RAPID
Rethinking African Paths to Industrial Development

Issues in Industrial Policy Design and Implementation

Definitions, Pigovian Policymakers and Institutional Architectures

Nicolas Lippolis and Stephen Peel

Abstract

Debates on industrial policy design are marked by a contrast between those who believe governments should concentrate on building a suitable institutional setup, and those with more pragmatic views, who hold that industrial policy should be goal-oriented. This paper surveys different currents in contemporary debates with a view to identifying strengths and limitations in each, and extracting lessons for industrial policy in Africa. We argue that industrial policy must purposefully direct an economy towards sectors and activities that offer better growth prospects, while not neglecting the importance of putting in place institutions that are fit for the purpose. We conclude with lessons for industrial policy, including: (i) the inherent context-dependence of appropriate institutional setups; (ii) the importance of the specifics of how states engage with the private sector; (iii) the need to introduce adequate incentives in business-government collaboration; (iv) and the imperative of improving the administrative capacity of state bureaucracies, though it is possible to conduct reasonably successful industrial policy even in relatively inauspicious settings. As an economy's level of complexity increases, the design of an adequate institutional setup progressively gains greater importance.

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1. Introduction

Following a long absence, industrial policy has returned to the policy debate in recent years, fuelled by a growing recognition of the disappointing growth dividends of liberalizing policies on their own. Yet, discussions on industrial policy design are often stymied by a lack of consensus on the terminology to be used and on the range of issues it should encompass. As a result, scholars and policy analysts working in different schools of thought tend to talk past each other, failing to engage in the exchange of ideas that, at least in principle, could advance the discussion on the topic.

This review paper aims to compensate for this shortcoming of the literature by putting the different strands of the literature in dialogue with each other. It belongs to the "configurative review" style, in the sense that it interprets and arranges the conceptual frameworks used in different studies so as to form a coherent whole (Thomas et al. 2012). Through this exercise, we aim to elucidate the main issues of concern to policymakers in low-income countries when designing and implementing industrial policy by means of identifying the points of encounter between different writings and translating them into a common language. Moreover where there are disagreements, we assess the merits of opposing views. The review is built around a series of common themes iteratively identified through a reading of the literature, thus conforming to the "framework synthesis" method (Ibid.). Though short of being fully comprehensive, the choice of writings to be included in this review was based on their impact on the academic and policy discussions, as measured by number of citations and judgments on the personal prominence of their authors[1]. We also include some lesser known studies that we believe can provide interesting insights on the topics discussed. Although our method of text selection is not systematic, we believe it is a fair reflection of the state of the literature on industrial policy design.

The review is structured around a few issue areas of relevance to industrial policy design. The first is the correct definition of "industrial policy" which, although of second-order relevance for policymaking, can be very important for those attempting to navigate the literature by providing greater clarity and rendering it more intelligible. We then move on to discussing the right space for thinking about industrial policy; that is, from a policymaker's perspective, what are the outcome and control variables that he or she should pay attention to when designing and implementing industrial policies? This is followed by a discussion on sectoral policies, which have been the most common form of policymaking in low-income countries. Traditional accounts of sectoral policy design have been subject to criticism from

[1] For a more comprehensive listing of contributors to the industrial policy debate, see Warwick (2013).

neoclassical economists due to their overly demanding informational requirements. As a reaction to this, a group of researchers associated with the Harvard Kennedy School of Government has elaborated the idea of 'high-bandwidth policy', which seeks to circumvent these limitations by engaging the public sector in dialogue with citizens and the private sector. After discussing some of their main ideas, we move on to discussing the work of institutionalist scholars, who look in greater depth at the institutional prerequisites for successful business-government collaboration. The final section gives an overall assessment of the state of the literature on industrial policy, highlights five key issues that consistently come up in the literature, and flags the most promising areas for practical, policy-oriented research. We conclude that at early stages of development a mix of formal and informal channels of interaction between government and business might be appropriate. But as an economy's level of complexity increases, the design of an adequate institutional setup progressively gains greater importance.

