Industrial Policy: Can Africa Do It?[1]

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1. Introduction

After over three decades of ideological grand standing, the debate on (selective) industrial policy is finally inching towards more pragmatic discussions on how to design and implement it – this and other conferences organised by the IEA this year being the best examples of such discussions (for a review of the industrial policy debate since the 1980s, see Chang, 2011).

Gone is the dominance of the view that markets work more or less well and that therefore there are very few justifications for industrial policy. In the last decade or so, there has been a revival of the infant industry argument in various guises (Chang, 2002; Shaffaedin, 2005; Greenwald & Stiglitz, 2006; Dosi et al. (eds.), 2009). Even among the mainstream economists, there is an increasing acceptance 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).

There has also been a significant change in the reading of the evidence on industrial policy. There is a growing recognition that industrial policy is not some highly idiosyncratic practice found only in East Asian 'miracle' economies (Japan, South Korea, Taiwan, and Singapore). Now it is increasingly accepted that most of today's rich countries used at least some industrial policy, especially trade protectionism, 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 exposure of the UK and the US – conventionally considered the home 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. The practice of infant industry promotion was first systematically applied by Robert Walpole, the British Prime Minister of 1721-42 and the theory was invented by Alexander Hamilton, the first US

[1] Section 2 of this paper draws on Chang (2010), Thing 10, while Sections 4-6 draw on Chang (2011).

Treasury Secretary, in his report to the US Congress in 1791 (see Chang, 2002, for further details; Hamilton's original report is Hamilton, 1791).

There is also a more nuanced interpretation of the industrial policy experiences of non-East-Asian developing countries during the ISI period. The role of industrial policy in the significant economic progress made by many Latin American countries between the 1930s and the 1980s is increasingly recognised, 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 depiction of industrial policy in Africa, especially Sub-Saharan Africa, in the 1960s and the 1970s as an unmitigated disaster is being subject to criticisms (Jerven, 2011).

On top of all this, the 2008 global financial crisis has enhanced the legitimacy of industrial policy in a number of ways. First, the crisis prompted some major industrial policy actions – both defensive and proactive. The bail-out of US automakers is the best example of defensive industrial policy and the 'green' subsidies to the auto industry in the US and other countries are the best examples of proactive industrial policy. Second, having originated from over-development of the financial sector, the crisis has restored the legitimacy of industrial policy even in countries like the US and Britain, where it had been a taboo. Third, the continued rise of China and the solid performance of Germany, both of which have never been shy about using and talking about industrial policy, throughout the crisis period have also made people think again about the importance of industrial policy.

Despite all of this, however, there is a persistent scepticism about the applicability of industrial policy to the African countries. However well the policy may have worked in countries like Japan and Korea in the past, it is argued, it simply won't work in most developing countries, especially those in Africa. The reasons cited are varied – 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. Structural Impediments to Africa's Growth – Climate, Geography, Culture, and History

Before we go into factors that are more specifically related to the industrial policy, we need to address a more general argument that Africa's climate, geography, culture, and history structurally condemn it to under-development – an argument 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).

Of course, in discussing all of this, we should be careful not to lump all African countries together. 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. Many African economies look rather similar to each other not because they are in the same continent but mainly because all economies at low levels of development look similar to each other, due to lack of specialisation and diversification in the production structure and consequently in the occupational structure, social organisations, and lifestyles. Bearing this important point in mind, let us see how those arguments that emphasise (at least nearly) immutable conditions, like climate, geography, culture, and history.

2.1. The Arguments

The climate argument says that, being too close to the equator, the African countries

suffer from tropical diseases, such as malaria, which reduce worker productivity and raise healthcare costs.

Being landlocked, the geography argument points out, many African countries find it difficult to integrate into the global economy. The African countries are also in 'bad neighbourhoods' 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 neighbouring countries).

The history argument highlights two things – ethnic diversity and colonialism. African nations are ethnically too diverse, it is argued, which makes people distrustful of each other and thus makes market transactions costly. It is argued that ethnic diversity may encourage violent conflicts, especially if there are a few equally strong groups (rather than many small groups, which are more difficult to organise). The history of colonialism is thought to have produced low-quality institutions in most African countries, as the colonisers 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 the minimal institutions that were needed for resource extraction ('extractive institutions' of Acemoglu et al., 2001), rather than for the development of the local economy.

