diversified than Taiwan's, although two of Taiwan's electronics firms rank higher in sales than Amazon or Google, which are American icons. While SMEs in Japan, the Republic of Korea and Taiwan are defined slightly differently, in the mid-2000s, all accounted for roughly the same share of total employment, which was around 75 per cent (see table 4). In all three cases, SMEs have tended to advance fastest—in terms of quality, cost and technology—in concert with larger firms (in subcontracting relationships that are either formal or informal). Thus, when we talk about the Republic of Korea we are also thinking about one East Asian role model for SMEs, characterized by endless experimentation with scores of policies to improve the bottom 75 per cent. What is different about industrial policies for small firms compared with large firms lies in embeddedness (Evans 1995); the closeness between autonomous governments and private companies is necessarily less when firms are small because there are so many of them.

Table 4: Comparison of small- and medium-size enterprises in the Republic of Korea, Japan and Taiwan

	Number of enterprises		Number of employees *(thousands)*	
	SMEs	Per cent of total	SMEs	Per cent of total
Republic of Korea (2007)	118,506	99.5	2,200	76.9
Japan (2006)	255,016	98.7	5,765	70.3
Taiwan (2006)	133,312	96.6	2,180	76.7

Note: Definition of SME: Republic of Korea: 5–299 employees; Japan: 4–299 employees; Taiwan: Paid in capital of less than 80 million NT $ (~ $2.44 million in 2006/2007). **Source:** Yang (2009).

[53] "The analysis of national, regional and continental industrial policies in this study shows that the objectives of industrialization and the enhancement of manufacturing capacity remain very much alive in Africa. All of the countries reviewed (Botswana, Cameroon, Ghana, Kenya, Mauritius, Rwanda, Uganda, South Africa) either have explicit industrial policies or are implementing specific measures to promote industrial development. Nonetheless, these policies often lack consistency with other development roadmaps. Despite the presence and comprehensiveness of some national industrial policies, there is a serious lack of policy coordination with other areas (for example, trade, finance, education, agriculture)" (Marti and Ssenkubuge 2009:49).

While most economists see SMEs in a consistently positive light, their development tends to vary by stages, as does their industrial policies.[54] The Republic of Korea's industrial policies from 1962 to 1971 (first and second five-year plans) focused on promoting industries with scale economies by means of exports, so SMEs received only moderate support. Then, from 1972 to 1981 (third and fourth five-year plans), policies focused on promoting heavy and chemical industries. SMEs received strong support to supply parts and components to these industries—ironically, when the economy was becoming *more* capital-intensive and concentrated, SMEs bloomed due to local content initiatives. From 1982 to 1991 (fifth and sixth five-year plans), the government sought a balance between large and small firms, and to raise SMEs to the large firm capability level, and support became more intense. From 1992 to 1997, the year of the East Asian financial crash and the beginning of liberalization (seventh and new economy five-year plans), policies sought to strengthen SME competitiveness amidst market opening. From 1997 to the present, during the "Government of the People" period and the "Participatory Government" period, SME policies have sought to nurture competition, innovation and a social safety net, although beginning in the 2000s the growth rate of SMEs slowed.

The measures to promote SMEs for the period 1962–1971 involved at least four infractions of market laws: state ownership; quotas to increase lending; targeting special firms; and special industry government supports.

1962–1971 policies

- SME division within the Ministry of Commerce founded.
- A state-owned Industrial Bank in the Republic of Korea (Kookmin) was established to serve people in low- and mid-income brackets.
- An administrative system was established to nurture SMEs and rules were devised to mediate disputes between small and large firms (mostly over timely payments).
- The government initiated a set number of mandatory loans (30 per cent) that commercial banks had to allocate to SMEs, and introduced a special discount window on papers that SMEs received from large companies.
- SMEs that were capable of exporting were selected and developed and automatically received loans when presenting a letter of credit.
- Industries in which SMEs made a significant contribution to employment and balance of payments were given special support.
- A measure was enacted to Nurture Social Industries in Regions (such as sweaters and wigs of human hair).
- The government specified the size of SMEs that qualified them for special government support in specific industries.
- The government established an SME Technology Training Centre.

The measures for the period 1972–1981 also involved at least four infractions of market laws: private contract regulations; quotas on lending; targeting special firms; and special industry government supports.

[54] This policy stage analysis rests heavily on the work of (Yang 2009). For a cross-country analysis of SME policies, see Pacific Economic Cooperation Council (2007).

