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Evolving developmental state: unpacking policy capacity. The case of South Korea.

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Abstract

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The concept of the Asian developmental state has been theorized and discussed for a few decades already (Wade 1994, Haggard 1990, Amsden 1989, Weiss 2004, Hobday 2009, Evans 1995, Chang 1998 among the others) while in most cases the studies deal with successful development policies of 1960s-1980s. Yet in the course of technological change (from ICT to science-based technologies), new economic imperatives, internal political pressures and international pressures for greater transparency and liberalization (especially in the context of Asian financial crisis), state interventionist policies and state paternalism have been significantly transformed during the course of 1990s-2000s. Critical assessment of these transformations exists while it often lacks assessment of qualitative changes within the institutions and structures, to paraphrase Lundval (2006).

Korea represents the "extreme" case of liberalization conducted "wholesale", which has been reflected in academic debates over the "demise of Korea Inc." and "normalization" of economic policy-making. Employing the theoretical concept of policy capacity (Karo and Kattel 2013) as a complex, highly contextual and evolutionary concept, the paper claims that despite economic and administrative transformations in the course of overall liberalization, the legacy of developmental state remains yet has been modified, in various institutions in various ways, thereby suggesting that the mere concept of developmental state should be treated with less rigidity as it is itself evolutionary. In other words, present study aims at unpacking policy capacity in the course of transformations under new socio-political, economic and technological imperatives of 1990s-2000s.

The multi-layered analysis tackles policy orientation, macro-level characteristics of policy institutions, policy design and policy implementation and evaluation, and types of state-market interactions and reveals both continuities and discontinuities in developmental institutions and structures. More precisely, some of the conclusions include: top-down dimension in policy formulation prevails while the number of actors have increased over time; the policy mix has been substantially altered not only by abolishing policy loans and privatization of SOEs but by reorganization and reorientation of government research institutes; policy institutions remain partially representative while politicization of policy-making no longer allow for previously insulated bureaucracy; political strategy-building and ideational vision-setting continues and even includes re-appearance of the national sentiment; state retreats from direct intervention, especially what comes to science-based technologies while still exercises direct guidance in case of industry restructuring, which, however, also diminishes over time; yet certain control over financial resources is exercised through newly established institutions such as Financial Supervisory Commission.

The paper concludes with the descriptive table, which outlines conceptual view of "conventional" Asian developmental state and detailed summary of the Korean case, which enables to visualize the evolutionary approach to development policy capacities.

This exploratory case study is based on a thorough analysis of secondary sources combined with the data from primary sources such as policy documents, ministerial and agency reports, legal acts, and archival statistical data.

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Abstract

The concept of the Asian developmental state has been theorized and discussed for a few decades already while in most cases the studies deal with successful development policies of 1960s-1980s. Yet in the course of technological change, new economic imperatives, internal political pressures and international pressures for greater transparency and liberalization (especially in the context of Asian financial crisis), state interventionist policies and state paternalism have been significantly transformed during the course of 1990s-2000s. Critical assessment of these transformations exists while it often lacks assessment of qualitative changes within institutions and structures.

South Korea represents the ‘extreme’ case of liberalization conducted ‘wholesale’, which has been reflected in academic debates over the ‘demise of Korea Inc.’ and ‘normalization’ of economic policy-making. Employing the theoretical concept of policy capacity as a complex, highly contextual and evolutionary concept, the paper claims that despite economic and administrative transformations in the course of overall liberalization, the legacy of developmental state remains yet has been modified, in various institutions in various ways, thereby suggesting that the mere concept of developmental state should be treated with less rigidity as it is itself evolutionary. In other words, present study aims at unpacking policy capacity in the course of transformations under new socio-political, economic and technological imperatives of 1990s-2000s.

Keywords: developmental state; policy capacity; innovation policy; East Asia; South Korea.

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Introduction

The notion of ‘developmental state’ is often used with reference to the rapid economic growth of newly industrialized economies in East and South-East Asia (first and foremost Japan and then South Korea¹, Taiwan, Singapore and Hong Kong). The cases of post-war economic successes tend to be associated with *the* development trajectory of the XX century and have been both studied and debated with the latter especially taking place in the aftermath of the Asian financial crisis 1997-98.

The pioneering scholars of the ‘Asian miracle’ have coined a number of terms (embedded autonomy, insulated bureaucracy, ‘picking winners’, ‘getting prices wrong’, strategic decoupling etc.) and have identified various policies and institutions (policy loan and repressed finance, infant industry protection combined with export promotion, technology transfer through government research institutes etc.), which have helped to get a sense of late-late industrial development, and this is how a certain consensus was established over what is generally understood by the ‘East Asian model’ (given of course the variations across the countries in terms of initial factor endowments, socio-political realities and policies *per se*).² Liberalization, both socio-political and economic, occurred in late 1980s and triggered the debates over the demise of the ‘East Asian model’ especially referring to the radical transformations in Korea. (Kim 1999, Kim and Kim 2005, Pirie 2005 and 2012) At the same time, a number of more recent arguments were presented in favor of strong path dependency in state-directed pro-development policies and institutions. (Weiss 2004, Thurbon 2003, Weiss and Thurbon 2006, Wade 2010)

Earlier studies of the East Asian trajectory of development have resulted in establishing consensus over the role the state can play in the process of catching-up development and what institutions can be conducive to economic growth. At the same time, from more recent scholarly work one can identify a number of strains of literature, which deal with particular transformations in the East Asian NICs and the concept of developmental state:

- Literature on global value chains (Yeung 2013, Hobday 2009) argues that domestic firms have developed into far more independent actors and arguably no longer allow for ‘embedded autonomy’ – the latter famously coined by Evans (1995).
- Accounts of technological development and the shift from ICT paradigm towards science-based technologies, particularly biotechnologies, demonstrate how previously successful institutional designs are no longer capable of providing effective environment for development and diffusion of new technologies, which are largely characterized by

¹ Hereafter Korea

² Primary reference is made to the seminal works of Johnson (1982), Wade (2004), Amsden (1989, 2003), Evans (1995), Haggard (1990), and later Chang (1998) and Weiss (1998, 2003).

technological unknowns rather than economic unknowns. (Wong 2004, 2011)

- Literature on the varieties of capitalism in its later revisionist tradition primarily deals with business systems, financial architectures and labor market regimes. (Walter and Zhang 2012)

The latter certainly provides an important step further towards interdisciplinary account of variations in institutional structures while it elaborates on institutions without looking at the capacity of these institutions and actors to actually design and implement various policies. In addition, it does not pay enough attention to governance and administrative structures. Moreover, Lundvall *et al* (2006, 3) emphasize: “there is much focus on prevailing institutions and structures and less on qualitative change in the structure and in the institutional set-up”. The latter, as argued in this article, is possible to analyze when looking at transformations of developmental institutions through the prism of policy capacity and to better unpack the entire notion of developmental state by looking at state, policy and administrative capacities.