Although it is frequently presented in a convoluted way to avoid the accusation of racism, the cultural argument 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, organisation, and discipline. Ghanaians had different values. In short, cultures count" (Huntington, 2000, p. xi).[2]

2.2. The Criticisms

Many of the above arguments contain germs of truths. However, there are many different ways in which those structural factors can play out. The fact that a factor is structural (that is, it is given by nature or history) does not mean that the outcome is pre-determined. Indeed, the fact that all those structural handicaps are not insurmountable is proven by the fact that most of today's rich countries have also suffered from similar handicaps (Chang, 2009a and 2009b).

(a) Climate

First of all, it should be pointed out 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, the Southern US, South Korea, and Japan. These diseases do not matter very much any more only because these countries have better sanitation (which has vastly reduced their incidence) and better medical facilities,

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[2] 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).

thanks to economic development.

A more serious criticism is that frigid and arctic climates, which affect a number of rich countries, such as Finland, Sweden, Norway, Canada, and parts of the US, impose burdens as economically as costly as tropical ones – 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 they developed the ice-breaking ship in the late-19th century Once again, the cold climate does not hold the rich countries back because they have acquired the money and the technologies to deal with them (the same can be said of Singapore's tropical climate).

Also, there is no *a priori* reason to believe that cold weather is better than hot weather 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 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)

So blaming Africa's under-development on climate is confusing the cause of underdevelopment with its symptoms – poor climate does not cause under-development; a country's inability to overcome its poor climate is merely a symptom of under-development.

(b) Geography

In terms of geography, much has been made out of the landlocked status of many African countries. It is difficult to deny the handicap being brought on by landlockedness, but then what about Switzerland and Austria? These are two of the richest economies in the world, but they are 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, there is a 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.

A 'bad neighbourhood' effect may exist, but it need not be binding – look at the recent rapid growth of India, which is located in the poorest region in the world (poorer than Sub-Saharan Africa), which also has 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 civil war in Sri Lanka, and so on).

(c) History

Ethnic divisions can hamper growth in various ways, but their influence 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% of the population) and Finland a Swedish one of similar scale. And so on.

Even the East Asian countries that are supposed to have particularly benefited from their ethnic homogeneity have serious problems with internal divisions. You may think Taiwan is ethnically homogeneous, as its citizens are all 'Chinese', but the 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 someone from 'the other place'. Very interestingly, Rwanda is nearly as homogeneous in ethno-linguistic terms as Korea, but that did not prevent the ethnic cleansing of the formerly dominant minority Tutsis by the majority Hutus – an example that proves that 'ethnicity' is a political, rather than a natural, construction. In other words, 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).

As for the view that bad institutions are holding back Africa (and often they are), when the rich countries were at similar levels of material development to those we find in Africa currently, their institutions were in a far worse state (Chang, 2002, ch. 3). Despite that, they continued to develop. They built the good institutions largely after, or at least in tandem with, their economic development. This shows that institutional quality is as much an outcome as the causal factor of economic development. Given this, bad institutions cannot be main structural impediments to economic development in Africa.

(d) Culture

People talk about 'bad' cultures in Africa, but most of today's rich countries had once been argued to have comparably bad cultures (Chang, 2007, ch. 9). Until the mid-19th century, the British would go to Germany and say that the Germans are too stupid, too individualistic, too emotional to develop their economies (Germany was not unified then) – 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. Until the early 20th century, Australians and Americans would go to Japan and say the Japanese are lazy. Koreans were considered even worse. 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 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 male conservative would have said about the Koreans, had he visited the country.

All these 'bad' cultures of the Germans, the Japanese, and the Koreans were eventually transformed because of economic development, as the demands of a highly organised industrial society made people behave in more disciplined, calculating, and cooperative ways. In that sense, culture is more of an outcome, rather than a cause, of economic development. It is wrong to blame Africa's (or any region's or any country's) underdevelopment on its culture.