1972–1981 policies

- To increase the availability of capital, the Bank of Korea broadened criteria for lending to SMEs and increased the mandatory loan ratio of regional banks (from 30 to 40 per cent).
- The government introduced a Credit Guarantee Fund to overcome SMEs' lack of collateral (a measure now opposed by the World Bank).
- SMEs subdivided into groups for different treatment, and funds were swiftly made available to SMEs with dilapidated capital.
- After 1976, the government began to target 100 SME machine factories each year for special five-year support.
- To improve relations between large firms and their small suppliers, the government specified contract-based conditions.
- Indigenous producing companies were given special support.
- An industry Promotion Agency was created to increase standardization, quality management and industrial development of SMEs.
- Mandatory lending was increased (from 30 to 35 per cent in commercial banks; from 40 to 55 per cent in regional banks) as more funds were needed to enhance productivity of SMEs and increase their exports.
- A special Promotion Fund was established for modernization of SMEs in certain industries.
- Special procurement conditions from SMEs were established for the public and private sector.

The measures for the period 1982–1991 involved even more infractions of market laws than previously, in so far as restrictions on industries reserved for SMEs were introduced and types of credit guarantees were expanded.

1982–1991 policies

- To increase the availability of capital to SMEs, the government increased the mandatory ratio of loans extended to them from regional banks (from 55 per cent or more to 80 per cent or more).
- The government permitted SMEs to issue corporate bonds and it guaranteed payment of up to 200 per cent of capital.
- The government established the Fund for SME Mutual-aid Projects to prevent bankruptcy and promote mutual SME businesses.
- The government established a system for SMEs to strengthen their competitiveness by identifying and supporting promising SMEs that showed self-sufficiency.
- Industries that needed support were designated as Priority Industries for SMEs and received funds for facility modernization from an SME promotion fund.
- The Small and Medium Business Corporation opened an SME Training Institute.
- Twenty-three Priority Industries for SMEs, designated in 1979 by the government to protect business areas occupied by SMEs, was changed to Businesses Only for SMEs in 1982; "using this as a turning point, the government implemented a full-scale system of restricting certain businesses for SMEs only, thus preventing large companies from moving into these areas" (much like India) (Yang 2009).
- The government initiated an SME Systematization Promotion Committee within the Korean Federation of Small and Medium Businesses to promote outsourcing and reduce disputes between large and small firms (fair trade).
- To support SME start-ups, the government enacted a law that simplified start-up procedures, in addition to giving start-ups financial and tax support.

- The government supported the technology development of SMEs by strengthening assistance from regional industry testing centres.
- To reduce the Republic of Korea's trade deficit with Japan, the government drew up a five-year plan ("local content") to use domestic machine parts and materials, many coming from SMEs, and assisted suppliers with funding, technology development and tax support.
- A System of Research Centre under SMEs was established.
- The government focused support on mid-size companies that had exported less than $8 million annually, but were judged to be able to increase exports to around $10 million within three or four years; mid-size export companies were identified and supported.
- Traditional handicrafts in fishing and agrarian villages were supported in conjunction with the Seoul Olympic Games.
- The government opened an "off-board stock market" to give more opportunities for SMEs to mobilize funds through direct financing before listing on a regular stock exchange.
- The government established a Technology Credit Guarantee Fund to guarantee debt repayments of SMEs that developed new technologies or commercialized new technologies.
- As the economic environment of SMEs deteriorated due to the appreciation of the Korean won, increased labour disputes and wage increases, the government passed the Act to Promote Restructuring and Stability of SMEs to support sound business activities of SMEs in the short run.
- To support the convergence of technologies through active exchanges between SMEs in different business areas, the government launched a Plan to Advance Technology Exchange.
- SMEs that had graduated in self-sufficiency were to be identified and supported for their continuous growth and development.
- Restrictions on businesses reserved for SMEs were tightened and increased to 237 businesses.
- To prevent inefficiency that might be caused by long-term protection, the System to Cancel the Designation for SMEs was adopted.
- Sound management and technology development were encouraged further through regulations of government procurement.
- The government organized Cooperatives to Invest in Start-ups.
- More regional banks were established to support SMEs.

Despite the Republic of Korea's official policies supporting market liberalization in the period 1992–2010—for example, the Kookmin Bank was privatized in 1995, but with the government retaining a 24 per cent share—these measures together involved almost the same number of infractions of market laws as past measures, with an end to reservation of special business sectors for SMEs but more central initiative and state ownership (of KOSDAQ and its parent, the Korea Stock Exchange). Whether old or new, there is little lite, lean or temporary about these policies.

