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IS INDUSTRIAL POLICY NECESSARY AND FEASIBLE IN AFRICA?

Theoretical considerations and historical lessons

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Abstract

Even as the general attitude towards industrial policy becomes more positive, its applicability to Africa continues to be treated with scepticism. The article asks whether Africa is uniquely incapable of implementing successful industrial policy. Various arguments of general 'Afro-pessimism'—based on climate, geography, history, and culture—are first criticised. Then four types of constraints on the success of industrial policy in Africa—natural resource abundance, political economy, bureaucratic capabilities, and the changes in global economic rules—are critically reviewed.

1. INTRODUCTION: RISING INTEREST IN INDUSTRIAL POLICY SIDESTEPS AFRICA

Industrial policy has been one of the most controversial issues in economics, especially in development economics (for a review of the industrial policy debate since the 1980s, see Chang, 2011). Especially surrounding its role in the development success of East Asia, there was a fierce debate, which came to head in the late 1980s and the early 1990s (Amsden, 1989; Wade, 1990; World Bank, 1987, 1991, and 1993; Stiglitz, 1996).

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Fortunately, during the last decade or so, there have been a number of developments in academia and in the real world that have made industrial policy more acceptable and thus the debate surrounding it less ideologically charged and more pragmatic and nuanced.

At the theoretical level, the market fundamentalist view that there are very few theoretical justifications for industrial policy has lost its dominance. On top of that, the infant industry argument has been refined in a number of ways (Chang, 2002; Shaffaedin, 2005; Greenwald & Stiglitz, 2006; Dosi *et al.* (eds.), 2009). An increasing number of more orthodox economists accept that there are many types of market failures that need to be addressed through industrial policy—not just the more conventional 'externalities' problem, but also economies of agglomeration and coordination failures (Lin's interventions in Lin & Chang, 2009; Lin & Monga, 2012).

The interpretation of the evidence on industrial policy has also evolved. It is increasingly recognized that industrial policy is not some highly idiosyncratic practice found only in East Asian 'miracle' economies (Japan, South Korea, Taiwan, and Singapore) but what most of today's rich countries used when they were catch-up economies themselves (Bairoch, 1993; Chang, 2002 and 2007; Reinert, 2007). Some econometric studies have even identified a positive correlation between protectionism and economic growth in the late 19th and the early 20th century (O'Rourke 2000; Vamvakidis 2002; Clemens & Williamson, 2001; Irwin, 2002, provides a criticism of these studies, which is then countered by Lehmann & O'Rourke 2008). In particular, the increasing recognition that Britain and the US—the supposed homes of free-market and free-trade policies—as the pioneers of infant-industry promotion through protectionism and other forms of industrial policy has added a whole new complexion to the history of capitalist development. Recent studies, especially Chang (2002) and Reinert (2007), have revealed that the practice of infant industry promotion was first systematically applied by Robert Walpole, the British Prime Minister of 1721-42, and the theory of it was first invented by Alexander Hamilton, the first US Treasury Secretary, in his report to the US Congress in 1791 (see Chang, 2002, for further details; Hamilton's original report is Hamilton, 1791).

The ISI (Import Substitution Industrialization) experience in the developing world before the 1980s has also been subject to a more nuanced interpretation. The role of industrial policy in the significant economic development achieved by many Latin American countries between the 1930s and the 1980s is increasingly accepted, as well as the success of earlier protectionism in the continent in the late 19th and the early 20th century (on the latter, see Clemens and Williams 2004). Even the typical depiction of industrial policy in Africa, especially Sub-Saharan Africa, in the 1960s and the 1970s as an unmitigated disaster has been questioned (Jerven, 2011).

More recently, the 2008 global financial crisis has enhanced the legitimacy of industrial policy. First, the crisis prompted some major industrial policy actions—both defensive and proactive—by the rich countries that used to preach against industrial policy (e.g., bail-out of the US automakers and in increase in 'green' subsidies in many developed countries, including the US). Second, the crisis has prompted countries like the US, and especially Britain, to accept

that their financial sector had been 'over-developed' and therefore that there is a need to 'rebalance' their economies by reviving the manufacturing sector, if necessary through industrial policy. Third, the continued rise of China (and to a lesser extent Brazil) and the solid performance of Germany, all of which have actively used industrial policy, since the crisis have also made people re-assess the importance of industrial policy.

This general shift in the mood in favor of industrial has not, however, extended to the African countries. However effective the policy may have been in Japan, Korea, or China (or even the US in the 19th century), it is argued, it simply cannot work in those countries. A wider range of reasons is given—ranging from excessive natural resource endowments (the so-called 'resource curse' thesis), pathological politics, the lack of bureaucratic capabilities, and the changes in the global economic rules—but the implication is that the African countries would be better off sticking to their natural resource advantages, rather than trying to develop manufacturing industries through industrial policy.