3. Natural Resources and Industrial Policy

In the discussion of industrial policy in the African context, natural resources play an important role in two ways. First, it is argued that, given their natural resource abundance, the African countries should not try to industrialise, as it would be defying their comparative advantages. This makes industrial policy redundant. Second, natural resource abundance is argued to generate perverse politics in the forms of corruption and violent conflict (a form of 'resource curse'), so trying to graft industrial policy on to that political economy, even if it worked elsewhere, will mean that the policy measures are only abused.

3.1. Does Natural Resource Abundance Make Industrial Policy Unnecessary for Africa?

Before we ask whether abundant natural resource endowments make industrialisation – and industrial policy – unnecessary for the African countries, we first need to ask whether the African countries actually *are* well endowed with natural resources.

The conventional wisdom is that they are, but in fact few of them are (Chang, 2006). 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 resources. Most African countries may have low population density, but only a handful of them (Niger, Liberia, DRC, Chad, Senegal, Sierra Leone, and the Central African Republic) are exceptionally well-endowed with arable land. In other words, most African countries look abundantly endowed with natural resources only because they have so few man-made resources, such as machines, infrastructure, and skilled labour.

Even for countries that have exceptional natural resource endowments, it is questionable whether exploiting them without any clear long-term industrial policy will allow those countries to develop their economies sufficiently.

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'. They all have highly developed manufacturing industries. 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, at $2,422, manufacturing value added (MVA) per capita that is 35 times greater than relatively more industrialised Senegal ($69) and 220 times greater than the least industrialised Niger ($11) (all figures are as of 2005, in 2000 dollars; UNIDO, 2009, p. 129, Table 1). Given that Sengal and Niger have natural resource endowments that are not even remotely as abundant as that of Australia, there will have to industrialise much more than Australia has done, if they are to have living standards that are comparable to that of Australia's today.

Moreover, it is not even as if all 'natural' products are really natural. Many of them 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 colonisers. Especially 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.

These high-productivity industries simply do not get established in developing countries, if we left things to the market, as there are already superior producers from the more advanced countries. This means that the governments of those countries need to protect and nurture those 'infant industries' through tariffs, subsidies and other means of industrial

policy. This is, in a nutshell, the logic of infant industry promotion, which has formed the foundation of all successful catch-up attempts, starting with 18th century Britain, through 19th-century US, Germany, Sweden, and 20th and 21st-century East Asian countries.

Given this, whether they like it or not, the African countries need an industrial policy that will eventually make their 'natural advantage' industries unimportant by developing higher-productivity activities.

This is not to say that it should ignore its 'traditional' industries. First of all, 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. So, 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, the scopes for upgrading in natural-resource-based industries are not to be under-estimated (on how the upgrading out of the natural resources sectors, see discussions in Chang, 2008, Section III). For a dramatic example, the Netherlands is the third largest agricultural exporter in the world, despite having very little land (the 5th highest population density in the world, excluding island- and city-states).

However, in the long run, without substantial industrial upgrading, it is not possible to attain high living standards. Even the 'natural' industries require successful industrialisation, if they are to become high-productivity industries. The Netherlands has a high-productivity agricultural sector only because it has 'industrialised' agriculture using its strengths in industries like electronics (e.g., computer-controlled feeding) and chemicals (fertilisers, pesticides, etc.). In the end, the African countries will have to get into many industries that today no one – and I repeat, no one – would think they can succeed in, if they are going to become economically developed. And, as we argued above, that requires systematic industrial policy.

3.2. Does Natural Resource Abundance Make Industrial Policy Counterproductive for Africa?

As for the argument that, given the perverse political economy created by natural resource abundance, industrial policy will be counter-productive for the African countries, we first need to point out that, 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.

Second, there is no inevitable relationship between a country's natural resource endowments and the form of 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 political economy and have developed their economies despite (or in many cases rather because of) their abundant natural resource endowments (Wright & Czelusta, 2004 and 2007, on the role of natural resources in the economic development). Moreover, 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, suggesting that the 'resource curse' has not always existed.

4. Political Economy: Political Leadership, State Coherence, and State-Society Relationship

Natural resource abundance aside, there is a general concern that the political economy of most African countries will make effective implementation of industrial policy

impossible. Many people characterise the African countries as suffering from 'neopatrimonial' politics, which undermines economic rationality in favour of 'Big Man' politics (for a comprehensive critique of this literature in general, see Mkandawire, 2012). Given this political economy, it is argued, any attempt to suspend market discipline will be hijacked and abused. Even industrial policy measures that may have worked in East Asia or Europe simply wouldn't work in Africa, it is argued.