1992–2010 policies

- The government raised the mandatory ratio of commercial bank loans to SMEs—under a new system, the Bank of Korea supported financial institutions that extended loans to SMEs with low interest rates on the basis of the institutions' loan performance.
- In 1997 (the year of the Republic of Korea's financial meltdown), the government introduced an Insurance System for Bills to prevent increased bankruptcy of insolvent paper profits of SMEs, which might lead to defaults of other companies ("too many to fail"): (i) the government drew up emergency measures that included extending the loan

repayment period for SMEs by six months, expanding the Bank of Korea's credit system, implementing a direct loan system for policy funds, establishing a special centre to handle financial difficulties and supporting SMEs' export and import financing; (ii) a special fund was established to provide operating capital; (iii) the government introduced the SME Asset-backed Securities System to support SMEs' issuance of corporate bonds; and (iv) the government urged public organizations to buy SME products.

- The government opened KOSDAQ, a state-owned stock market dedicated to SMEs and venture companies.
- The government introduced the Project to Improve SME Structure, thereby pumping 1 billion won (approximate exchange rate: 1 won = $1,102) every year into the economy.
- The government tightened procedures on fair trade between large and small businesses.
- The government started constructing a Comprehensive Distribution Centre for SME Products.
- A business centre to incubate start-ups was introduced.
- The government passed the Act on Special Measures to Promote Venture Businesses, in effect for 10 years—venture companies were targeted as those with patents, new technologies or more than 5 per cent of sales invested in R&D.
- To expand credit guarantee support for SMEs with insufficient collateral but with "remarkable" technologies, the government introduced and operated a Special Support System for Technology Credit Guarantee as well as a regional consortium (including industry and academia) project to stimulate technological upgrading of SMEs.
- In an effort to relieve SME shortages of labour in "3D" industries (dirty, difficult and dangerous) the government introduced an Industrial Technology Training System for Foreigners and launched the Elderly Volunteer Group to give working opportunities to retired people with special skills of interest to SMEs.
- To identify SMEs that had the potential to export but had weak management systems, the government closely supported them for two years (later expanded).
- New legislation designated special regional support zones for SMEs, promoting special industries in regions and establishing credit guarantees.
- The government carried out a Small Store Modernizing Project to strengthen support for small-scale retail businesses.
- The government opened up a new chapter in support of SMEs by making it possible to support them quickly and closely through regional organizations.
- The government altered the definition of SMEs so that different types could qualify for government support.
- The government recognized that supporting technologically innovative SMEs was an urgent matter so it set up Inno-Biz and set a goal of identifying and supporting 5,000 technologically innovative SMEs—1,000 each year for five years.
- Information about SME technology-related information was loaded into an electronic SME Technology Exchange, in addition to information exchanges about personnel.
- For SMEs that intended to set up local subsidiaries overseas (OFDI), the government put in place an "export incubator" in major overseas markets.
- The government set up the Act on Supporting Women in Businesses, which included government financial support for women entrepreneurs, managerial assistance to start-ups, government procurement of products made by female-managed businesses, preferential treatment to females for funding and establishment of the Korean Women Entrepreneurs Association, a key centre for women's business activities.
- To strengthen SME policies during structural revision, the government established a Presidential Commission on Small and Medium Enterprises directly under the president, in charge of mediating and coordinating SME support policies involving multiple ministries.

- The government introduced a Network Loan System to collect money owed by large firms to small ones in a more timely manner, and increased the availability of data on SME's creditworthiness.
- The government legislated a set ratio of products from SMEs that public organizations had to procure, and urged public organizations to establish SME procurement targets, and to aim for 5 per cent or more of technologies to come from SMEs.
- The government facilitated the sharing of expensive equipment of universities with SMEs.
- The government passed an Act to Promote Business Activities of the Disabled.
- The government created a consolidated database that classified funds, technologies, human resources, sales channels, exports and progress status of SMEs and new ventures—thus policy information from 234 institutions, including government ministries, became available.
- The government increased entry of the foreign workers from 24,000 to 34,000 "to contribute to resolving the shortage of labor for small and mid-sized companies" (Korea 2010).