2. What is 'Industrial Policy'?

One of the difficulties haunting debates on industrial policy is the number of issues encompassed, as well as the lack of a common terminological basis. Since in its most minimal definition, 'industrial policy' can include any policy that affects 'industry' (a term that varies in its meaning, in some accounts referring to manufacturing industry and in others just used as a synonym for 'sector'), a broad range of policies are often dealt with in studies on the topic. Depending on an author's selection of policy areas to be included under the rubric, 'industrial policy' can have substantially different meanings, preventing a fruitful dialogue between different perspectives. Faced with this problem, accounts in the literature generally opt for one of two approaches. The first consists of surveying the various definitions that have been put forward and, based on an understanding of the semantics of the term and of the ways in which it is commonly applied, refine it to obtain a definition with greater analytical utility. This is the approach followed by Chang (1994), Pack and Saggi (2006), Warwick (2013), and Noman and Stiglitz (2015), among others. Chang, for instance, has a narrow definition of industrial policy as "policy aimed at particular industries (and firms as their components) to achieve the outcomes that are perceived by the state to be efficient for the economy as a whole". Meanwhile, Warwick opts for a more inclusive approach, justifying it based on the futility of attempting to control its use in the literature:

> Industrial policy is *any type of intervention* or government policy that attempts *to improve the business environment* or to alter the structure of *economic activity* towards sectors, *technologies or tasks* that are expected to offer better prospects

for economic growth or *societal welfare* than would occur in the absence of such intervention.

The trade-off between these two approaches relates to a broader question on conceptualization in the social sciences (Sartori 1970): using too narrowly-defined categories prevents their transplantation to other settings, while using categories that are too encompassing empties them of empirical content.

To escape this conundrum, many accounts take the broad definition of industrial policy and disaggregate it into a typology of types of intervention or of policy domains. Typologies based on the type of intervention track the different functions performed by the state when engaging with the private sector. For instance, Evans' (1995) classic account on industrial policy provides a state-centric classification by distinguishing between the state's role in regulation, in direct production in public enterprises, in the creation of private firms and in the promotion of these firms (Schneider 1998). Meanwhile, the typology of Crespi et al. (2014) distinguishes between vertical (ie. selective with respect to sectors) and horizontal policies (sectorally neutral). Within these two categories, they make further divisions between public inputs, which support productive activities, and market interventions, which affect firms' profit considerations. Variation along these two axes then creates a typology of industrial policies according to whether they are horizontal public inputs, vertical market interventions, vertical public inputs etc. A further example typology comes from Peres and Primi (2009), who distinguish between horizontal, selective, and frontier policies (those aiming to create capabilities in more advanced scientific and technological areas). Each of these kinds of policies is accompanied by a set of priorities, objectives, instruments, and institutional responsibilities.

Alternatively, instead of classifying industrial policies according to their function, some accounts sub-divide them into policy domains, such as in Cimoli et al. (2009), Warwick (2013), and O'Sullivan et al. (2013). Cimoli et al. (2009) list seven domains of policy interventions:

1. Opportunities of scientific and technological innovation.
2. Learning and technological capabilities.
3. Targeted industrial support measures affecting certain types of firms.
4. The capabilities of economic agents.
5. The economic signals and incentives faced by profit-motivated agents.
6. Firm selection mechanisms.
7. Patterns of distribution of information and of interaction amongst different types of agents.

In their framework, each domain of policy intervention is associated with a set of policy measures, such as price regulation or broad education and training policies, and of related institutions, such as state-owned holdings, research universities or anti-trust authorities.

Approaches that attempt to define industrial policy are more dynamic, in that they consider purposeful actions by governments, while taxonomical approaches are static and look at the institutions and policies in place at any given time. There is no obvious process for adjudicating between these competing ways of defining industrial policy, but we return to this question in the final section, after reviewing the relevant literature.

3. What is the right way of thinking about industrial policy?

3.1 The Pigovian Policymaker

Hausmann et al. (2007) explicitly tackle the link between a country's export mix and its growth performance. They argue that although a country's 'fundamentals' – ie. Its endowments of physical and human capital, labour and natural resources along with the overall quality of its institutions – do play an important role in determining relative costs and the patterns of specialization that go with them, they do not uniquely pin down what a country will produce and export. The authors build an index that ranks traded goods in terms of their implied productivity by taking the weighted average (weighted by the proportion of a country's export basket represented by that good) of the per-capita GDPs of the countries exporting a product. Using this index, they construct a measure of the income/productivity level that corresponds to a given country's export basket, and find that this measure is highly correlated with per-capita GDP. Their measure is also a strong and robust predictor of subsequent economic growth, controlling for standard covariates; this means that countries that export goods produced by countries richer than themselves tend to grow faster. This is the case of China and India for example. The authors explain their result by referring to an earlier paper (Hausmann and Rodrik 2003) where they described how it is possible for economies to be trapped in low-growth equilibria if they do not have an institutional environment that enables entrepreneurs to discover which goods can be produced profitably. This cost-discovery process is what they allege determines the specific goods produced within the bounds of a country's comparative advantage.