This exploratory case study represents the analysis of Korean policies and institutions during roughly two decades: 1990s-2000s. Out of the four ‘Tigers’ particularly Korea has imitated policy trajectories and economic structures of Japan with its *chaebols* and nurtured national industrial champions as well as repressed development finance, ‘pilot’ planning agency similar to Japanese MITI, technocratic planning bureaucrats among key features. On the other hand, precisely Korea has experienced drastic liberalization, both socio-economic and political, during the course of the 1990s as opposed to, for example, gradual transition in Taiwan and continuation of political regime in Singapore. In this regard, Korea provides a rich case of both radical and incremental institutional changes.

Next follows the theoretical part, which elaborates on the concept of policy capacity and its relevance to the studies of developmental states. The empirical part consists of subsections. Given the importance of technological upgrade of the East Asian successful economies (our empirical analysis starts with the overview of S&T policies and administration in Korea during respective time period and which also touches upon regional policies. It then proceeds to financial institutions, which are also thought to play crucial role in the development process via ‘repressed finance’ regimes and bank-dominating system. Then comes the overview of state-market relations and policies of corporate restructuring, which are especially relevant to the case of Korea due to its economic history of the 1990s and the impact of the Asian financial crisis.

Developmental state and policy capacity

Among various works on the newly industrialized countries (NICs) of East Asia institutionalist approach prevails³ while in regards to institutions themselves the direct interventionist policies of previously authoritarian regimes appeared to no longer hold. Meanwhile, there is a whole strain of literature dealing with modern developmental state, which describes a multitude of ways, in which a state not only directs economic and technological policies but implement those being a (pro)active actor. (Mazzucato 2013; Weiss 2003 and 2014) At the same time, there are a whole variety of institutional trajectories on the continuum between the 'conventional' paternalistic state and 'entrepreneurial state' of modern days. The concept of policy capacity could be a useful tool to follow these trajectories by looking at evolution of developmental institutions over time. This, in turn, would help better understand which institutions and in what way either facilitate and / or hinder economic growth and development. However, at this point of analysis we will refrain from identifying the causes yet but rather concentrate on descriptive exploratory research.

Policy capacity is generally used as a wide concept in attempts to explain the processes within government and of governance as related to policy-making. Depending on the focus of discussion it can refer to various elements of government and/or governance while according to Jayasuriya, in the developmental state literature "capacity is generally understood [...] as the ability to bring about a certain set of outcomes." (Jayasuriya 2004, 488)

More thorough definition is authored by Painter and Pierre (2005, 255): "policy capacity refers to the ability of a government to make intelligent policy choices and master the resources needed to execute those choices." Karo and Kattel develop it further: "policy capacity is not so much a continuum of abilities (from less to more), but rather *a variety of modes of making policy* that originate in co-evolutionary processes in capitalism development." (Karo and Kattel 2013, 1; original emphasis)

A policy is a set of decisions in action, from its design and implementation to content and impact, which are all characterized by the attitudes of concrete people and organizations, mechanisms of learning and interaction, historically evolved institutions and norms as well as adjustment mechanisms and incremental changes. To specify, the concept of policy capacity allows us to differentiate between the following layers:

- state capacity – achieving appropriate development outcomes based on such values as legitimacy and accountability – capacity of the government to implement policies and the extent of its involvement, including political determinant;
- policy capacity – ability to make intelligent policy choices – "ability of the political system to decide or compromise on the best approach to

³ For political economy of the 'Tigers' see, for example, Doner *et al* 2005.

technological and economic development [...] through the process of policy debate and interest coordination” (politics-bureaucracy and public-private domains);

- administrative capacity – ability to effectively manage the resources – capacity of the government to administer processes in order to achieve policy objectives established with the policy choices. (Karo and Kattel 2013; also Painter and Pierre 2005)

State capacity is not possible without the other two, it relies on them; while the policy and administrative capacities are closely interrelated. Intuitively one might assume that administrative capabilities constitute the ability to make choices but, on the other hand, effective resource coordination is not possible if policy goals are inconsistent (e.g. ‘100 Day Plan for a New Economy’ under Kim’s administration in 1993) or were chosen regardless of due process of debate and coordination for it can equally erode administrative capabilities just like poor administration can undermine policy-making.

Jayasuriya (2004) also pays attention to the changing and evolving process of policy-making by emphasizing the internal change within the state, i.e. internal structure of firms, markets and the state. Jayasuriya develops the definition of relational policy capacity: it should be understood not in terms of “an ability to determine a particular set of outcomes” but rather as “a set of relationships that determine governance” or an ability “to structure the broad patterns of governance within a specific policy domain.” By contrast, the ‘conventional’ attribute model of policy capacity, which implies more state-centric approach to policy-making does not allow considering other areas of policy capacity, which exist beyond the traditional boundaries of the state. The inherent tendency of an attribute model is “to define capacity in terms of transformation of structure and policy [which] leaves it with a bias towards an understanding of government rather than governance.” (Jayasuriya 2004, 489) According to him, there is a shift from direct allocation of resources to more indirect provision of regulatory frameworks.

Therefore regulatory nature of governance in developmental state is opposed to earlier command and control type of governance not in a sense of diminishing power to directly allocate resources but as evolving and more complex set of mechanisms employed by the state to pursue its role in the developmental process. Then *the capacity* is no longer about the type of such a role (active interventionism vs. liberal deregulation) but about effective engagement with various actors, often positioned outside the “traditional boundaries of government”, which thereby ensures the process of governance for development. In other words, a growing number of actors are having impact on policy capacity, not only in terms of input-output but they directly *relate* to policy capacity, and the challenge for the state is to pursue administrative and policy adjustments which would account for these complex relations. And this is a continuous process.