The performance of the Republic of Korea's SMEs (compared to its big businesses) has differed by time period. Performance is difficult to measure due to SMEs' heterogeneity, but many suffered acutely from the International Monetary Fund conditionality after the Republic of Korea's financial crash in 1997 and from the emergence of low-end Chinese competition. SMEs performed better the closer their relations were with big business. They also performed better or worse at different development stages—the most difficult stage has been the most recent, when many Korean companies have relocated their production to China to take advantage of lower wages (Yang 2009; Cho 2010). The challenge of industrial policy has become to hollow-in by transforming the competitive basis of SMEs from one of exploiting low wages to one of exploiting advanced technologies. This ongoing challenge suggests that in the near future industrial policies toward SMEs will be anything but lite, lean and temporary. Securing the home market is a continuous process once an economy operates in global markets where new technologies and competitors continuously appear.

Conclusion: Role Models Defined

The defining qualities of the East Asian role model, with the largest manufacturing corridor in the decolonized world, are reflected in its industrial policies, one per country, piled on top of each other to support common elements, and summing to one whole, a stereotype. The East Asian role model, above all, is nationalist, meaning it is anti-imperialist. Anti-imperialism began after Japan's military defeat with the seizure of its overseas properties. But radicalism did not go as far as the expropriation of national properties (as it did in the Soviet role model, or in Egypt in 1952 and India in 1974). The East Asian role model is anti-imperialist but not socialist. After the appropriation of foreign properties in its own backyard, anti-imperialism took the form of rejecting the Enlightenment's free market universalism as a matter of conviction. Instead, industrial policy became oriented toward securing the home market, meaning governments intervened in the economy to create national industries (import substitutes that graduated into exports), nationally owned firms, public and private (if impossible, then foreign substitutes), and a sustaining environment favouring the accumulation of national production skills, managerial capabilities and technological expertise.

In the oil belt of the Middle East, the defining quality of the OPEC development role model is also anti-imperialist, which takes the form of resource nationalism.[55] First and foremost, this meant expropriation (with compensation) of the giant international oil companies (IOCs), supplanting them with giant NOCs, sometimes 100 per cent state owned, sometimes just nationally controlled, but agents of economic diversification. Foreign concessions, where they remained as "legacy positions", became subject to "creeping expropriation" as termed by the US State Department. A concession can be cancelled if a concessionaire does not utilize it sufficiently to pay high operating royalties and rents. Concessionaires are subject to new mining codes that can raise their tax rates, constrain their foreign participation and set higher targets for their local content ("beneficiation").

Table 5: Royalties and licensing *($ millions)*

Year	Country	Receipts	Payments	Balance	Year	Country	Receipts	Payments	Balance
2000	Argentina	36.76	580.34	-543.98	2005	Argentina	50.96	654.45	-604.59
	Brazil	125.19	1414.58	-1289.39		Brazil	101.66	1404.49	-1302.83
	Chile	10.00	297.47	-287.47		Chile	54.02	347.56	-293.54
	China	80.35	1280.97	-1200.62		China	157.40	5321.25	-5163.85
	Taiwan	371.00	1834.00	-1463.00		Taiwan	234.00	1796.00	-1562.00
	India	82.55	282.46	-199.91		India	131.16	766.96	-635.80
	Indonesia	n.a.	n.a.	n.a.		Indonesia	263.33	960.87	-697.54
	Malaysia	18.16	546.05	-527.89		Malaysia	27.04	1369.66	-1342.62
	Mexico	43.10	406.70	-363.60		Mexico	70.40	111.00	-40.60
	Republic of Korea	688.10	3221.10	-2533.00		Republic of Korea	1908.4	4560.80	-2652.40
	Thailand	8.66	709.87	-701.21		Thailand	16.83	1674.12	-1657.29
	Turkey	0	173.00	-173.00		Turkey	0	439.00	-439.00

Sources: UNCTADSTAT (http://unctadstat.unctad.org/TableViewer/tableView.aspx); IndexMundi (www.indexmundi.com/facts/argentina/royalty-and-license-fees and www.indexmundi.com/facts/indicators/BX.GSR.ROYL.CD).

Thus, a half-century after decolonization, long after explosions of popular movements for national independence, the decolonized world remains true to its past, engulfed in its own history of anti-imperialism, as seen from its nationalist industrial policies.[56] Two differences between industrial policy in developed and developing countries lie in firm formation and state power. In developing countries, creating a "new" industry has been as much a matter of creating a new firm (or attracting a capable foreign investor) as of creating other institutions needed for an industry to function well. Over time, national firm formation has grown in importance, making it likely that industrial policy will become more muscular rather than more moderate. Without capable national enterprises (defined by majority stock ownership and directorships), a decolonized country is handicapped to: (i) serve as an "outsourcer" for developed countries, a relatively recent practice that differs from FDI and has increased investment opportunities for South-owned firms in the huge electronics sector; (ii) undertake OFDI, a new way to diversify by decolonized countries with small domestic markets (28 per cent of total OFDI in 2010 was from developing and transition economies) (see UNCTAD 2011); (iii) establish a

[55] The anti-imperialism of the Middle East role model, which expropriated the IOCs, has always been greater than that of the Far East role model, which seized Japanese properties, and remains so today in "Bolivarian" Latin America. On May Day, 2011, President Morales of Bolivia stated: "The best legacy of the Bolivian people is to be anti-imperialist, anti-capitalist and anti-neoliberal" (Kosich 2011).

