Following the old road: Organizational imprinting and regional development of Russia

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Abstract

Russia’s strategy for regional development has taken an authoritarian direction during the recent decades, despite simultaneous pressures to modernize economic structures and increase growth in regional agglomerations. In this paper, I use the concept of imprinting to study the impact of Soviet organizational environment on the Russian economic geography and the contemporary forms of regional policy, highlighting specifically the persistence of elements associated with the Soviet regional economic system and territorial-production complexes (TPCs). Analysis of different processes of imprinting suggests that certain elements of the Soviet economic geography are prone to reproduction and the Soviet authoritarianism constitutes a cognitive template for the contemporary Russian decision-makers in directing regional development. The paper extends the literature of socialist imprints by demonstrating how imprints may influence organizational communities and invoke characteristics of socialist economic management in the contemporary regional policy context.
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Abstract

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1 INTRODUCTION

Initiating innovation-based economic growth has proven to be a formidable challenge in the regional development of Russia during recent decades (Klochikhin 2012). In 2010, the introduction of the system of 20 metropolitan regions as urban agglomerations (Kinossian & Morgan 2014) received special emphasis in the President Dmitri Medvedev’s modernization program, with the aim to promote business opportunities and boost innovations (Kinossian 2017a, 470). In 2012 this policy was implemented, when the Russian government confirmed a distinct legal status of 25 industrial clusters (Khayrullina 2014, 91), spearheaded by the founding of megaproject Skolkovo Innovation Center in the vicinity of Moscow (Klochikhin 2012; Kinossian & Morgan 2014). However, the results of ambitious development programs have fallen short from the estimated performance levels (Khayrullina 2014; Kinossian 2013; 2017a; 2017b; 2018). Russian political elite appears to prefer selective adoption of Western market models, while maintaining political status quo and evading full-scale reforms of the economic and political system (Kinossian 2013). In their study of Russian state-implemented urban mega projects, Kinossian & Morgan (2014) argue that sustainable modernization is blocked by the inability of the political system to create favorable institutional conditions, embedded structural problems in the economy and conflicting logics in regional policy. These issues are also present in top-down cluster policy, as projected urban agglomerations lack uniform legal and economic conditions for all participants and contain barriers for entry for those, who remain outside the privileged state-sector or lack political connections (Kinossian & Morgan 2014, 15).

In the sphere of Russian economic geography, the employed rhetoric in modernization programs and initiatives to create innovation-based agglomerations promise a genuine reform of long-standing organizational and institutional practices. Yet so far, the efforts to replicate
economic structures from Western countries or issue formal top-down development programs (Kinossian 2017a, 474) portray a strong resemblance to the way in which economic geography and industrial projects operated during the Soviet period. Russia’s inability or unwillingness to introduce genuine economic reforms and the apparent mismatch between rhetoric and reality (e.g. Cliff, Langton & Aldrich 2005) have motivated this study to look deeper to the ways in which the past organizational conditions shape the collective culture and contemporary strategy in Russia’s economic geography and regional policies. Although the hindrance caused by the Soviet legacy to Russian development has been a studied extensively at general level (e.g. Hill & Gaddy 2003; Crescenzi & Jaax 2016; Nykänen 2019), the persistence of Soviet influence in local organizational communities (Marquis & Battilana 2009) has avoided theoretically informed analyses.