Karo and Kattel (2013) further stress the evolutionary nature of capacity by describing the possible levels of capacities: macro – internal and external economic and political variables affecting policy trajectories and how the state’s role is perceived; meso – institutional interaction and coordination mechanisms in both politico-administrative and public-private interactions; and micro – organizational practices of bureaucracy and other actors. Multiple layers, each characterized by various variables, changing in time while also subjects to path-dependency – policy capacity is constantly evolving in a complex and multi-dimensional environment.

Namely, to unpack policy capacity of a developmental state would mean to identify various levels and layers of policy-making as well as various actors, both related to state and outside of public domain. In case of the later most notable would be state-market relations and the analysis of private actors, as particular state-market interactions specific to the NICs have been argued as being strongly conducive to increasing competitiveness of domestic firms in the global markets.

Karo and Kattel (2013) provide us with such a conceptual framework, which is developed in relation to the ‘conventional’ East Asian model: centered over the general concept of policy cycle – orientation and agenda setting, design, implementation, monitoring and evaluation – it also differentiates between macro and meso levels of capacities and additionally draws a special attention to state-market relations.

Such a multi-layered framework and the time span of roughly two decades (1990s-2000s) allow to depart from more static approach of developmental state concept, rooted in the scholarship of the 1980s, which tends to put the major emphasis on the state’s leading role in orchestrating national development project and most of variables used in developmental state concept are state-centric: protectionism, allocation of finance, ‘picking winners’ and managing competition, technology transfer from abroad and licensing, socio-political regime often reflecting hostile geopolitical environment (economic growth as means for survival). By contrast, we are more interested in evolution of various institutions, which tends to be more open-ended than literature on developmental states often assumes.

S&T policies and administration

In terms of general Science and Technology (S&T) administration during the 1990s ministries in Korea started launching own R&D programmes (Ministry of Information and Communication, Ministry of Environment, Ministry of Construction and Transportation, Ministry of Health and Welfare) and therefore Ministry of Science and Technology (MOST) got focused on source and core technologies while industry-related agencies pursued their specialized research agenda.

Greater amount of agencies involved in R&D and increased budgets called for optimization of coordination⁴. For example, in case of bio-technologies “initial inter-ministerial conflict was exacerbated by the absence of an effective overarching pilot agency. After demolition of EPB newly empowered Ministry of Finance and Economy (MOFE)⁵ lacked expertise and authority to coordinate inter-ministerial efforts on biotech development.” (Wong 2011) There were no institutional mechanisms for inter-ministerial coordination, which meant multiple deliberations ongoing between each line ministry and the Ministry of Planning and Budget (MPB). The latter had the last word in terms of actual R&D budget allocations⁶ while according to Wong (2011) it was ineffective due to the lack of scientific and industrial expertise.

Korean Institute of S&T Evaluation and Planning (KISTEP) was responsible for evaluation of Ministerial research proposals and this particular arrangement was highly criticized due to close affiliation of KISTEP to MOST thereby rising concerns regarding overall objectivity of resource allocation. MOST was believed to disproportionately benefit from such evaluation-allocation mechanism, which only intensified inter-ministerial conflicts. National Science and Technology Council (NSTC) established in 1999 by the Office of President was designed as the remedy to coordination and legitimacy problems while it too faced legitimacy issues since it was chaired by the Minister of S&T.

The Small and Medium Business Administration (SMBA) established by MOCIE, fully financed by the central government, had a network of 11 regional administrations, and it was in 1998 when the policy-making function was transferred from the Ministry of Commerce, Industry and Energy (MOCIE) directly to the SMBA. The Small and Medium Industry Promotion Corporation (SMIPC), a non-profit organization, fully financed by the central government, also had a network of 11 regional units put under SMBA (founded 1979). The two agencies were the main bodies supporting SMEs by tailoring their policies towards better managerial practices and promotion of technologically strong SMEs. At the same time, in its 2001 report OECD put a great emphasis on the lack of systematic evaluation, which caused contradictory assessment of innovation support provided to SMEs.

Separate attention should be given to Government Research Institutes (GRIs): growing private sector capabilities resulted in larger private R&D expenditures while GRIs started to concentrate on experimental research. Combined with poor cooperation with universities this has resulted in duplicative research projects.

⁴ Newly established national projects included: Highly Advanced National Projects (HAN) – the first R&D programme in Korea ever “to be crafted through inter-ministerial consensus-buidling and aided by technology foresight techniques” (Schlossstein 2009) launched in 1992; G7 Programme which set up basic science research as a separate programme launched in 1992; 1st five-year plan for industrial technology development 1996-2000; “Grand Sciences” and “Shared Laboratory Facilities” launched in 1996 (Hong *et al* 2011); Creative Research Initiative Project launched in 1997; Frontier R&D programme launched in 1999 among the others.

⁵ The same is revealed in the interviews conducted by Thurbon (2003, 2007).

⁶ Although elected National Assembly approves government’s total R&D budget.

In addition, project-based management⁷ had a negative impact on recruiting practices and created uncertainties affecting employee morale. In other words, both shifts in R&D trends and administrative reforms have diminished formerly significant role of GRIs (institutions of technology transfer) and re-formulation of the mission of GRIs became high on the S&T policy agenda. (OECD 2009)

With the appearance of ‘innovative’ and ‘creative’ rhetoric⁸ the shortcomings of rigid top-down coordination started being discussed. Creative Research Initiative Project (to secure unique fundamental source technologies; launched in 1997) and Frontier R&D Programme (1999) were set up as independent bodies and adopted ‘research center based system’ where project managers were empowered to deal with budget execution and recruitment of researchers. The two bodies were working for universities and GRIs without following their organizational structures. The new model was pursued in recognition that both imitative research and organization of catching-up mode should be abandoned. (Donghoon 2010, 124)

According to Wong (2001) the 2000s can be characterized by ‘normalization’ of inter-ministerial relations in terms of coordination and communication problems. The line ministries have implicitly established and articulated their own specializations: MOCIE focused on sponsoring R&D in applied technologies that could be quickly assimilated by firms and its projects tended to be short-term (3-5 years), while MOST focused on infrastructure (universities and GRIs) and long-term (up to 10 years) mission-oriented projects with broad targets.