2. ARE AFRICA'S DEVELOPMENT FAILURES STRUCTURAL?—CLIMATE, GEOGRAPHY, CULTURE, AND HISTORY

In the next section of this paper, we will discuss those factors that are supposed to make industrial policy inapplicable to Africa, but we first need to critically review the arguments that Africa is doomed to development failure because of its climate, geography, culture, and history—a group of arguments known as 'Afro-pessimism' (the most prominent examples include Easterly & Levine, 1997; Bloom & Sachs, 1998; Collier & Gunning, 1999; Sachs & Warner, 2001; Acemoglu *et al.,* 2001).

Now, in discussing these arguments, we should bear in mind that there is a huge problem in talking of Africa as if it is homogeneous. After all, it is a continent of nearly 60 countries (the exact number depending on your attitude towards entities like Western Sahara) with very varied natural and human conditions. If most African economies look rather similar to each other economically, it is not because they are in the same continent, but because all economies—in whichever continent they are—at low levels of development look rather similar to each other, due to the lack of specialization and diversification in the production structure, which then leads to high degrees of homogeneity in occupational structures, social organizations, and lifestyles. Bearing this important point in mind, let us see how those arguments that emphasize structural factors, like climate, geography, culture, and history in explaining African development experiences.

2.1. THE ARGUMENTS

According to the argument emphasizing the climate factors, being close to the equator, the African countries suffer from tropical diseases, such as malaria. These diseases become burdens on economic development, as they reduce worker productivity and raise healthcare

costs. Some also point out that tropical soil is of poor quality, reducing agricultural productivity.

The geography argument points out that many African countries are landlocked and thus are disadvantaged in integrating into the global economy through international trade. Many of them are also in 'bad neighborhoods', in the sense that they are surrounded by other poor countries that have small markets (which restrict their trading opportunities) and, frequently, violent conflicts (which often spill over into neighboring countries).

Two aspects are highlighted by those arguments emphasizing the historical factors—ethnic diversity and colonialism. High ethnic diversity of many African nations makes their people distrust each other, raising transaction costs. Ethnic diversity, it is pointed out, is likely to encourage violent conflicts, especially if there are a few groups of similar strengths (rather than many small groups, which are more difficult to organize). Africa's colonial history is argued to have produced low-quality institutions in most African countries, as the colonizers did not want to settle in countries with too many tropical diseases (so there is an interaction between climate and institutions) and thus only installed low-quality institutions that were needed for resource extraction ('extractive institutions' of Acemoglu *et al.*, 2001).

The cultural argument is usually presented in rather convoluted ways to avoid the accusation of racism, but it is essentially that African culture is bad for economic development—Africans do not work hard, do not plan for the future, and cannot cooperate with each other. In explaining the economic divergence between South Korea and Ghana, two countries that were at similar levels of economic development in the 1960s, Samuel Huntington, of *The Clash of Civilizations* fame, argues: "Undoubtedly, many factors played a role, but … culture had to be a large part of the explanation. South Koreans valued thrift, investment, hard work, education, organization, and discipline. Ghanaians had different values. In short, cultures count" (Huntington, 2000, p. xi). Daniel Etounga-Manguelle (2000), a Cameroonian engineer and writer writes: "The African, anchored in his ancestral culture, is so convinced that the past can only repeat itself that he worries only superficially about the future. However, without a dynamic perception of the future, there is no planning, no foresight, no scenario building; in other words, no policy to affect the course of events"(p. 69). And then he goes on to say that "African societies are like a football team in which, as a result of personal rivalries and a lack of team spirit, one player will not pass the ball to another out of fear that the latter might score a goal" (p. 75).

2.2. THE CRITICISMS

All the factors highlighted by the 'structural' arguments discussed above are relevant, to one degree or another. However, the fact that a factor is given by nature or history does not mean that the outcome is pre-determined. Indeed, the fact that most of today's rich countries have also suffered from similar 'structural' handicaps suggests that all those structural factors are not insurmountable (Chang, 2009a, 2009b, 2010).

(A) CLIMATE

In relation to the climate argument, we should first note that many of today's rich countries used to have malaria and other tropical diseases, at least during the summer—not just Singapore, which is bang in the middle of the tropics, but also Southern Italy, Southern US, South Korea, and Japan. These diseases have largely (although not entirely) disappeared in those countries not because their climates have somehow changed, but because they have better sanitation (which has vastly reduced their incidences) and better medical facilities (which allow them to effectively deal with the few cases that still occur), thanks to economic development.

Moreover, it should be pointed out that not just tropical climate but also frigid and arctic climates (affecting a number of rich countries, such as Finland, Sweden, Norway, Canada, and parts of the US) impose economic burdens—machines seize up, fuel costs skyrocket, and transportation is blocked by snow and ice. The Scandinavian countries used to be effectively landlocked for half of the year, until the advent of the ice-breaking ship in the late-19th century. Once again, cold climate does not appear to hold those rich countries back because they have acquired the money and the technologies to deal with it (the same as in the case of Singapore's tropical climate).