Ricardo Hausmann and Cesar Hidalgo propose an alternative mechanism for explaining the link between product sophistication and economic growth, though

not one that is necessarily incompatible with the cost-discovery story. In Hausmann and Hidalgo (2011) they find that there is a systematic relationship between the number of different products a country makes and the number of other countries that on average make those products (ie. the ubiquity of the product). Developed countries tend to export products that are less ubiquitous, while developing countries' exports are more ubiquitous. They explain this finding through the concept of 'capabilities'. These are all the non-tradable productive inputs that go into the production of a good. They assume that countries differ in the number and specific combination of capabilities they have and products differ in the combination of capabilities they require. More ubiquitous products require a larger number of capabilities (ie. are more complex).

Based on these assumptions, they build an 'Economic Complexity Index' (ECI), which measures the complexity of the product mix made by a country. Hausmann et al. (2011) show that the ECI is correlated with a country's income level, as well as with how fast it grows in the future. Complementing this strand of research, Hidalgo et al. (2007) develop the idea of the 'product space', a map showing the proximity of different goods to each other, as measured by the conditional likelihood that a country exporting one of the goods will also export the other. They show that new export products tend to emerge close to existing areas of the product space, implying that diversification is easier for countries located in denser parts of the product space. This property of the model creates a 'quiescence trap', in the sense that countries with too few capabilities will not have incentives to accumulate additional capabilities, as they are unlikely to be demanded. Moreover, the quiescence trap can get deeper if the goods produced in the global economy become more complex – thus requiring a larger fraction of the total number of capabilities – or when the total number of capabilities in the world becomes relatively large. These conditions can both potentially drive the industrial development of different regions of the world towards divergence, rather than convergence.

3.2 National Systems of Innovation

Chang (2003) and Cimoli et al. (2009) react to the idea that the only task of industrial policy is to identify individual market failures and correct them one at a time. In practice, market failures are prevalent in almost any setting, making the world "a huge market failure" (Ibid. p. 20). Moreover, neoclassical approaches usually model economic interactions as taking place only through market or contractual activities, ignoring the role played by non-market forms of economic organization in the economy, as well as the embeddedness of markets themselves into non-market institutions (Ibidem; Polanyi 1944; Granovetter 1985). Starting from these observations, several scholars writing in the Schumpeterian, Evolutionist and Structuralist economic

traditions have converged upon an approach that places 'National Systems of Innovation' (NSI) at the centre of the analysis of industrial policy (Nelson 1993; Peres and Primi 2009). These are defined as "the network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies" (Freeman 1995). Some of the main features of the NSI literature include (Peres and Primi 2009; Mazzucato 2015):

- Attention to the determinants of firm heterogeneity and firm survival.
- Tracing the circulation of knowledge and its diffusion through the economy.
- An emphasis on the role of formal and informal networks in the evolution of technological capacity, knowledge accumulation and structural change.
- Attention to the role of the state in helping to organize these networks.
- Recognition of resistance to change and the absence of automatic adjustment mechanisms in the economy.

National Systems of Innovation vary from country-to-country, from region-to-region and even from sector-to-sector (Freeman 2002; Malerba 2002).

The understanding of industrial policy as concerned primarily with National Systems of Innovation does not straightforwardly produce policy recommendations. By emphasizing the indeterminateness of the economic system and the role of complexity in economic dynamics, the NSI literature raises the bar for policy interventions, since they would require an understanding of the interdependencies of a complex system. As discussed by Teixeira (2014), it is unclear whether thinking of innovation in terms of a 'system' adds much to our understanding of policy, and the literature has been frequently criticized for being too rhetorical, too descriptive and methodologically weak (Lorentzen 2009). Moreover, it offers few policy recommendations, particularly for developing countries (Albuquerque 2007; Lundvall 2007; Lorentzen 2009). Accordingly, in the policy world, while the concept has been mostly used in OECD publications and in policy reports for developed countries, major development policy institutions have not made use of the NSI literature.