In case of biotechnologies, during 1990s MOST accounted for the majority of spending while later in 2000s the allocation between MOST, MOCIE and MOHW became 30%, 15% and 27% respectively, i.e. despite previous inter-ministerial competition there came eventual accommodation of R&D resources. In addition, complementary division of labor took place with MOST focusing on upstream basic research, MOCIE – on midstream technology development and commercialization, and Ministry of Health and Welfare (MOHW) – biotech subsector related to the management of health technology and health care delivery. In addition, Wong (2011) reports that ministerial stakeholders increased their lines of informal communication in order to learn about one another’s R&D plans and adapt accordingly thereby accommodating differentiation.

As for vertical coordination, Office for Science, Technology and Innovation (OSTI) was established in 2004 as an executive branch of the NSTC. Staffed with some 100 experts from ministries and private sector it enjoyed considerable autonomy since it reviewed all annual ministerial budget proposals and could shift resources from one ministry to another. Even being headed by one of S&T vice-ministers it enjoyed the legitimacy, unlike MPB and NSTC before.

⁷ Introduced in 1996.

⁸ Five-Year Plan for Innovation designed in 1997.

OSTI had a more expansive view of the resources and management of ministerial R&D programmes than each separate ministry did and due to administrative restructuring of MOST OSTI was perceived to function outside the Ministry. Namely, MOST was reorganized into two distinct sections, each headed by a vice-minister: planning and execution of ministry's R&D programmes, and R&D planning for all the ministries. The second vice-minister headed OSTI. Such administrative arrangement allowed for institutional distance between MOST's own interests and its role in the overall national project thereby reinforcing the legitimacy of newly established entity. (*Ibid*)

Both, establishment of OSTI and appointment of Deputy PM for S&T in 2004, signified the shift towards more systemic 'innovation system' approach. (Donghoon 2010)⁹ Technological development was no longer the sole responsibility of MOST but given its increasingly comprehensive agenda more ministries, respective research institutes, agencies, businesses were now involved while strengthened hierarchy of decision-making was now comprised of the President, the NTSC, Presidential Advisory Council on S&T (est. 1991), and the OSTI.

Top coordination bodies were lacking in previous institutional environment (before the inception of the National Science and Technology Council in 1999) as previously each ministry had been implementing related S&T policies and therefore overall implementation was fragmented and lacked coordination. Although MOST was formally the primary coordinating body in terms of the budget, human resources and legal regulations, its position within administration system was weak and so was its coordination capacity. (Seung and Song 2008) After establishing the NSTC, the role of MOST got substantially strengthened and it is sometimes compared with the role of Economic Planning Board (EPB) – while now the Ministry served as a catalyst for innovation processes rather than a “sovereign economic actor exercising control over the dynamics of technological process.” (*Ibid* 37-38)

First National Technology Roadmap (2002-2012)¹⁰, a national planning project including foresight activities was carried out in 2001: individual ministries were engaged in planning for specific technologies and this is regarded as the very first attempt of comprehensive planning for national technology development. A number of legal acts were promulgated throughout the 2000s aiming at institutionalizing S&T promotion and development through S&T planning, evaluation and impact assessment, setting technological targets and conducting

⁹ In general it was during Roh Moo-Hyun presidency (in office 2003-2008) when S&T-related policies became a key national initiative. Increased governmental R&D budget: from 1.8 trln won in 1995 to 7.8 trln won in 2005 while Roh administration made it 7% of total government spending. (Seung and Song 2008)

¹⁰ 9 major technologies (including biotech, energy machinery, electronics and information) and 90 specific technologies were to receive priority at the national level.

foresight exercises.¹¹ At the same time, Choi (2003, 6) points to the weaknesses of Korea's S&T national planning: in terms of resources it lacked high-profile leaders (world top), and in terms of content it lacked socio-economic vision as it did not set a clear line between national and private R&D (with BERD accounting for $\frac{3}{4}$ of total expenditures).

As was now prescribed by law the NSTC designed the first five-year Basic Plan of Science and Technology (2002-2006) which covered socio-economic aspects such as setting per capita income target as USD 15000 by 2006, making S&T a central pillar of society, while transforming Korea into an S&T nation and North-Asian business hub. (Pyengmu 2004)

During the first decade of 2000s further formalization and attempts to make the process of policy-making more inclusive affected S&T policy formulation: technology assessment programme was launched in 2003 in order to assess risks and adverse effects of new technologies; after fierce competition ministries engaged in S&T agreed on 10 next-generation growth engines; NSCT was to invite designative representatives from civic groups while 20% of members of OSTI was to come from the private sector; a number of large technological foresight exercises was conducted. (Donghoon 2010)

At the end of the first decade the new president was elected (Lee Myung-Bak in office 2008-2013) who conducted substantial reshuffles in the government: ministries were downsized through administrative integration while made more accountable (e.g. establishment of the Ministry of Education, Science and Technology – MEST in 2008), Ministry of Knowledge and Economy (MKE) was established by consolidating the administrative tasks of industrial development and technological innovation; many government committees have been closed down except for the NSTC; OSTI and Deputy PM for S&T were abolished while OSTI was reorganized. (*Ibid*)

The extent of overall importance of political cycles distinguishes Korean experience from more gradual political transition and overall politics of policy-making in Taiwan. In addition to deregulation (e.g. abolition of policy loans and price controls, elevation of capital account controls) the process of liberalization of late 1980s brought political variables into policy-making. In today's Korea every new president tends to conduct substantial government reshuffles (merging or creating new ministries, agencies, and top bureaucratic positions)¹² and a number of strategic planning activities were made to correspond to electoral cycle (e.g. five-year national plans, road-maps).¹³ Such politicization

¹¹ The National Science and Technology Foundation Basic Law (enacted in 2001) is believed to symbolize the shift from legal environment of an industrial society to the one necessary for a knowledge-based economy. (Donghoon 2010)

¹² The latest example comes from the Ministry of Education, which was newly established in 2013 by Park Geun-Hye administration although it was merged with the Ministry of Science and Technology in 2008.