When you think about it, there is no *a priori* reason to believe that cold climate is better than hot climate for economic development. Indeed, in *Politics* (Book VII, chapter 7), Aristotle argued that the European societies are not very developed because their climate is too cold, which makes their people, well, stupid. He said: "Those who live in a cold climate and in Europe are full of spirit, but wanting in intelligence and skill; and therefore they retain comparative freedom, but have no political organization, and are incapable of ruling over others. Whereas the natives of Asia are intelligent and inventive, but they are wanting in spirit, and therefore they are always in a state of subjugation and slavery. But the Hellenic race, which is situated between them, is likewise intermediate in character, being high-spirited and also intelligent. Hence it continues free, and is the best governed of any nation, and if it could be formed into one state, would be able to rule the world." (Aristotle, 2001, p. 1286**)**

Therefore, to blame Africa's under-development on climate is to confuse the cause of underdevelopment with its symptoms. Poor climate does not cause under-development; a country's inability to overcome the constraints imposed by its poor climate is a symptom of under-development.

(B) GEOGRAPHY

Much has been made out of the landlocked status of many African countries. Landlockedness does impose economic burdens, but then how do we explain the economic successes of Switzerland and Austria? These are two of the richest economies in the world, but they are both landlocked. Some people would respond to this point by saying that those countries could develop because they had good river transport, but many landlocked African countries are *potentially* in the same position; e.g., Burkina Faso (the Volta), Mali and Niger (the

Niger), Zimbabwe (the Limpopo), and Zambia (the Zambezi). So, once again, the argument is based on confusion between the cause and the symptom—it is the lack of investment in the river transport system, rather than the geography itself, that is the problem.

Being in a 'bad neighborhood' may not be as disadvantageous as it may seem. India has grown very fast in the last couple of decades, despite being in the poorest region in the world (poorer than Sub-Saharan Africa), with its share of conflicts (the long history of military conflicts between India and Pakistan, the Maoist Naxalite guerillas in India, Hindu-Muslim violence in India, the Tamil-Sinhalese ethnic war in Sri Lanka, and so on).

(C) HISTORY

It would be silly to deny that ethnic divisions can hamper growth. However, their effects should not be exaggerated. Ethnic diversity is the norm elsewhere too. Even ignoring ethnic diversities in immigration-based societies like the US, Canada, and Australia, many of today's rich countries in Europe have suffered from linguistic, religious, and ideological divides—especially of the 'medium-degree' (i.e. a few, rather than numerous, groups) that is supposed to be most conducive to violent conflicts. Belgium has two (and a bit, if you count the tiny German-speaking minority) ethnic groups. Switzerland has four languages and two religions, and has experienced a number of mainly-religion-based civil wars. Spain has serious minority problems with the Catalans and the Basques, which have even involved terrorism. Due to its 560-year rule over Finland (1249 to 1809, when it was ceded to Russia), Sweden has a significant Finnish minority (around 5 percent of the population) and Finland, a Swedish one of similar proportion. The examples can go on.

The East Asian countries, often believed to have exceptionally benefited from their ethnic homogeneities, also have serious internal divisions. You may think Taiwan is ethnically homogeneous, as its citizens are all 'Chinese'. However, to begin with, there is actually a tiny native population of Polynesian origin (the so-called Kaoshan people). Moreover, even the 'Chinese' population consists of two (or four, if you divide them up more finely) linguistic groups (the 'mainlanders' vs. the Taiwanese) that are hostile to each other. Japan has serious minority problems with the Koreans, the Okinawans, the Ainus, and the Burakumins. South Korea may be one of the most ethno-linguistically homogeneous countries in the world, but that has not prevented my fellow countrymen from hating each other. For example, there are two regions in South Korea that particularly hate each other (Southeast and Southwest), so much so that some people from those regions would not allow their children to get married to anyone from 'the other place'. In this regard, it is very telling that Rwanda is nearly as homogeneous in ethno-linguistic terms as Korea but that the homogeneity did not prevent the ethnic cleansing of the formerly dominant minority Tutsis by the majority Hutus—this is an example that proves that 'ethnicity' is a political, rather than a natural, construction.

The above examples show that rich countries do not suffer from ethnic heterogeneity not because they do not have it, but because they have succeeded in nation-building (which, we should note, was often an unpleasant and even violent process). Indeed, despite being

genetically the most heterogeneous country in the world, Tanzania has been so successful in nation-building that it has not had any serious ethnicity-based conflicts.

Finally, the argument that bad institutions are holding back Africa (and often they are) should be tempered by the fact that, when they were at similar levels of material development to those we find in Africa currently, the institutions of today's rich countries were in a far worse state than what we find in Africa today (Chang, 2002, ch. 3). They built the good institutions largely after, or at least in tandem with, their economic development. In other words, high-quality institutions are as much outcomes as they are the causes of economic development.