Mazzucato and Penna (2016) is an exception to this pattern. In an in-depth report on the Brazilian innovation system, they manage to map its components in different policy domains, note the system's strengths and weaknesses, and point to successful and unsuccessful cases of innovation policies. Based on this diagnosis, they push for the adoption of 'mission-oriented' policy. They use this term to refer to "systemic public policies that draw on frontier knowledge to attain specific goals" (Ibid. p. 6). Such policies span the entire range of policy domains within the innovation system, which should be mobilized by the state in order to reach those goals. Thus, despite acknowledging the complexity of the Brazilian innovation system, they recognize that

the policymaking process should be goal-oriented, as opposed to trying to conform to a specific blueprint. This view is shared by Ohno and Ohno (2012), who argue that the secret for the success of East Asian latecomers was their pragmatism and goal-orientation, rather than frustrated attempts to adopt policies and institutions that copy international best practices. We return to this theme in the final section, where we discuss how ideas about designing institutional architectures are to be applied in practice.

3.3 Sector-based policies

Though steeped in very different traditions of economic thought, both Justin Lin and Mushtaq Khan devise recipes for industrial policy based on the promotion of individual sectors. Lin's (2012) 'Growth Identification and Facilitation Framework' provides a guide for designing an overall industrial strategy. With regards to designing individual industrial policies, the framework recommends identifying obstacles that prevent firms from upgrading the quality of their products and the barriers limiting entry. This is to be done using a mix of methods, including value-chain analysis and 'growth diagnostics' (Hausmann et al. 2005). Interventions to remove these obstacles should be identified and randomized controlled trials should be put in place to test the effectiveness of interventions. If successful, these interventions are to be scaled up. For industries that are new to a country, they recommend attracting FDI, and for those that have recently been discovered, the government should provide support to scale them up. In these cases, policy instruments might include tax holidays, directed credit, or priority access to foreign reserves, and these measures should be time-bound so as to avoid risks of rent-seeking and capture.

At first glance, Lin's framework for industrial policy design seems rather simplistic, and its application to Nigeria in the same book confirms this impression. Diagnosing the problems stifling the growth of private firms might not be as straightforward as the framework makes it seem. Growth diagnostics are a method developed primarily to be applied at a country-wide, macro- level, and it is not clear that it can easily be used to uncover the constraints on micro-level firm growth. Randomized controlled trials are a rather impractical procedure for designing policies, given the length of time required to conduct experiments and the importance of flexibility in the conduct of industrial policy. Another common criticism of RCTs concerns their external validity (Cartwright 2007; Rodrik 2008; Deaton 2010). A more fundamental problem is that a policymaker might not be interested in finding the effect of a policy on an average firm, revealed by an RCT, but might instead choose to target interventions towards firms with the most potential. In that case randomization misses the point.

An important omission from the 'Growth Identification and Facilitation Framework' is a discussion of how to consider the risk of 'government failures' (Krueger 1990) in the conduct of industrial policy. Even if value-chain analysis, or another method, reveals the most significant obstacles to achieving competitiveness in a given industry, it is important that the government have the required capabilities to address it. Moreover, the government, or at least the agency in charge of industrial policy, must have the right incentives to promote that industry, rather than just extracting rents or conniving with members of the private sector. Any prescriptive account of government intervention must address these issues. However, Lin's framework, as the NSI literature discussed above, fails to do so, thus becoming vulnerable to traditional neoliberal critiques of industrial policy.

Like Lin, Mushtaq Khan thinks of industrial policy as based on the promotion of specific sectors. For instance, Khan (2013a) notes that industrial policy in India and Bangladesh became more effective once it started focusing on individual sectors, as opposed to 'centralized' industrial policy. Where he differs from Lin is in explicitly incorporating political and institutional considerations into policy prescriptions. For Khan (2013a, 2013b), the first step of an industrial policy design consists of identifying the contracting failures preventing the development of the organizational and technological capabilities required for a firm to be competitive (which is presumed to be the most binding constraint in developing countries). There are many possible solutions to a particular contracting failure, but not all of them might be enforceable given the relative power of those affected by it. Therefore, it is important to select a policy solution (thought of as a rent allocation) that is compatible with the context, and that compels relevant actors to exert effort in the learning process. In addition, it is important that government agencies have the capacity to monitor and enforce such policies, and these capacities must be developed where they are absent.