Indeed, the long-running debate on industrial policy has revealed that a key difference between industrial-policy success stories and failure stories lies in the differences in their political economy (Toye 1987; Amsden 1989; Chang 1994; Evans 1995). This is at least at three levels.

First, the nature of political leadership is important in determining the nature of industrial policy. Even if we ignore some extreme cases in which the leaders are interested only in personal wealth and aggrandisement, 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 – his ideal society was one made up of respected landlords and yeoman farmers (plus the slaves). 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 are interested in promoting economic development through industrial policy, they need 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 permeate 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 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 there is an internal coherence within the state, the state still has to 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.

Although it is typically assumed that these political economy problems are uniquely serious in the African countries, this assumption lacks empirical foundations (Mkandawire, 2012). Moreover, the advanced economies all suffered from these problems in the past. Indeed, when they were at levels of economic development comparable to today's African countries, today's 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).

More importantly, we should not let the best to be the enemy of the good. The existence of numerous political economy problems should not make us believe that therefore we 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 went on to implement industrial (and other) policies, rather than sitting around bemoaning the imperfect nature of their political system.

Indeed, quite a few of the successful "industrial policy states" themselves overcame their political obstacles to effective statecraft in situations that did not instil 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 (Ecole 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. But but after being forced to migrate to Taiwan by the Communists, 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. Bureaucratic Capabilities: 'Do Not Try This At Home'?

However willing, coherent, and strong the state may be and however "correct" its vision may be, policies are likely to fail if the government officials implementing them are not capable. Difficult decisions have to be made with limited information and fundamental uncertainty, often under political pressure from inside and outside the country, which requires decision-makers with intelligence and adequate knowledge. On this ground, people have 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).

The argument is the policy-world equivalent of "do not try this at home" (DNTTAH) warning that accompanies the demonstration of difficult and dangerous tricks in TV shows. There are a lot of problems with this argument.

First, the assumption behind the DNTTAH that industrial policy is exceptionally difficult 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 really messed up its macroeconomic policies in the 1990s. Second, the ease of a policy will also partly depend on its scale. For example, promoting a few industries may be a lot easier than organising a mass education programme. 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 organising a country-wide distribution of subsidised fertiliser that involve millions of small farmers who are not organised 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 following comment by Alan Winters, one-time head of Research Department at the Bank and now the chief economist of the UK government's DfID (Department for International Development) – "the application of second-best economics needs first-best economists, not its usual complement of third- and fourth-raters" declares (Winters 2003, p. 66). But is this true? The interesting thing is that, while the East Asian bureaucracies were staffed by smart people, they were certainly *not* "first best economists". Indeed, most of them were not even economists. The Japanese economic officials that engineered the country's "miracle" were

mostly lawyers by training. 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 Korean HCI programme 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.[3]

Third, many people who advance 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, organisational reform, and improvement in incentive systems. In addition, there was also a lot of "learning-by-doing". By trying out industrial policy from early on, the East Asian bureaucrats could more quickly pick up and improve the capabilities they needed in effectively running industrial policy. 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 recommend 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, the British accounting system, or the Scandinavian welfare system. But 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 warning against the risks involved in "aiming too high", but why should countries aim low only when it comes to industrial policy?

The difficulties arising from the poverty of bureaucratic capabilities in the implementation of industrial policy 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 bureaucratic capabilities than other policies are. Even more importantly, in the longer run,

[3] 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, and was sentenced to death in 1949 for his involvement in a communist mutiny in the South Korean army, although he earned an amnesty by publicly denouncing communism. Many of his lieutenants were also communist in their young days.

bureaucratic capabilities may be enhanced (and quite quickly at that) with appropriate investments and 'learning-by-doing', so its poverty at this moment cannot be an excuse for not using industrial policy ever.