(D) CULTURE

Many people who believe that 'bad' cultures are holding back Africa do not usually realize that all of the descriptions of those 'negative' cultural traits of Africa heard today used to be hurled at many rich countries when they were poor (Chang, 2007, ch. 9).

Before the start of German economic development in the mid-19th century, the British would frequently say that the Germans are too stupid, too individualistic, and too emotional for economic development—the exact opposite of the stereotypical image that they have of the Germans today and exactly the sort of things that people now say about the Africans. For example, John Russell, an early-19th century British traveller in Germany remarked: "The Germans are a plodding, easily contented people … endowed neither with great acuteness of perception nor quickness of feeling … It is long before [a German] can be brought to comprehend the bearings of what is new to him, and it is difficult to rouse him to ardor in its pursuit" (Russell, 1828, p. 394). When travelling in Germany, Mary Shelley, the author of *Frankenstein*, complained that "the Germans never hurry" (Shelley, 1843, p. 276).

Until the early 20th century, Australians and Americans would go to Japan and say the Japanese are lazy. Having toured lots of factories in Japan, an Australian engineer remarked in 1915: "My impression as to your cheap labor was soon disillusioned when I saw your people at work. No doubt they are lowly paid, but the return is equally so; to see your men at work made me feel that you are a very satisfied, easy-going race who reckon time is no object. When I spoke to some managers they informed me that it was impossible to change the habits of national heritage" (*Japan Times*, 18 August, 1915). Even Sidney Gulick, an American missionary who lived in Japan for 25 years and later became a champion of Asian-American human rights back in the US, had to admit that many Japanese "give an impression … of being lazy and utterly indifferent to the passage of time" (Gulick, 1903, p. 117).

The Koreans were held in even lower esteem. In 1912, they were condemned as "12 millions of dirty, degraded, sullen, lazy and religionless savages who slouch about in dirty white garments of the most inept kind and who live in filthy mudhuts." That comment came from a leading female socialist intellectual at the time, that is, Beatrice Webb of the Fabian movement (Webb & Webb, 1978, p. 375), so one can imagine what a regular European male conservative would have said about the Koreans, had he visited the country.

Of course, the cultures of Germany, Japan, and Korea today are completely different from what are described above. Those transformations happened mainly because of economic development, which created societies in which people have to behave in more disciplined, calculating, and cooperative ways than in agrarian societies. These historical examples show that culture is more of an outcome, rather than a cause, of economic development. Given this, it is wrong to blame Africa's (or any region's or any country's) underdevelopment on its culture.

3. NATURAL RESOURCE ABUNDANCE AND INDUSTRIAL POLICY

In relation to industrial policy more specifically, the natural resource abundance of Africa is often cited as the reason why industrial policy is unwise and/or unworkable. First, it is argued that the African countries have relative abundance (and therefore comparative advantage) in natural resources. Given this, trying to industrialize, especially 'artificially' through industrial policy, would be bad for their economies. Second, countries with natural resource abundance, it is argued, suffer from perverse politics in the forms of corruption and violent conflicts (a form of 'resource curse'). Trying to graft industrial policy onto that political economy, it is pointed out, will mean that it will only be abused, even if it worked elsewhere.

3.1. NATURAL RESOURCE ABUNDANCE AND COMPARATIVE ADVANTAGE

Many people take it for granted that the African countries are well endowed with natural resources, but in fact few of them are (see Chang, 2006, for further details). Fewer than a dozen African countries have any significant mineral deposits. Only South Africa and the Democratic Republic of Congo are exceptionally well endowed with more than one mineral resource. Most African countries may have low population density and thus a lot of land, but only a handful of them are exceptionally well-endowed with arable land (Niger, Liberia, DRC, Chad, Senegal, Sierra Leone, and the Central African Republic). Most African countries look abundantly endowed with natural resources only because they have so few man-made resources, such as machines, infrastructure, and skilled labor.

Moreover, even in the case of countries that have exceptionally abundant natural resource endowments, exploiting them without any clear long-term industrial policy is unlikely to lead to long-term economic development.

Except for a few small oil-rich countries like Brunei, Kuwait, and Qatar, no country—not even the US, Australia, or Canada, the three countries that are best endowed in the world with natural resources—has been blessed by nature to such an extent that it could become rich only by doing things that came 'naturally'. Australia has the smallest manufacturing sector (in per capita terms) by far among the rich countries (it is 1/3 smaller than the next smallest ones) owing to its abundant natural resource endowments, but even it produces manufacturing value added (MVA) per capita of $2,422, which is 35 times greater than relatively more industrialized Senegal ($69) and 220 times greater than the least industrialized Niger ($11) (all figures are as of

2005, in 2000 dollars; UNIDO, 2009, p. 129, Table 1). Given that Senegal's and Niger's natural resource endowments are not even remotely as abundant as that of Australia, there will have to industrialize much more than Australia has done, if one day they are to have living standards that are comparable to that of Australia's today.