Based on these theoretical premises, Khan develops a sequencing for the design of an industrial policy (Khan 2007, Khan 2012). He emphasizes the largely experimental and indeterminate nature of diagnostic work, making the selection of sectors and of bottlenecks to be tackled more of a 'disciplined art' than a science (Khan 2012, p.15). He advocates identifying constraints on the development of a sector by using a mix of qualitative data including opinions of industry associations, of leading entrepreneurs in a sector, technical experts, and others (Khan 2007). However, he warns that the opinions of domestic producers and entrepreneurs must be complemented with other sources of information, since their beliefs might be influenced by prevailing policy norms, rather than an objective assessment of the critical constraints faced by them. Once these critical bottlenecks have been identified, policy measures targeted at these bottlenecks should be designed. The final step consists of the executive leadership of the government forming an

assessment of whether the chosen policies are in line with the political settlement and the implementing agency's bureaucratic capabilities.

Clearly, Khan's view of industrial policy formulation addresses some of the shortcomings of frameworks that ignore political and institutional contexts, and his policy recommendations seem less arbitrary than those given by Lin. Moreover, his framework can be used to explicitly address the problem posed by incumbent producers who might wish to block new entry into a sector or industry, or might have more direct rent-seeking connections with those in power, a point that is given short shrift in much of the industrial policy literature. However, it is less clear that identifying contracting failures and the requisite policy solutions is as straightforward as Khan makes it seem, particularly if there are countervailing forces uninterested in economic improvements. The problem of exacting informational requirements is one of the classic arguments made against the possibility of industrial policy (eg. Pack and Saggi 2006). One of the mechanisms proposed by Khan to deal with these issues consists of information exchange between the public and private sectors, but he is not very specific as to how this should take place. Although it is hard to empirically assess exactly how demanding these information requirements are, many recent prescriptive accounts of industrial policy give them a lot of attention. Public-private consultative fora have become a mainstay of the thinking on industrial policy of a group of scholars linked to the Harvard Kennedy School of Government. It is to these accounts, and to their ideas on industrial policy design, that we turn next.

3.4 High-bandwidth policy

In common with other approaches discussed in this piece, proponents of "high-bandwidth" policy agree that the world is riddled with market failures, of which three kinds are the most significant for industrial policy: self-discovery externalities, coordination externalities, and missing public inputs (Hausmann and Rodrik 2003; Rodrik 2004). These authors differ from Lin or Khan in assuming that the location and magnitude of these market failures is highly uncertain. Moreover, the requisite policy solutions are "high dimensional", in the sense that the bundles of public inputs for different activities interact with each other, forming an overall system that is hard to predict (Hausmann 2008). Hence, any policy intervention is bound to be context-specific, and attempting to map market failures to policy instruments, as done by the sectoral approaches described above, is a futile exercise. It follows that rather than thinking about picking instruments from a toolbox, industrial policy design is fundamentally about instituting the right policy processes (Rodrik 2004). The crucial feature of these processes is that they should allow the public and private sectors to come together to solve problems jointly. The government needs the private sector's knowledge about the obstacles and opportunities it faces, while the private sector

needs the government to internalize the externalities impeding self-discovery (ie. the discovery of the cost structure of new sectors) and to provide needed public inputs (Hausmann et al. 2007). Therefore, industrial policy consists above all of creating institutions that foster a fruitful collaboration.

Both Khan and Lin mention the idea of engaging with the private sector, but they are not very specific as to how exactly this should take place. Instead, Rodrik (2004) gives a discussion of ideal institutional architectures a centre-stage in his prescriptions. These should embody the principle of "embedded autonomy" (Evans 1995), meaning that the relationship between bureaucrats and business should be close enough to enable collaboration (the 'embeddedness' part), but bureaucrats should retain enough insulation so as to avoid risks of rent-seeking ('autonomy'). To achieve this relationship, industrial policy should count with high-level political support; public-private coordination and deliberation councils at the national, regional, and sectoral levels; and mechanisms of transparency and accountability. He then goes on to list ten 'design principles' meant to guide industrial policy design. Hausmann and Rodrik (2006) also advocate institutional architectures that are open (ie. do not select sectors or activities ex ante) and require self-organization, so that only the true potential beneficiaries of policies ask for the benefits conferred by them.