¹³ Amendments of Korea's Constitution and Presidential Act (both 1987) stipulate five-year presidential term with no possibility of re-election.

resulted in substantial policy inconsistencies in the 1990s. For example, when analyzing presidential terms of Roh Tae-Woo (in office 1988-1993) and Kim Young-Sam (in office 1993-1998) Kondoh (2002) argues that each of those periods contained both reformist and pro-business policies and the shifts were made in the absence of longer strategic economic planning.

Recently the strengthening of top coordination bodies has been signified by the re-launching and renaming of the National Science and Technology Commission, which was placed under the authority of Presidential Office in 2011. It accounts for over 70% of public R&D spending (military and social science research excluded). In addition, KISTEP (Korea Institute of Science and Technology Evaluation and Planning), a key agency in R&D policy evaluation, was also moved under renewed NSTC from MEST to serve the function of the main supporting agency. (Ko and Choe 2011)

Regional policies

Heads of regional governments were first elected in 1995, which makes regional political system a relatively new institution.¹⁴ Chung reports that the discussions on Regional Innovation Systems have been in place since the beginning of the 1990s while they tended to focus “on analyzing the region itself and so the relationship between regional and national innovation systems have been ignored”. (Chung 2002, 485) Chung (2002) further emphasizes the problem of geographic concentration of economic activities owing to the fact that developed regions, especially metropolises, were established by the central government in order to develop industrial clusters.

“Regional-level governance competence assumes an important function [...] because it is at this level that production networks with a high communication density and a variety of non-market, trust-based forms of cooperation emerge.” (Lundvall *et al* 2006, 47) Regional policies included increasing S&T budgets and establishing GRIs and National Laboratories. By 2001 Regional Research Centers (RRCs) and Technology Investment Centers (TICs) have been established in each province and were to be technology-specific depending on the local economic context. The programme was implemented by the two ministries (MOCIE and MOST) with the main goal to facilitate cooperation between universities and SMEs by upgrading universities’ research capabilities so that they will be able to provide enterprises with education and training, and to foster collaborative R&D by providing the labs. In addition, extensive deregulation in FDI during the 1990s was considered a strong additional incentive for regions to attract foreign funds. (OECD 2001) Nevertheless, institutionally, the role of regional research and innovation policies is still not strong: regional governments participate in

¹⁴ Until then local governments were run directly by provincial governments, which were run by the national government. Since 1995 local magistrates and assemblies are elected. Local autonomy does not extend to judicial branch and many other areas. Overall they are mostly to decide on policy implementation.

national R&D programmes, which are monitored and continuously revised by the NSTC. (Ko and Choe 2011)

Analyzing Korean industrial development in spatial terms Park (2009) puts a great emphasis on the need to design integrated regional innovation policies, which would include attracting talents to the regions, promotion of interaction between all economic actors in the region, providing needed infrastructure (schools, living and service environments, university-industry networks), intra-regional integration which would generate synergy effects, strategies for diffusing innovations to the level of countries and small cities within a given region and such. Such integrative approach requires greater regional autonomy and this has been discussed for more than a decade: despite of regionalization programmes and empowering local authorities, “innovation policy still ha[d] a strong national character, as some agencies, such as the SMBA and SMIPC, [were] fully supported and controlled by the central government.” (OECD 2001, 166)

The same holds true for demand-side instruments of innovation policy, such as enhancing procurement of innovative solutions from SMEs: MKE and SMBA have been in charge of organizing dialogues between local governments and high-tech SME representatives both at national and regional levels. However, the overall policy is believed to be effective in regards to innovative SMEs: its share in public procurement totaled 7% in 2009. (Ko and Choe 2011) At the same time, the coordination between supply-side and demand-side policy instruments is generally very weak. Recent policy attempts relevant to this type of coordination include the Plan for Advancing Cooperation amongst Industry, Academia, and Research Institutes designed in 2010.

Financial policies and institutions

Financial liberalization of early 1990s was about lifting restrictions on short-term borrowing while holding those as regards to long-term loans, which needed to be approved by the Ministry of Finance. Combined with rapidly increasing number of merchant banks which were under-supervised – those are the two main factors explaining rapidly developed maturity mismatch, i.e. why 64% of those banks’ foreign borrowings were short-term and 85% of them were lent on long-term basis domestically. (Chang *et al* 1998) Easier access to fast loans created expansionary strategies among business firms and eventually resulted in over-production and ‘social waste’, which has been carefully avoided during the three decades of industrial planning in Korea.

Internal difficulties are crucial for understanding the liberal trajectory and yet, this is not to dismiss the external argument, that is, the extent to which US pressures for opening Korean markets (financial in particular) had an impact on Korea’s political elites; as well as the decision of Kim Young Sam administration to apply for the OECD membership and GATT/WTO made in 1993.

One of the key outcomes of the post-crisis reforms, and of key importance to the debates over developmental state in Korea, as explicitly stated by Weiss (2004), was the introduction of a new regulatory framework in regards to financial supervision. In 1998 the four agencies supervising banks, securities companies, insurance firms and merchant banks, were compiled into the Financial Supervisory Service, which was to act as the executive body of the Financial Supervisory Commission, and which was given a considerable extent of independence under the Prime Minister's Office. The aim of the Commission was stipulated in the Presidential Decree of the same year, stating that financial prudence, unification of financial procedures and adherence to the international standards, were of strategic importance to Korea.

Under the new system of loan classification and standards provision, the Commission had a direct influence over the banks' internal risk management systems and could stop the flow of credits to non-qualified companies, hence could have a direct impact on the flow (even allocation, as follows from Weiss 2004) of finance. In addition, the Commission was responsible for ensuring disclosure, auditing and accounting principles to go in line with the international standards.