6. Changes in the Rules of Global Economy

Thanks to the changes in global rules of trade and investment since the 1990s, the use of many of the classic tools of industrial policy are now either banned or significantly circumscribed by the WTO, various bilateral and regional FTAs, and BITs. Given this, it is frequently argued, industrial policy is not relevant any more, if it ever was. 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 Uruguay Round of the GATT talks (1986-94) and the resulting launch of the WTO in 1995. Quantitative restrictions (e.g., quotas) have been banned altogether. Tariffs have been reduced and "bound", although the extent of binding is still low for the poorer countries, including most African countries. Export subsidies are banned, except for the LDCs, many of whom are in Africa. Most other subsidies (except those frequently used by the rich countries, such as those for agriculture, R&D, and regional equalisation) have become open to countervailing duties and other retaliatory measures. New issues, like regulations on FDI and intellectual property rights, have been brought under the jurisdiction of the WTO, making it difficult for countries to "borrow" foreign technologies for free or put performance requirements on TNCs.

The WTO has certainly made industrial policy more difficult to implement. However, the constraints should not be exaggerated.

First, even on paper, the WTO by no means obliges countries to abolish all tariffs – only to "bind" them (that is, to set tariff ceilings). Although the middle-income developing countries were forced to bind their tariffs, the low-income countries, including most countries in Africa, were exempt from tariff-binding. So, their 'policy space' for using tariffs is still considerable.[4]

Second, there are still provisions for emergency tariff increases ("import surcharges") 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, there is still room for targeting particular industries.

Third, not all subsidies are "illegal" for everyone. For example, the LDCs, many of them African countries, 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 room for manoeuvre that many African countries can utilise. Subsidies for agriculture, regional development, basic R&D, environment-related technology upgrading are *de* facto allowed.[5]

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[4] 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.

[5] These subsidies were explicitly allowed ("non-actionable" in WTO parlance) until 1999.

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 have patents.

Last, as for the TRIMS (trade-related investment measures) agreement, it bans measures like local contents requirements and trade balancing requirements, which had been successfully used by both the developed and the developing countries in the past (Kumar 2005). However, countries can still impose conditions regarding the hiring of local labour (a good way to create technological spill-over effects), technology transfer, and the conduct of R&D in the host country. They can also provided targeted subsidies, directed credits, and tailor-made infrastructure (measures that Singapore and Ireland have used, to attract FDI into "targeted" industries; Chang 2004), provided that these do not violate the MFN (most-favoured nation) provision (Thrasher and Gallagher 2008). Many of these measures are relevant for the African countries.

Of course, even though the WTO rules allow quite a lot of industrial policy measures, especially for the LDCs and other poor economies, many of which are in Africa, this space is in practice highly constrained by other international factors. The conditions attached to bilateral and multilateral aids and loans, on which they are quite dependent, significantly constrain their industrial policy space. 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 because of the changes in global rules of trade and investment. However, there is still room for manoeuvre for countries that are clever and determined enough, especially for the poorest economies, including most African economies, that are subject to less systemic restrictions (especially in relation to tariffs and subsidies).

Moreover, it is not as if the new global rules of trade and investment are 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. Conclusion

Despite the increasing acceptance of the potentially benefits of industrial policy, the scepticism about its applicability to the poorer developing countries, especially the African countries, has persisted.

This paper has critically examined various arguments behind this scepticism in relation to the African countries. After critically scrutinising the more general arguments espousing 'Afro-pessimism' on the bases of climate, geography, history, and culture, the

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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.

paper examined four different types of arguments expressing scepticism of the applicability of industrial policy to the African context – natural resource abundance, political economy, bureaucratic capabilities, and the changes in the global economic rules. The paper has shown that, while all these arguments contain some germs of truths (some more than others), they are all highly biased and partial.

Given that all African countries – even the exceptionally well-endowed and the most industrialised South Africa – need huge amounts of industrial development and that such developments would require substantial degrees of industrial policy, getting industrial policy right and getting the conditions for its successful implementation right are not matters of choice but imperatives for the African countries. The paper has 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 realism, reform, and investment.

References

Acemoglu, D., Johnson, S. and Robinson, J. 2001. The Colonial Origins of Comparative Development: an Empirical Investigation, *American Economic Review*, vol. 91, no. 5

Amsden, A. 1989. *Asia's Next Giant*, Oxford University Press, New York.

Amsden, A. 2005. Promoting Industry under the WTO Law in K. Gallagher (ed.), *Putting Development First*, Zed Books, London.