All countries already have an institutional architecture that selectively allocates incentives to particular industries, although they rarely admit to having 'industrial policies'. Rodrik (2004) lists a range of government policies in many countries that are industrial policies in all but name. Rodrik (2008) compares the industrial policy architecture of El Salvador, South Africa and Uruguay, noting that their challenge is not to create an institutional architecture ex novo, but to modify existing instruments and agencies to make them more effective. Hausmann et al. (2007) provide a detailed analysis of ways to improve industrial policy in South Africa. In line with their idea of industrial policy as a *process*, their proposals outline possible institutional mechanisms for promoting new economic activities and of enhancing existing mechanisms of public-private collaboration, but do not take a stand on what a desirable end-goal would be in terms of specific sectors or activities. They therefore differ substantially from sector-based approaches, which think of industrial policy as about effecting particular outcomes. Although the emphasis on institutions and public-private collaboration shares a resemblance with the NSI literature, Rodrik and co-authors' analyses focus much more on concrete discussions of public agencies, initiatives and policies than on theoretical abstractions. Still, they share that literature's concern with institution-building and with the systemic nature of industrial performance.

3.5 Institutionalist Approaches

Commenting on the growing consensus around the importance of public-private collaboration, Schneider (2015) notes that the institutional challenges are considerable, but there are few in-depth treatments of the matter. The exception is among a literature that can be broadly labelled 'institutionalist' (Doner 1992). Unlike 'high-bandwidth' approaches which, based on neoclassical economics, assume an undifferentiated private sector, institutionalist approaches recognize business interlocutors as endowed with agency and power (Schneider 1998). Greater attention is also devoted to issues of collective action. While high-bandwidth prescriptions for industrial policy take it for granted that businesses will seamlessly self-organize to engage with the state (eg. as in Hausmann et al. 2007), institutionalists see this process as fraught with much greater difficulties (Doner 1992; Haggard et al. 1997, Doner and Schneider 2000). Given these obstacles, the specific institutional arrangements under which diverse business interests come to act collectively assume great importance, and scholars investigate the organization of business associations and business-government councils in detail (Schneider 1998; Doner and Schneider 2000; Schneider 2015).

Schneider (2015) provides the most in-depth prescriptive treatment of the issue, looking at different kinds of institutions for public-private interaction, and the different functions they may perform. Importantly, he distinguishes between active policies, which seek to change the behaviour of the private sector, and passive policies, that seek to change the behaviour of government. The former are much more institutionally challenging than the latter. For Schneider, institutions for business-government collaboration will only be effective insofar as they promote meaningful information exchange and the authoritative allocation of resources, and as they minimize rent-seeking. He then goes on to analyse the impact of design components such as the number of participants, the time horizon, the level of representation, and the responsibilities of councils. These components are not to be viewed as a recipe book, since their adequacy will be highly context-dependent, and Schneider takes care to emphasize the variety of institutional configurations that are compatible with effective policymaking.

Mirroring the discussion on the institutional arrangements of business associations, institutionalists also pay attention to the arrangements of the state itself. The crucial role of meritocratic, 'Weberian' bureaucracies is a staple of the industrial policy literature since the work of Peter Evans (1989; 1995). From a policymaking perspective, even where the bureaucracy as a whole cannot be described as Weberian, successful industrial policy might often result from the establishment of 'pockets of bureaucratic efficiency' in agencies dealing with specific sectors (Geddes 1994; Evans 1997; Kohli 2004). State organization can also affect the way

business is organized, thus influencing industrial policy through an additional channel (Skocpol 1985; Haggard et al. 1997).

Institutionalists generally find that the establishment of Weberian bureaucracies depends on the ability of politicians to insulate bureaucrats from external pressures, as well as on patterns of recruitment and socialization of civil servants (Geddes 1990; 1994; Schneider 1993). This brings to the fore the role played by politics in this literature, in contrast with the largely apolitical approach of high-bandwidth policy, and in line with institutionalists' attention to agency and power. A key conclusion that emerges from several studies (Doner 1992; Maxfield and Schneider 1997, Doner et al. 2005) is that both business and government are more likely to sustain collaboration when they feel threatened, introducing a conflictual element that is present in the work of Khan, but absent in neoclassical accounts.