Lee *et al* (2005) pursue the same line of reasoning by stating that economic and financial bureaucrats only consolidated power during the post-crisis reforms. Given the political background of Kim Dae-Jung (in office 1998-2003) who lacked his own team of political and bureaucratic supporters, top positions were filled with elite career bureaucrats: "the former EPB and MOF bureaucrats monopolized all key economic policymaking posts, including the presidential staffs and cabinet portfolios as members of the New Mainstream." (Lee *et al* 2005, 30) Economic authorities were represented by reorganized 'policymaking' Financial Supervisory Commission, 'regulatory' Financial Supervisory Service, 'strategic' Planning and Budgeting Commission, and 'coordinating' Ministry of Finance and Economy and were empowered by reforms given important role of prudential regulations and supervisions over financial institutions: "Enjoying powers delegated by the President and filling in the institutional vacuum left by the bickering political parties, former state planners and finance bureaucrats found themselves leading comprehensive reform." (*ibid*)

State-market relations and corporate restructuring

Reformist policies of 1987-1989 included appointing pro-stability reformist Cho Soon as the Head of Economic Planning Board (EPB), abolition of monthly export promotion meetings chaired by the president, and liberalization of labor unions, which were succeeded by more pro-business policies of restoring export promotion meetings in 1989 (after economic boom preceding Olympic Games in 1988 current account worsened and trade deficit existed pretty much until

1998¹⁵) and institutionalizing broader state-business network by establishing Monthly Government-Business Joint Meetings in 1992. (Kondoh 2002)

A new wave of reformist thinking started with Kim Young-Sam aiming at further dismantling institutions and networks of industrial promotion therewith by dissolving Government-Business Joint Meetings in 1993, eventual abolition of the industrial planning pilot agency EPB in 1994¹⁶, drafting a new five-year economic plan which “simply emphasized economic justice and private initiatives” (Kondoh 2002) as well as ‘100 Day Plan for a New Economy’, withdrawing from selective industrial policies except for high-tech R&D and pursuing further financial liberalization ‘wholesale’ as stated by Thurbon (2003).

At the same time, a number of meetings with major exporters were conducted later in 1993, MOTIE announced 50 bln won to be provided to boost exports and similarly in 1996 MOTIE called for an export promotion meeting with twenty major industrial associations once international competitiveness of Korean economy was undermined due to increased wages (Park 2009) combined with appreciation of the won against the dollar and yen. (Kondoh 2002) In other words, reactive restorations of the meetings with business took place during both terms, which can signify inconsistency of policies and its increasing politicization. In this respect, Korean experience is very different from gradual and cautious economic liberalization in Taiwan (Thurbon 2007) and it falls far from Singapore where political reforms served as a substitution of economic change in order to re-invent old developmental state. (Low 2000)

The first wave of restructuring took place in 1987-1989 when worsening economic conditions (labor disputes and wage hikes, appreciation of the currency, weak financial structure and high interest rates, labor shortages in production lines) made individual strategies of firms crucial for survival and many firms in labor-intensive industries were either closed or restructured in the early 1990s. (Park 2009) Firms undertook four major strategies for industrial restructuring:

- labor flexibility – temporary workers, part-time workers and foreign workers reduced costs of production;
- organization – subcontracting reduced costs by outsourcing or separating parts of production lines;
- location – outwards FDI to low-cost countries such as China and South-East Asia (stable increase in Korea’s outward FDI until the crisis);
- technology development – was emphasized and more firms were engaging in R&D activities (from 19.9% in 1993 to 34% in 1996) (Park 1995 and Park 2000 in Park 2009)

¹⁵ <http://www.tradingeconomics.com/south-korea/current-account-balance-bop-us-dollar-wb-data.html> (accessed April 3, 2014)

¹⁶ Officially merged with MOF producing super-ministry MOFE.

Second wave of industrial restructuring occurred after the Asian financial crisis and involved strong state intervention as government took the lead in restructuring the *chaebols*. Corporate restructuring of the *chaebols* was on government's agenda already since the 1980s (Weiss 2004) while the crisis made it a must, being one of conditionalities of the IMF rescue package. In 1998 the Ministry of Commerce, Industry and Energy (MOCIE) identified ten industries for the purpose of eliminating excessive competition, excessive capacity and to reduce escalating debt-to-equity ratios.¹⁷ The government retained a mandate to decide upon deadlines and sectors while the *chaebols* were given freedom in deciding which subsidiaries they wish to sell.

The top five conglomerates in the following industries announced restructuring plans later in 1998: semiconductors, power-generating equipment, petrochemicals, aircraft manufacturing and railroad vehicles; while two more industries were added based on the business groups initiative – ship engines and oil refining. The so-called 'Big Deals' were formally articulated in the tripartite government-*chaebols*-creditor banks agreement at the end of 1998. The major producers in each industry were to be consolidated leaving one or two domestic competitors. The largest and the most ambitious Deal appeared in the sector of semiconductors where the merger of Hyundai and LG gave the way to establishment of the largest producer of DRAM chips in the world. In short, the restructuring was about either mergers or swapping relevant subsidiaries between the groups while the government announced tax reductions and exemptions on revenues from the Deals.

Further corporate restructuring was initiated in 2001 while the government only announced the names of the sectors (chemical fiber, paper production, cement, agricultural machines and such) without directing the way of restructuring. As Lee et al (2005) argue such 'voluntary restructuring' was far from success due to deficiency in market infrastructure, i.e. lack of intermediary vehicles to facilitate M&A and sale of firms, prevalence of group-style firms which made restructuring being driven by group-level considerations, lack of clear corporate governance structures and trustful accounting books which all made negotiations highly cumbersome.

Discussion

According to Hwang and Choung (2013) Korean post-catch up innovation system can be characterized by failure of dynamic complementarity, i.e. by inconsistency among system components as well as delays in organizational and institutional change. The lock-in of the previous system from a dynamic point of view can be found in policies targeting regional development as well as SMEs.

¹⁷ 300-500% on average, 2900-3300% the highest, among the top 30 *chaebols* (Choi 1997, 57 cited in Kang 2002, 200)

Institutional transition from supply-side policies and strong state-interventionism towards co-operative S&T system implies negotiation taking place at various levels between various actors. Lack of inter-ministerial cooperation in terms of R&D budget allocation put pressures on MPB and made each line ministry negotiate directly with the MPB on the budget numbers while more holistic approach of the S&T policies was needed. Top coordinating agencies, when established, at times lacked legitimacy (e.g. NSTC) which might illustrate old relationships between the actors (e.g. KISTEP being closely associated with MOST) could no longer provide a solid (and legitimate) ground for policy-making. This can be regarded as the major challenge of ongoing transformation of Korean post-war developmental state and perhaps an emphasis should be made on the time span: the transition has been under way for more than two decades and according to Hwang and Choung (2013) it is still on the way. This is, once again, to oppose the post-crisis rhetoric of 'dismantling Korea Inc.' as institutional transitions take considerable amount of time and radical changes (such as during the crises) do not eliminate incremental changes.