We should also note that few countries actually do 'natural' things. Even many 'primary' commodities are not natural, but are products of colonialism. For example, many African countries export cocoa and tea, which were brought from, respectively, Central America and China to Africa by the imperialists. When it comes to high-productivity activities whose existence determines whether a country is economically developed or not, countries become good at something only because they deliberately decide to become so—there is really no 'natural' reason for the Japanese to be good at building cars, the Finns at making mobile phones, and the Korean at making steel.

If we left things to the market, high-productivity industries simply will not get established in developing countries, as there are already superior producers from the more advanced countries. If they want to develop those industries, they have to protect and nurture those industries through tariffs, subsidies and other means of industrial policy—this is, of course, the logic of infant industry promotion, which I discussed above. If the African countries are to develop their economies, they will have to deploy an industrial policy that will eventually make their 'natural advantage' industries unimportant by developing higher-productivity activities.

By saying this, I am not trying to argue that the African countries should ignore their natural-resource-based industries, for at least two reasons. First, it takes a lot of time to develop new industries. For example, it took 40 years for the Japanese car-makers (established in the early 1930s) to break into the world market, while it took 17 years for Nokia electronics (founded in 1960) to make any profit. Therefore, before the new industries fully develop, the natural-resource-based sectors need to provide the output, jobs, and, above all, export earnings that will finance the imports of machinery and technologies for the new industries. Second, natural-resource-based industries can be, and should be, upgraded (on how to upgrade out of the natural resources sectors, see discussions in Chang, 2008, Section III). Despite having very little land (the 5th highest population density in the world, excluding island- and city-states), the Netherlands is the third largest agricultural exporter in the world, as it has upgraded its agriculture.

In the long run, however, successful upgrading of natural-resource-based industries requires successful industrialization. The Netherlands has a high-productivity agricultural sector only because it has 'industrialized' the sector, using its strengths in industries like electronics (e.g., computer-controlled feeding) and chemicals (e.g., fertilizers, pesticides). In the end, the African countries will have to get into many industries that today no one—I repeat, no one—would think they can succeed in, if they are going to become economically developed. And, as I argued above, that requires systematic industrial policy.

3.2. NATURAL RESOURCE ABUNDANCE AND PERVERSE POLITICS

In relation to the argument that natural resource abundance in Africa is bound to create perverse pattern of politics (corruption and violent conflicts), which leads to abuse of industrial policy, even if it were true, it would apply to only a handful of African countries, as most of African countries are not that particularly well endowed with natural resources in the first place, as I have pointed out above.

Moreover, there is no inevitable relationship between a country's natural resource endowment and its politics. If natural resource abundance inevitably led to perverse politics, we cannot explain how many countries—not just super-well-endowed US, Canada, and Australia, but also the Scandinavian countries—have not developed perverse forms of politics despite (or in many cases rather because of) their abundant natural resource endowments (see Wright & Czelusta, 2004 and 2007, on the role of natural resources in the economic development of the US). In addition, in the late 19th and early 20th century, the fastest growing regions of the world were resource-rich areas like North America, Latin America, and Scandinavia, which shows that the 'resource curse' is not something that is inescapable.

4. POLITICAL ECONOMY CONSIDERATIONS: LEADERSHIP, STATE COHERENCE, AND STATE-SOCIETY RELATIONSHIP

Even ignoring perverse politics due to natural resource abundance, there is a general concern that the political economy of most African countries makes effective implementation of industrial policy impossible. Many people characterize politics in most African countries as 'neopatrimonial', which undermines economic rationality in favor of 'Big Man' politics (for a comprehensive critique of this literature, see Mkandawire, 2012). Given this political economy, it is believed, any policy that suspends market discipline will be hijacked and abused, unlike in East Asia or Europe.

This argument is partly in line with one key conclusion of the industrial policy debate, which is that a key difference between success stories and failure stories of industrial policy is in the differences in their political economy (Toye, 1987; Amsden, 1989; Chang, 1994; Evans, 1995). There are three aspects to this.

First, political leadership is considered important in determining the nature of industrial policy. Even if we ignore some extreme cases in which the leaders are interested only in personal aggrandizement, the leaders may have a "wrong" vision. They may be looking backward, rather than forward, as Thomas Jefferson did when he opposed Hamilton's infant industry protection. Or they may be hostile to private sector development, as many African country leaders were in the 1960s and the 1970s. Or, as many 19th century liberal politicians did, they may think that doing nothing, other than protecting private property, is really the best industrial policy.