The institutionalist approach is grounded in political science, a discipline that usually offers less 'technocratic' policy recommendations than economics. Within political science, many of the studies discussed here follow a 'historical institutionalist' approach (Thelen 1999) and as such tend to emphasize the role of historical events in shaping current institutions. If current institutions are at an equilibrium resulting from the historical process, or only changing gradually (Mahoney and Thelen 2010), there is very little policy can do, absent a 'critical juncture'. In fact, Maxfield and Schneider (1997), in an overview of the studies on business-government relations in their edited volume, reach a sobering conclusion with regards to the ability of policy to change deeply-rooted patterns of collaboration (or non-collaboration). Nonetheless, they flag a few ways in which policymakers can have a positive impact, for instance by delegating tasks to agencies that most closely resemble the Weberian ideal type, or by using their power to shape business associations.

Schneider (2015) also shows that focusing on the narrower question of designing business-government councils dealing with specific policies might be more useful than trying to change the overall nature of business-government relations. His prescriptions on the design of business-government councils seek to counter longer-lasting 'structural' factors by means of purposefully designed institutional incentives. Implicitly, Schneider thinks of these councils as linked to specific policies.

McDermott (2007) follows a similar line when he compares the performance of the wine industry in two neighbouring Argentinean provinces, showing that where the local government involved those affected by policies in the design and governance of new institutions, results were superior. He argues that the differences in institutional and economic endowments of the provinces of Mendoza and San Juan were not significant enough to explain the divergent outcomes, and that local governments had the choice of following a 'top-down' or a 'participatory restructuring' approach. This shows that despite the persistence of certain features of the institutional

environment, policymakers often do have the freedom of moulding new institutions around their objectives. A similar conclusion is espoused by Evans (1996). Synthesizing the findings of case studies on state-society relations from across the developing world, he notes that even in relatively inauspicious settings, the 'soft technologies of organizational design' (ie. the details of how an organization is structured) can enhance the performance of state institutions, and can be a way of devising appropriate policy recommendations.

4. Policy Implications

A cursory reading of the different strands of the industrial policy literature surveyed here shows that, despite the obvious methodological differences, some issues come up repeatedly. Below we list some key conclusions that can be discerned.

Industrial Policy as an Institutional Architecture

The central idea of the NSI literature is that industrial policy involves a range of market and non-market relations between the private and public sectors. Although this idea is at its most encompassing in the notion of a 'National System of Innovation', it is also present in the work of Rodrik, Hausmann and co-authors when they highlight the complementarity of different policies. The implication is that policies are very much context-dependent, and that policymakers must consider how different public inputs relate to each other, as well as to formal and informal institutions. This brings to the fore the diversity of set-ups conducive to economic upgrading, and the difference between an institution's form and its function (Rodrik 2005; Rodrik and Rosenzweig 2010). The NSI literature also shows that industrial policy can take place at national, regional, or sectoral levels.

State-society Relations are Important

This is the key insight offered by the institutionalist literature, but it is also present in the other writings surveyed here. To use McDermott's (2007) terminology, a "participatory restructuring" approach is to be preferred to a "top-down" approach. Therefore, it is important that policymakers find ways of engaging with the private sector, and that they structure this engagement around longer-lasting formal and informal institutions. Having said that, Amsden (2001) Khan (2013a,2013b) and Schneider (2015) remind us that a coercive element was present in some of the most successful experiences of rapid industrialisation. It is important that the government be able to discipline the private sector, particularly when implementing active industrial policies, which incumbents, or those currently gaining rent capture, might wish to block. The

institutional literature also flags the capabilities, preferences and power of business, as well as different traditions of business-government engagement, as important elements to pay attention to.

Adequate Incentives in Business-State Collaboration

Non-market relationships do have an important role to play in industrial policy, but the literature has shown that the mode of engagement – specifically the incentive system put in place – between the state and the private sector still matters. This is the conclusion that emerges from the case studies collected in Schneider (2015) and in Fernández-Arias et al. (2016). The appropriate incentive system will depend heavily on the environment: the capabilities, preferences and power of business matter, as do the characteristics of state institutions and existing patterns of business-state relations.