Aristotle 2001. *The Basic Works of Aristotle*, edited by Richard McKeon, Random House, New York.

Bairoch, P. 1993. *Economics and World History – Myths and Paradoxes*, Wheatsheaf, Brighton.

Bloom, D. & Sachs, J. 1998. Geography, Demography and Economic Growth in Africa, *Brookings Papers on Economic Activity*, vol. 2, no. 2.

Chang, H-J. 1994. *The Political Economy of Industrial Policy*, Macmillan, London and Basingstoke.

Chang, H-J. 2001. Intellectual Property Rights and Economic Development – Historical Lessons and Emerging Issues, *Journal of Human Development*, 2001, vol. 2, no. 2.

Chang, H-J. 2002. *Kicking Away the Ladder – Development Strategy in Historical Perspective*, Anthem Press, London.

Chang, H-J. 2004. Regulation of Foreign Investment in Historical Perspective, *European Journal of Development Research*, 2004, vol. 16, no. 3.

Chang, H-J. 2005. *Why Developing Countries Need Tariffs - How WTO NAMA Negotiations Could Deny Developing Countries' Right to a Future*, South Centre, Geneva, and Oxfam International, Oxford.

Chang, H-J. 2006. How Important were the 'Initial Conditions' for Economic Development – East Asia vs. Sub-Saharan Africa (chapter 4) in H-J. Chang, *The East Asian Development Experience: The Miracle, the Crisis, and the Future*, Zed Press, London.

Chang, H-J. 2007. *Bad Samaritans*, Random House, London, and Bloomsbury USA, New York.

Chang, H-J. 2008. State-owned Enterprise Reform in UNDESA (United Nations Department of Economic and Social Affairs) (ed.), *National Development Strategies – Policy Notes*, United Nations, New York.

Chang, H-J. 2009a. Under-explored Treasure Troves of Development Lessons – Lessons from the Histories of Small Rich European Countries (SRECs) in M. Kremer, P. van Lieshoust & R. Went (eds.), *Doing Good or Doing Better – Development Policies in a Globalising World*, Amsterdam University Press, Amsterdam.

Chang, H-J. 2009b. Economic History of the Developed World: Lessons for Africa in S. Tapsoba & G. Oluremi Archer-Davies (eds.), *Eminent Speakers Series Volume II – Sharing Visions of Africa's Development*, African Development Bank, Tunis (can be downloaded from: http://www.econ.cam.ac.uk/faculty/chang/pubs/ChangAfDBlecturetext.pdf)

Chang, H-J. 2010. *23 Things They Don't Tell You About Capitalism*, Allen Lane, London.

Chang, H-J. 2011. Industrial Policy: Can We Go Beyond an Unproductive Confrontation? in J. Lin and B. Pleskovic, (eds.), *Annual World Bank Conference on Development Economics 2010, Global: Lessons from East Asia and the Global Financial Crisis*, World Bank, Washington, DC, 2011

Clemens, M. & Williamson, J. 2001. A Tariff-Growth Paradox? – Protection's Impact the World Around 1875-1997, NBER working paper, no. 8459, National Bureau of