Second, even if the political leaders have the 'right' vision, they should be able to impose that vision on the rest of the state apparatus. While in theory the state is a hierarchical organization, in practice the wish at the top does not always percolate through the hierarchy. There will be some degree of self-seeking by government bureaucrats, although not as much as it is assumed in the public choice theory. There will also be problems arising from clashing visions (e.g., the bureaucrats may be more conservative than the political leaders), turf wars within the bureaucracy, "tunnel vision" that specialized organizations are wont to develop, internal coordination failures (coming from poor organizational design inside the government or the emergence of new issues that cut across the existing organizational structure), and many other reasons.

Third, even if the leadership has the right vision and even if the state apparatus is coherent, the state still should be able to impose its will on other agents in the society. In some extreme cases, the state may not even have full control of its claimed territories. In some countries, the state cannot implement policies effectively due to manpower and resource shortages. Even when the state has enough enforcement capabilities, there will be attempts by some private sector agents to neutralize or even pervert policies through lobbying and bribing.

The tendency is to assume that these types of political economy problems are uniquely serious in the African countries, but this assumption lacks empirical foundations (Mkandawire, 2012). In addition, the advanced economies all suffered from these problems in the past (and some of them still do to an extent). In fact, when they were at levels of economic development comparable to today's African countries, the developed countries were actually much worse in terms of suppression of democracy, corruption, state capture, incoherence of the state machinery, nepotism, and other 'pathological' forms of politics (Chang, 2002, ch. 3).

Whatever we think of African countries' political economy problems, we should not let the best be the enemy of the good. The existence of those problems should not make us believe that African countries have to wait for a perfect state to emerge before doing anything. In the real world, successful countries are the ones that have managed to find "good enough" solutions to their political economy problems and gone on to implement industrial (and other) policies, rather than sitting around bemoaning the imperfect nature of their political systems.

In fact, quite a few of the successful "industrial policy states" themselves overcame political obstacles to effective statecraft in situations that did not instill much hope. For example, between the fall of Napoleon and the end of the Second World War, the French state was notoriously *laissez-faire*, ineffectual, and conservative. However, this was completely changed after the War, with the rise of *Gaullisme*, the establishment of the planning commission, and the foundation of the ENA (École Nationale d'Administration), the famous school for elite bureaucrats (Cohen, 1977; Kuisel, 1981). For another example, the Kuomintang (Nationalist Party) bureaucracy was arguably one of the most corrupt and inefficient in modern history when it ruled mainland China. However, after being forced to migrate to Taiwan, following the defeat by the Communists in 1949, it was transformed into a highly efficient and relatively clean one. This was done through a gradual but deliberate process of building "islands of

competence" and then giving them greater responsibilities as they succeeded and increased their legitimacy and status within the bureaucracy, finally replacing much of the old bureaucracy with the new one (Wade, 1990).

5. 'DO NOT TRY THIS AT HOME': THE QUESTION OF BUREAUCRATIC CAPABILITIES

Whatever the political intention and power of the top leadership may be, policies are likely to fail if the government officials implementing them are not capable. They have to make difficult decisions, with limited information and fundamental uncertainty, often under political pressure from inside and outside the country. Dealing with all this requires competent decision-makers. On this ground, it has been argued that "difficult" policies like (selective) industrial policy should not be tried by countries with limited bureaucratic capabilities, especially the African countries (World Bank, 1993, is the best example).

In other words, this is the policy-world equivalent of "do not try this at home" (DNTTAH) warning that accompanies the demonstration of difficult and dangerous stunt acts in TV shows. However, there are numerous problems with this argument.

First, the assumption is that industrial policy is exceptionally difficult. However, this assumption is made without any theoretical reasoning or empirical evidence. For example, World Bank (1993) assumes that policies getting the "fundamentals"—such as human capital, agriculture, and macroeconomic stability—right are easier than industrial policy, but there can be no such presumption. First, different governments have competences in different areas—the Japanese government was good at industrial policy but messed up macroeconomic policies in the 1990s. Second, the ease of a policy will also partly depend on its scale. For example, promoting a few industries through industrial policy may be a lot easier than organizing a mass education program. Third, it will also depend on the number of agents involved in the policy. Trying to coordinate investments among a few large firms may be easier than organizing a country-wide distribution of subsidized fertilizer that involve millions of small farmers who are not organized into co-operatives and scattered all over the country.

Second, another (implicit) assumption behind the DNTTAH argument is that industrial policy requires sophisticated knowledge of economics—as exemplified by the comment by Alan Winters, the former head of Research Department at the Bank and the former chief economist of the UK government's DfID (Department for International Development) that "the application of second-best economics needs first-best economists, not its usual complement of third- and fourth-raters" (Winters 2003, p. 66). But is this true? An important fact in this regard is that the East Asian economic bureaucrats were *not* "first best economists". While they were smart people, most of them were not even economists. The majority of the Japanese economic officials that engineered the country's "miracle" were mostly graduates from the Law Department of Tokyo University. Until the 1980s, what little economics they knew were mostly of the "wrong" kind—the economics of Karl Marx and Friedrich List, rather than neoclassical economics. In