The Role of the State's Administrative Capacity

Although Evan's (1995) canonical text on industrial policy emphasized the importance of Weberian bureaucracies for successful industrial policy, recent writings have come to recognize that as long as the incentives are right, conditions need not be so stringent (Khan 2010; Kelsall 2013; Whitfield et al. 2015). Nonetheless, the administrative capacity of state agencies remains crucial, particularly for the most ambitious policies. 'Capacity' includes both technical expertise and autonomy to resist rent-seeking. The ability of different state agencies to cooperate has also been identified by studies on industrial policy in Africa (Booth et al. 2014) and Latin America (Fernández-Arias et al. 2016) as a key determinant of the success of industrial policy. For institutionalists, administrative capacity is largely determined historically (eg. as in Kohli 2004), but as concluded by Evans (1996), there is a role to be played by "technologies of organizational design". Moreover, recent studies such as Rasul and Rogger (forthcoming) and Williams (2015) find that organizational design can affect bureaucratic performance even in distinctly non-Weberian settings.

5. Conclusions

By identifying the policy conclusions from the various literatures surveyed, it is possible to return to the question posed in the first section concerning the definition of industrial policy. There, we argued that there were two ways of defining industrial policy: one based on the kinds of purposeful actions taken by governments, and the other based on the existing institutions, policies and networks that determine the productive structure of an economy. Roughly speaking, it is possible to associate these definitions with the views of industrial policy as concerned with *outcomes* (ie.

the development of more productive industries) and with *processes* (as in Rodrik 2004). This review has shown that accounts on industrial policy differ according to whether they emphasize one or the other, but ultimately, a useful definition must include both: industrial policy involves privileging some sectors over others, preferably with the aim of increasing the economy's dynamic efficiency, but this requires altering a pre-existing institutional architecture.

Interestingly, the degree to which industrial policy is thought of in terms of processes or outcomes tends to covary with the income levels of the countries studied. For instance, the work of Khan deals mostly with low-income economies in Asia and Africa, and he correspondingly thinks of industrial policy more in terms of effecting certain outcomes than of setting up appropriate institutions. At the other end of the spectrum, the NSI literature is concerned mostly with high-income and upper-middle-income countries (Fagerberg and Srholec 2008; Teixeira 2013), and focuses more on the systemic and institutional aspects of industrial policy. Meanwhile, the empirical material used by high-bandwidth policy and institutionalists comes almost exclusively from middle-income countries, and, accordingly, there is a more even mix of outcomes and processes in their thinking on industrial policy.

It is possible to relate these variations in emphasis with the structural differences between economies according to their income level, particularly with respect to the degree of institutionalisation of an 'economic society' (borrowing the concept from Linz and Stepan 1996). Studies of industrial policy in low-income countries often show that ruling elites have a considerable amount of discretion in moulding a sector's institutional architecture (eg. Behuria 2015; Kjaer 2015) and thus follow a more political approach. Conversely, the literature on high-income countries is dominated by more technical investigations on technology and innovation (eg. Warwick 2013; O'Sullivan et al. 2013).

The implication is that policy design and implementation should proceed differently according to the structural characteristics of an economy. In environments of low institutionalisation, the considerations brought forth by Khan – contracting failures, rent allocations and political settlements – will probably be pre-eminent. In tropical Africa, where levels of industrial development are very low, it is unlikely that industrial policy measures will include setting up university-firm linkages or R&D facilities. Neither does it seem like the 'open' institutional architecture advocated by Hausmann and Rodrik is of much use, given the levels of administrative capacity and autonomy that it would require. With time, as an economy reaches a greater level of complexity, these priorities are likely to shift. Still, the other elements highlighted by the literature, such as business-government relations and administrative capacity, are important in any setting. Furthermore, the design of the institutional architecture remains important, even in the least industrialised countries, as attested by empirical work

comparing sectoral performance in African countries (eg. Oqubay 2015; Whitfield et al. 2015).

Going forward, it would be helpful if the literature advanced in its understanding of more specific features of institutional architectures, as suggested by Schneider (2015). The diversity of institutional set-ups conducive to development is now widely established in the literature, but there is little guidance on how to adapt the institutional set-up to the context at hand[2]. In particular, there is little guidance on to how to devise public organizations and business-government councils with the right incentives to maximize performance within the constraints imposed by informal institutions. If state-led development is to work, then investigating such questions of institutional design might be the most promising avenue for generating policy advice.

6. References

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[2] But for an interesting approach, see Andrews, Pritchett and Woolcock (2012).

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