Postindustrial development involves not 'economic unknowns', a characteristic of a catch-up era, but rather 'technological unknowns' and in case of new technologies there might be no substantial differentiation yet between upstream and downstream research, basic and applied, and therefore institutional support is diverse, requires multiple actors and thereby presents a challenge to previously well-coordinated state-directed activities. Not only resources are now distributed among greater amount of actors but uncertainties and risks too. As Wong (2011) indicates in the case of biotechnologies Korean state no longer is willing to bare all the risks and consciously shifts responsibilities to the private sector: although it continued market-distorting practices by incentivizing biotech firms via tax holidays, direct R&D subsidies, and tariff reductions for firms acquiring foreign-produced equipment and / or establishing new research facilities, and MOCIE has funded around 40% of the initial capital for Korea's private-sector VC markets; yet in 1996 MOFE and MOCIE co-proposed a new securities law which was the basis for establishing KOSDAQ bourse where technology firms could raise capital – which can signify direct industrial funding being no longer a priority of Korean government.

Seung and Song (2008) report that more often than not old institutions represent a major constrain for policy change: despite involvement of private sector, scientists and engineers, and civil society in the process of policy-making, their overall influence on policy agenda remains marginal. For example, based on the Basic Laws on Science and Technology (2002) technology assessment, previously made solely by experts, was now slowly becoming open to public while in fact "it did not seem to have sufficient impact and resonance within the wider society to have a tangible influence on the actual policy development or R&D project planning" (*ibid* 40)

In addition, as was already mentioned, electoral cycles and overall policy politicization represented substantial constrains in terms of how deliberate the process of policy-making can be. Seung and Song (2008) argue that there was

never sufficient time to develop policies and therefore policy learning was undermined by the fact that many policy issues such as social, institutional, and structural changes surrounding S&T field were not taken into consideration because, in general, policies were carried out in a rather hasty manner. Speedy policy development, it is further argued, is relevant when a number of policy-making actors is relatively small as was the case during the post-war growth, while now it did not work quite in line with increasing sophistication of political as well as technological context. In addition, politicization tends to result in short-term orientation of policies rather than strategic goal setting and implementation.

Looking at this empirical analysis we should keep in mind the possible danger of selection bias and retrospectivity, which is inevitable when assessing processes of governance based on a case study. (Painter and Pierre 2005) Nevertheless, if to look at the current empirical analysis through the theoretical prism of policy capacity certain conclusions can be drawn. 'Conventional' post-war developmental state can be said to have effective governance and substantial policy capacity due to historically outstanding economic performance, well studied and documented. Yet capacities vary not just in time but also in sectors and policy domains. Recalling the case of biotechnology we may further argue that state capacities to effectively govern can vary in technologies: competing on the technological frontier with substantial technological unknowns would involve larger extent of policy experimentation than was needed in the era of ICT technologies, when East Asian NICs were catching up with the advanced economies. Path-dependency of older institutional forms does bring as much strengths (e.g. effective corporate restructuring in the 2000s) as much weaknesses (e.g. poorly performing regional policies and SME policies). We have also attempted to trace administrative capacity of S&T agencies / ministries: budgetary competition has been gradually 'normalized' and top-down coordination was strengthened via re-launch of NSTC and its greater legitimacy. Periodic government reshuffles in Korean government affect consistency of policies and their implementation while it remains to be seen whether and how it ultimately affects Korea's development trajectory and ability to remain technologically competitive in the long-run. Main aspects of policy capacities in Korea come in the form of a table, which follows below (Table 1).

	East Asian developmental state institutions (conceptual view)	Korean developmental state 1990s-2000s
Policy orientation	<p>Top-down policy approach through autonomous developmental agencies; Strong ties between state and private sector (both planning and finance);</p> <p>Policy mix: - prioritization of sectors with higher returns and potential linkages to other sectors - preferential interest rates and policy loans - GRIs, SOEs, local component requirement, foreign technology licensing - protective measures for domestic firms combined with export requirements</p>	<p>Top-down dimension prevails while the numbers of actors involved increases over time:</p> <ul style="list-style-type: none"> • in case of regional as well as SME policies top-down approach has been quite an obstacle; • in case of S&T top administration, stronger hierarchy was needed and MOST – NSCT – OSTI trajectory represents a certain increase in administrative capacity (eliminating legitimacy concerns) <p>Policy mix:</p> <ul style="list-style-type: none"> • policy loans and price controls abolished; • a number of incentives continue; • reorganization and reorientation of GRIs which no longer are active players in direct technological transfers; • liberalized FDI and overall capital account; • a number of privatization rounds (SOEs).
Macro-level characteristics of policy institutions	<p>Partially representative and autonomous institutions: - selective access to state institutions and insulated bureaucracy</p>	<p>Initiatives to make policy-making more inclusive of other actors (business, academia, civil society) while no factual participation takes place. In that sense, institutions remain partially representative. At the same time, politicization of policy-making no longer allows for highly insulated bureaucracy contrary to post-war development (e.g. private sector representatives as staff members of OSTI).</p> <p>Formalization and systematization of priority setting through policy evaluation and assessment, foresights and planning stipulated in the laws (S&T).</p>
Institutions of policy design processes	<p>Distinction between political and bureaucratic policy design: - political strategy-building as ideological vision-setting - bureaucratic policy design as plan-rational accommodation and</p>	<p>Policies become increasingly subordinated to electoral cycles and their short-term orientation often comes as one of its major critiques (reducing policy and administrative capacities).</p> <p>Political strategy-building and ideational vision-setting continues, even takes place re-appearance of the national sentiment ('Korea becoming North-Asian</p>