[56] For the influence of colonial history on present behaviour in the decolonized world, without mention of change in property rights, see Acemoglu et al. (2003).

brand name, which only a country's own company can do; (iv) dislodge a foreign legacy concession in a natural resource industry to raise tax rates and royalties; (v) reverse the brain drain of professional talent by offering nationals top managerial positions that are beyond their reach in FOEs; (vi) circumvent WTO restrictions on local content, a major form of technology transfer; and (vii) raise expenditures on R&D in high-tech industries.

The emerging economies now face the formidable task of modernizing small- and medium-size enterprises (especially medium-size), whose sheer numbers will challenge the closeness of the business–government relationship. "Embedded autonomy" may be impossible in this firm-size range, necessitating performance standards to make business–government relations more efficient.[57] As for the role of the state, state power in decolonized countries is mostly exercised internally, over national industrial policy, whereas state power in former colonizers still functions globally, over other countries' economies. As emphasized by OPEC Secretary-General, H. E. Ali M. Jaidah (1977:3): "Prior to 1960—and the formation of OPEC—the oil industry was concentrated in the hands of seven major international companies, generally known as the Seven Sisters. But this was only *prima facie* the situation; in actual fact, the real or 'controlling' power lay, not with the companies themselves, but with their countries of origin—namely Great Britain and the United States". The power of the majors has declined in production and distribution, but their influence remains potent in the service and equipment ends of the oil business, the most profitable segments. The power of ex-colonial governments in specialized niches may also be expected to remain, even as it declines overall, sustaining nationalism in weaker oil-rich economies.

Given East Asia's manufacturing prowess and formidable competitiveness, middle-income decolonized countries are searching for new business opportunities outside the manufacturing sphere by leveraging their geographical locale and raw materials. The new Brazilian role model, in the making, is taking the lead, using R&D as its weapon. These projects tend to be multisector, involving large capital outlays and logistical coordination, as in Pakistan's Gawadar free trade zone. Again, the role of the government promises to be grander, not less assuming, which is to say that the decolonized world still has a long way to go before it catches up. In 2008, roughly 60 years after decolonization commenced, there were only 76 emerging economies among the 500 largest international firms listed in *Fortune Magazine* (45 in the public sector and 35 from China, as shown in table 3), suggesting that ambitious industrial policies will continue to be the norm. These policies may be expected to operate underground, on a "level playing field" that is paved with subterfuges to evade the intent of WTO liberal law. Both the global North and South are energetic, elusive players. Within the South, decolonized countries that have acquired experience as part of a role model tend to scrutinize new investments empirically, copying each other, through extremely detailed analysis at the firm level, as Taiwan's electronics firms analysed the CD ROM business before they entered it, anticipating Japan's graduation to the manufacture of DVDs, or as Brazil's state-owned oil company has done before establishing new small- and medium-size suppliers, to conform with national local content policies, or as the Republic of Korea's electric utility is doing before cautiously privatizing, with an eye toward social welfare. "Knowledge of a business" implies knowledge of the economic model of a business, that is, its major costs,

[57] For embedded autonomy, see Evans (1995). For performance standards, see Amsden (2001).

distribution channels, competitive landscape, financial leverage, and so on. The game plans of decolonized countries outside a role model, by contrast, appear to be based less on experience and observation and more on advice from foreign consultants and professors. The advice provided by outside technical experts generally rests on deductive concepts—information externalities, product space and market failures—rather than on inductive characteristics such as who else is likely to enter a business, the direction that technology is apt to take and how demand will probably behave, which is the economic model of an industry. Given such differences in how an industry is studied, industrial policy in the future may be as multifaceted, murky and ill-defined as in the past, and as superficially conceived by those countries that do not believe in it as in the present. There is no better example of this than the Republic of Korea.

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Note: * indicates that the access date was retrieved by a reviewer, not the author.

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