Taiwan, most key economic bureaucrats were engineers and scientists, as is the case in China today. Korea also had a high proportion of lawyers in its economic bureaucracy until the 1970s, while the brains behind the famous HCI (Heavy and Chemical Industrialization) programmer in the 1970s, Oh Won-Chul, was an engineer by training. Both Taiwan and Korea had rather strong, albeit officially unacknowledged, communist influence in its economic thinking until the 1970s.[2]

Third, many advocates of the DNTTAH argument believe that high-quality bureaucracies are very difficult to build and that the East Asian countries were exceptionally lucky to have inherited them from history. However, a high-quality bureaucracy can be built pretty quickly, as shown by the examples of Korea and Taiwan themselves. Contrary to the popular myth, Korea and Taiwan did *not* start their economic "miracles" with high-quality bureaucracies. For example, until the late 1960s, Korea used to send its bureaucrats for extra training to—of all places—Pakistan and the Philippines. Taiwan also had a similar problem of generally low bureaucratic capabilities in the 1950s and most of the 1960s (see above). These countries could construct a high-quality bureaucracy only because they invested in training, organizational reform, and improvement in incentive systems. In addition, there was also a lot of "learning-by-doing". By trying out relatively easy industrial policy from early on, the East Asian bureaucrats could build up the capabilities they needed in effectively running more sophisticated industrial policy later. In other words, there has to be *some* "trying at home", if you aspire to become good enough to appear on TV with your own stunt act.

Last but not least, the fact that something is "difficult" cannot be a reason not to try it. When it comes to personal advancement, we actually go to the other extreme and encourage our youngsters to aspire to become the best of the best, when most of them are going to end up as production-line workers or shop assistants, rather than prime ministers or business tycoons. Even when it comes to countries, developing countries are routinely told to adopt "best practice" or "global standard" institutions used by the richest countries, when many of them clearly do not have the capabilities to effectively run the American patent law or the Scandinavian welfare system. However, when it comes to industrial policy, countries are told to aim low and not to try at all, or at best try to learn from the Southeast Asian countries, which used more market-conforming (and therefore presumably easier) industrial policy than did the East Asian countries (this is the position taken by World Bank, 1993). I am all for people

[2] The Nationalist Party's constitution was a copy of the Soviet Communist Party constitution. Taiwan's second president, Chiang Ching-Kuo, who succeeded his father Chiang Kai-Shek, was a communist as a young man and studied in the Soviet Communist Party school in Moscow with future leaders of the Chinese Communist Party, including Deng Xiao-ping. Korea also had its share of communist influence. General Park Chung-Hee, who masterminded the Korean economic miracle, was a communist in his younger days. He was sentenced to death in 1949 for his involvement in a communist mutiny in the South Korean army but earned an amnesty by publicly denouncing communism. Many of his lieutenants were also communist in their younger days.

warning against the risks involved in "aiming too high", but why should countries aim low only when it comes to industrial policy?

The problems of low bureaucratic capabilities are real in most African countries. However, they should not be exaggerated. They are not unique to industrial policy, nor are they unique to Africa. And there can be no presumption that industrial policy is necessarily more demanding in terms of bureaucratic capabilities than other policies are. More importantly, in the longer run, bureaucratic capabilities may be enhanced (and relatively quickly at that) with appropriate investments and learning-by-doing, so their poverty at the present moment cannot be an excuse for never using industrial policy in the future.

6. CHANGING RULES OF THE GLOBAL ECONOMY

The changes in global rules of trade and investment since the 1990s—through the WTO (World Trade Organization), bilateral and regional FTAs (Free Trade Agreements), and BITs (Bilateral Investment Treaties)—have made the use of many of the classic tools of industrial policy either banned or significantly circumscribed by). Given this, it is argued, developing countries, including the ones in Africa, the recommendation goes, should not waste their time thinking about policies that cannot be used anyway.

The most important changes have been brought about by the launch of the WTO in 1995. Quantitative restrictions (e.g., quotas) have been banned altogether. Tariffs have been reduced and "bound" (that is, tariff ceilings have been set). Export subsidies are banned. Most other subsidies (except those frequently used by the rich countries, such as those for agriculture, R&D, and regional equalization) have become open to countervailing duties and other retaliatory measures. New issues, like regulations on FDI (Foreign Direct Investment) and IPRs (intellectual property rights), have been brought under the jurisdiction of the WTO, making it difficult for countries to "borrow" foreign technologies for free by violating IPRs or put performance requirements (regarding things like local contents) on the TNCs (Transnational Corporations) that make FDI.

While the WTO has certainly made industrial policy more difficult to implement, the constraints imposed by it should not be exaggerated.