	<p>interpretation of ideological visions</p> <ul style="list-style-type: none"> - state-led interactions with market actors for feedback 	<p>hub’).</p> <p>Selective state-led interactions for feedback continues in a number of cases (especially in ICT sector during the 1990s and beginning of 2000s – see Kim 2012) while does not come in the same systematic manner as previously.</p>
Institutions of policy Implementation processes	<p>Bureaucratic policy institutions</p> <ul style="list-style-type: none"> - centralised development agencies based on Weberian principles - consolidation of industrialisation-related policy domains and tasks - policy space for both formal and informal interactions 	<p>NPM initiatives and agencification took place while in general Weberian principles tend to occupy strong positions. Yet the trajectories of administrative reforms are conducted by current administration under the ‘small government’ principle.</p> <p>No more single pro-development agency such as Economic Planning Board.</p> <p>Less hierarchical structures were designed for ‘creative agencies’ (Creative Research Initiative Project and Frontier R&D Programmes) – whether it enhanced or hindered policy capacities remains to be seen.</p>
Key policy delivery institutions	<p>Mix of formal and informal tools</p> <ul style="list-style-type: none"> - regulations and subsidies for selective steering and protection of local market actors - state entrepreneurship – state R&D institutions, development-oriented SOEs - administrative guidance 	<p>A number of studies have indicated that informal tools (administrative guidance) continue being in use. (e.g. Wade 2010)</p> <p>State R&D institutions have been moving towards basic science and upstream research.</p> <p>Market protection was substituted by market creation (especially in the case of ICT industry).</p>
Key policy evaluation and performance criteria	<p>Process improvements</p> <ul style="list-style-type: none"> - in export, R&D capabilities etc. - substantive bureaucratic accountability (internal) - private-sector performance as part of policy performance 	<p>Due to absence of central economic planning agency and an emphasis on competition, private-sector performance is measured more in terms of compliance with standards (possible sectoral measures, e.g. Ministry of Information and Communication – MIC).</p> <p>Bureaucratic accountability remains strong.</p>
Types of state-market interaction	<p>State-led networks and state-corporatist ties</p> <ul style="list-style-type: none"> - basic normative goals and direction determined by political institutions 	<p>State retreats from direct intervention, especially what comes to science-based technologies, in which case state concentrates on providing infrastructure.</p> <p>Direct guidance in case of restructuring after the Asian crisis while much more less active role at the beginning of 2000s.</p>

Table 1. Characteristics of policy capacity in Korea.

Source: framework and conceptual view adopted from Karo and Kattel (2013); own analysis as regards to Korea.

Comparative remarks and further research

In light of highly diverse development experiences within the group of successful East Asian NICs the comparative dimension would certainly add to better understanding of institutional transformations and changes in policy capacities. Comparative analysis of financial liberalization in Korea and Taiwan (Thurbon 2003, Thurbon 2007, Thurbon and Weiss 2006) provides valuable insights into the overall process of policy-making and implementation. Taiwan represents another rich case study given its gradual political transition of the 1990s, distinct economic structure dominated by SMEs and exclusive support of local firms with strict foreign controls (Amsden and Chu 2003).

Taiwanese S&T landscape can be characterized by extensive support of science parks since 1980s while the state has been gradually reducing its role in the process of linkage formation. (Hsu and Chiang 2001) Formulation of S&T policies is based on consensus and takes place at several national levels while execution of S&T plans follows the principles of integrated planning and decentralized implementation. (Chang and Shih 2004) Weiss and Thurbon (2004) report that coherence in policy design and implementation is strong and continues to play decisive role in Taiwan's economic performance. For example, ITRI (Industrial Technology Research Institute) conducts weekly meetings with industry representatives for brainstorming purposes and once the ideas are labeled as viable a more formal public-private cooperation is launched in the form of a project, usually in one of ITRI's labs. In addition, public officials continue with both formal and informal consultation with the industry, most notably the Industrial Development Bureau (IDB). The Economic Development Advisory Conference (EDAC) held in 2001 established a bi-partisan consensus (between KMT and DPP) about future national economic directions and strategies to achieve the goals.

Politicization of policy-making and increased number of elected officials took place in the aftermath of liberalization, similarly to Korea, while the Law of Administrative Neutrality for the Civil Service (LANC) enacted in 2009 might signify the value still attributed to 'neutrality' of 'Weberian' bureaucratic apparatus, so peculiar to the concept of Asian developmental state. Interestingly, fragmentation of economic bureaucracy and its politicization did not affect the financial policy-making institutions, particularly Central Bank of China, which managed to retain its policy-making independence in the democratic era. (Zhang 2005)

State-led networks with private actors have been transformed due to increasing operational and political capabilities of the local firms. Its material and organizational resources, analytical capacity and outlook have matured. (Chu 2007) Integration into the global production networks and firm-firm transfers increasingly took place. (Yeung 1998 and 2013) Fuller (2002) examines the cases of IC and PC industries, in which Taiwanese firms have few critical

technologies that the branded firms cannot easily acquire elsewhere. The IC industry is an example of successful national strategy building.

At the same time, different industries and technologies often require different organizational structures. This along with increasing capabilities of domestic firms resulted in decentralized administration of policies in biotechnologies. Detailed analysis in Wong (2005, 2006 and 2011) reveals: “no single actor or group of actors is able to claim both the expertise and vision to take on legitimately any significant role within the state”. (Wong 2006, 667)

In terms of policy capacity, Taiwanese state continues exercise the ability to ensure consistency in policy design and implementation, which are not subjected to political cycles, contrary to Korean experience. Arguably, formally liberalized financial policies in fact include strict prudential measures and directed outward FDI (through Sourcing Center under TAITRA), and therefore do contribute to consistency in policy-making. Despite centralization of S&T policy-making and with planning agency being in place, decentralization of administration resulted in competition between ministries as each established own development departments, which are increasingly becoming in charge of own R&D programmes. In regards to state-market relations, selective steering and protection have acquired the form of technological and investment guidance. Local market actors are less protected while state intervention takes place on early stages of industrial development (e.g. licensing, import-export controls). Industrial restructuring at times has not been successful (e.g. among HDD producers in the 1990s – the industry eventually lost to Singapore), contrary to Korean case, while indirect guidance of market actors continues (e.g. through industrial parks, informal consultations of the IDB).

More detailed assessment of Taiwanese case would enable a comparative policy capacity study, which could possible strengthen the argument of evolutionary nature of developmental state concept. Which, in its own turn, could help possibly better understand processes of catching-up economic and technological development.

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