Economic Research, Cambridge, Massachusetts.
Clemens, M. & Williamson, J. 2004. Closed Jaguar, Open Dragon: Comparing Tariffs in Latin America and Asia, NBER working paper, no. 9401, National Bureau of Economic Research, Cambridge, Massachusetts.
Cohen, S. 1977. *Modern Capitalist Planning: The French Model*, 2nd edition, Berkeley, University of California Press.
Collier, P. & Gunning, W. 1999. Why Has Africa Grown Slowly?, *Journal of Economic Perspectives*, vol. ??, No. 3
Dosi, G., Cimoli, M. and Stiglitz, J. (eds.) 2009. *Industrial Policy and Development: The Political Economy of Capabilities Accumulation*, Oxford University Press, Oxford.
Easterly, W. & Levine, R. 1997. Africa's Growth Tragedy: Policies and Ethnic Divisions', *Quarterly Journal of Economics*, vol. 112, no. 4.
Etounga-Manguelle, D. 2000. Does Africa Need a Cultural Adjustment Program? in L. Harrison & S. Huntington (eds.), *Culture Matters – How Values Shape Human Progress* Basic Books, New York.
Evans, P. 1995. *Embedded Autonomy*, Princeton University Press, Princeton.
Greenwald, B. & Stiglitz, J. 2006. Helping Infant Economies Grow: Foundations of Trade Policies for Developing Countries, *American Economic Review*, vol. 96, no. 2.
Hamilton, A. 1791 [2001]. *Report on the Subject of Manufactures, 5 December 1791*, as reprinted in *Alexander Hamilton - Writings*, New York, The Library Classics of the United States, Inc., 2001.
Huntington, S. 2000. Foreword: Cultures Count in L. Harrison & S. Huntington (eds.), *Culture Matters – How Values Shape Human Progress*, Basic Books, New York.
Irwin, D. 2002. Interpreting the Tariff-Growth Correlation of the Late 19th Century, *American Economic Review*, vol. 92, no. 2.
Jerven, M. 2011. The Quest for the African Dummy: Explaining African Post-colonial Economic Performance Revisited in *Journal of International Development*, vol. 23, no. 2.
Kuisel, R. 1981. *Capitalism and the State in Modern France*, Cambridge University Press, Cambridge.
Kumar, N. 2005. Performance Requirements as Tools of Development Policy: Lessons from Developed and Developing Countries in K. Gallagher (ed.), *Putting Development First*, Zed Books, London.
Lehmann, S. and O'Rourke, K. 2008. The Structure of Protection and Growth in the Late 19th Century, NBER Working Paper, no. 14493, National Bureau of Economic Research, Cambridge, Massachusetts.
Lin, J. and Chang, H-J. 2009. Should Industrial Policy in Developing Countries Conform to Comparative Advantage or Defy It? – A Debate between Justin Lin and Ha-Joon Chang, *Development Policy Review*.
Lin, J. and Monga, C. 2012. Comparative Advantage – The Silver Bullet of Industrial Policy, a paper presented at the Roundtable on New Thinking on Industrial Policy, organised by the International Economic Association (IEA) and the World Bank, 22-23 May 2012, Washington, D.C..
Mkandawire, T. 2012. Neopatrimonialism and the Political Economy of Economic Performance in Africa: Critical Reflections, mimeo., London School of Economics.
O'Rourke, K. 2000. Tariffs and Growth in the Late 19th Century, *Economic Journal*, vol. 110, no. 4.
Reinert, E. 2007. *How Rich Countries Got Rich and Why Poor Countries Stay Poor*, Constable, London.
Sachs, J. & Warner, A. 2001. The Curse of Natural Resources, *European Economic Review*,

vol. 45, no. ?
Shaffaedin, M. 2005. *Trade Policy at Crossroads – The Recent Experiences of Developing Countries*, Palgrave Macmillan.
Thrasher, R. and Gallagher, K. 2008. 21st Century Trade Agreements: Implications for Long-Run Development Policy, The Pardee Papers, No. 2, Frederick S. Pardee Center for the Study of the Longer-range Future, Boston University.
Toye, J. 1987. *Dilemmas of Development*, Blackwell, Oxford.
UNIDO 2009. *Industrial Development Report 2009*, United Nations Industrial Development Organization, Vienna.
Vamvakidis, A. 2002. How Robust is the Growth-Openness Connection? – Historical Evidence, *Journal of Economic Growth*, vol. 7, no. 1.
Wade, R. 1990. *Governing the Market*, Princeton University Press, Princeton.
Webb, S. & Webb, B. 1978. *The Letters of Sidney and Beatrice Webb*, edited by N. MacKenzie & J. MacKenzie, Cambridge University Press, Cambridge.
Winters, A. 2003. Trade Policy as Development Policy in J. Toye (ed.), *Trade and Development – Directions for the Twenty-first Century*, Edward Elgar, Cheltenham.
Wright, G. & Czelusta, J. 2004. The Myth of the Resource Curse, *Challenge*, March/April.
Wright, G. & Czelusta, J. 2007. Resource-based Growth, Past and Present in D. Lederman & F. Maloney (eds.), *Natural Resources: Neither Curse nor Destiny*, Stanford University, Stanford.
World Bank 1993. *The East Asian Miracle*, Oxford University Press, New York.