To begin with, even on paper, the WTO by no means obliges countries to abolish all tariffs—only to bind them. Although the middle-income developing countries were forced to bind most of their tariffs, the LDCs (Least Developed Countries), including most countries in Africa, were exempt from tariff-binding. Even though some low-income countries chose to bind some tariffs, the extent of such binding is small and the ceilings quite high. So, the 'policy space' for using tariffs is still considerable for the LDCs.[3]

[3] Of course, if the rich countries have their ways in the current NAMA (non-agricultural market access) negotiations of the Doha Round in the WTO, industrial tariffs in the developing countries are, at 5-10%, likely to fall to the lowest level since the days of colonialism and unequal treaties (Chang 2005, p. 4). However, this is yet to happen.

Second, the use of emergency tariff increases ("import surcharges") is allowed on two grounds. The first is a sudden surge in sectoral imports, which a number of countries have already used. The second is the overall BOP (balance of payments) problem, for which almost all developing countries, including the African ones, would qualify and which quite a few countries have also used. Since countries have discretion over the coverage and the levels of emergency tariffs that are meant to lessen the BOP problem, they can target particular industries through this provision.

Third, not all subsidies are "illegal" for everyone. For example, the LDCs are allowed to use export subsidies. Given the enormous benefits that exports generate for developing countries—by enabling them to import better technologies, by exposing them to international quality standards, by making it easier for them to measure performance of the recipients of industrial policy supports—this is a very valuable policy tool that many African countries can utilize. Also, subsidies for agriculture, regional development, basic R&D, and environment-related technology upgrading are at least *de facto* allowed.[4] Even though some of these subsidies are not relevant for most African economies (e.g., R&D subsidies), others (e.g., agricultural subsidies) are, so they should use them proactively. Moreover, the subsidy restrictions only cover "trade-related" ones, which means that "domestic" subsidies can be used (e.g., subsidies on equipment investments, subsidies for investment in particular skills).

Fourth, the TRIPS (trade-related intellectual property rights) agreement has certainly made technology absorption more expensive for developing countries (Chang, 2001). However, this mainly affects the middle-income countries. The technologies that most African countries need are often the ones that are too old to be protected by patents.

Fifth, the TRIMS (trade-related investment measures) agreement has banned certain policy measures which had been successfully used by both the developed and the developing countries in the past (Kumar, 2005) (e.g., local contents requirements, trade balancing requirements), but other measures are still allowed. These include conditions regarding the hiring of local labor (a good way to create technological spill-over effects), technology transfer, and the conduct of R&D in the host country. They can also provide targeted subsidies, directed credits, and tailor-made infrastructure (measures that Singapore and Ireland have used, to attract FDI into "targeted" industries; Chang, 2004), insofar as these do not violate the MFN (most-favored nation) provision (Thrasher and Gallagher, 2008). Many of these measures are relevant for the African countries.

Even though the WTO rules allow quite a lot of industrial policy measures, especially for the LDCs and other poor economies, this policy space is in practice highly constrained by other international factors. First, the conditions attached to bilateral and multilateral aids and loans, on which they are quite dependent, significantly constrain their industrial policy space.

[4] These subsidies were explicitly allowed ("non-actionable" in WTO parlance) until 1999. Even though the first three have become "actionable" since 2000, not a single case has been brought to the dispute settlement mechanism since then, suggesting that there is an implicit agreement that they are still acceptable.

Second, many developing countries are also parties to bilateral and regional trade and investment agreements, which tend to be even more restrictive than the WTO agreements (Thrasher and Gallagher 2008).

So, all in all, the range of industrial policy measures that developing countries can use has become considerably smaller, compared to the 1960s and the 1970s. However, there is still room for maneuver for countries that are clever and determined enough, especially for the poorest economies, many of which are African, that are subject to less systemic restrictions (especially in relation to tariffs and subsidies).

Moreover, the new global rules of trade and investment are not some unalterable laws of nature. They can be, and should be, changed, if they are found wanting. The modification of the TRIPS agreement in relation to the HIV/AIDS drugs is a good, if a relatively small, example.

7. CONCLUDING REMARKS

In this paper, I have critically examined a number of arguments suggesting that the African countries cannot learn from other experiences, as they possess uniquely disadvantageous conditions against any attempt to develop their economies through deliberate measures.

I first criticized the more general arguments espousing 'Afro-pessimism' on the bases of 'structural' factors, like climate, geography, history, and culture. And then I critically examined four types of arguments skeptical of the applicability of industrial policy to the African context—natural resource abundance, political economy, bureaucratic capabilities, and the changes in global economic rules. I argued that, while all these arguments contain some germs of truths (some more than others), they are all highly biased and partial.

The African countries—even the exceptionally well-endowed and the most industrialized South Africa—still need huge amounts of industrial development. And such developments require substantial degrees of industrial policy. Given this, getting industrial policy right and getting the conditions for its successful implementation right are not matters of choice but imperatives for the African countries. In this paper, I tried to show how the existing possibilities may be exploited and the constraints overcome in all sorts of areas—ranging from landlockedness to bureaucratic capabilities—through an appropriate mix of vision, realism, institutional reform, and investments.

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