This study perceives the influence and persistence of Soviet organizational characteristics in Russian economic geography as a type of organizational imprinting (Boeker 1989; Marquis & Tilcik 2013; Simsek, Fox & Heavey 2015). In organization theory, imprinting refers to the continued influence and reproduction of the elements, which survive in organizations far beyond the time, when they became originally adopted as responses to the surrounding environmental context (Johnson 2007; Marquis & Tilcsik 2013). Recent work in this domain has underlined political ideology (Wang, Du & Marquis 2018), especially in countries with socialist legacy, as a producer of powerful imprints, which direct strategic management and decision-making processes (Kriauciunas & Shinkle 2008; Marquis & Qiao 2018). At firm-level, socialist imprints have been shown to adversely impact the ability of firms to adapt to new business environments (Kogut & Zander 2000), engage in decentralized decision-making and outsourcing (Davis-Sramek et al. 2017) or change their sets of operating knowledge (Kriaucinas & Kale 2006). At individual level, the length of exposure to communist ideology has been found to affect work behaviors of professionals (Banalieva et al. 2017). This paper
extends the analysis of socialist imprinting to the level of organizational collectives (Marquis & Tilesik 2013; Almandoz, Marquis & Cheely 2016), by focusing on Soviet-era imprints in the community of Russian economic geography and regional policy. Particularly, the study investigates how imprinting of organizational and cognitive features associated with Soviet industrial district concept, the territorial-production complex (TPC) model, are reproduced in the contemporary Russian economic geography. The analysis suggests that the persistence of centralization and launching of urban agglomeration projects are symptoms of historically contingent imprinting. By modelling the origins, metamorphosis and manifestations of TPC-associated imprint in a theoretical framework, the paper aims to demonstrate how past organizational imprints in professional and decision-making collectives may persist and guide strategic behavior behind economic policies. Empirical content of the paper is based on a broad review and analysis of publications in discipline-specific academic journals in Russia and the Soviet Union. This data is complemented with related monographs and articles of Russian economic geography. A detailed description of data sources and discussion of methodological choices is presented in the Appendix A.

The contents of the paper are organized as follows. The second chapter outlines theoretical and conceptual elements of organizational imprinting. Third chapter contains a model of the Soviet/Russian TPC imprint and an extensive analysis of its components. The chapter 4 discusses the implications of the analysis in the light of other imprinting studies and highlights context-specific contributions. The concluding chapter 5 summarizes the main results and contributions, while addressing the limitations of the study.
Organizational imprinting poses a theoretical challenge to the perspective that organizational differences derive from responses to changing environmental conditions (Stinchcombe 1965). Rather, the concept of imprinting suggests that organizations are formed according to specific combinations of available resources during the moments of founding and sensitive periods, and these elements may persist beyond the period of absorption (Stinchcombe 1965; Johnson 2007; Marquis & Tilcsik 2013). Marquis & Tilcsik’s (2013) define imprinting as a “process whereby, during a brief period of susceptibility, a focal entity develops characteristics that reflect prominent features of the environment, and these characteristics continue to persist despite significant environmental changes in subsequent periods.” (Marquis & Tilcsik 2013, 199).

Following this definition, the authors recognize three general phases of imprinting: First, a temporary restricted period, when organizations are susceptible to environmental influences; second, a powerful impact of the environment on the focal entity during such period; and third, the adoption of developed features during the sensitive period that persist even despite substantial environmental changes. The process of imprinting is different from path dependence, because of its emphasis on influential environmental conditions instead of singular historical events, defined periods of sensitivity and stability of acquired features, rather than progressive development towards historically contingent direction (Marquis & Tilcsik 2013, 203).

Kriauciunas & Shinkle (2008) suggest that the impact of imprints is particularly relevant for a study of post-socialist countries, where an adequate and measurable change has taken place in the organizational environment, due to a transformation of political and economic system. Recently, Marquis & Qiao (2018) and Wang, Du & Marquis (2018) have studied cases of socialist imprinting to argue that ideological imprints affect individuals’ decision-making by
filtering information and that imprinted political ideologies of politicians may influence their interaction with business sector. Both of these findings imply that the role of imprints is significant in both policy-making and the accumulation and processing of knowledge, leading to a formation of paradigms and cognitive maps (Suspitsyna 2005). Regarding paradigm changes, the role of academic communities is important as an actor and transmitter of new ways of thinking country-specific collectives (Suspitsyna 2005; Marquis & Battilana 2009).

Based on an extensive review of previous imprinting studies, Simsek, Fox and Heavey (2015, 2) developed this framework by suggesting a separation of different processes, *genesis*, *metamorphosis* and *manifestations* of imprinting, rather than describing imprinting as a single episode. This paper uses the Simsek, Fox and Heavey’s (2015, 5) model as a point of departure for studying the processes of imprinting in the context of Russian economic geography. The framework of the original model is based on substantial amount of prior imprinting studies, most of which are concerned with behavior and development of organizations and individuals. In this paper, the model is adjusted to study organizational collective of Soviet/Russian economic geography as imprinted focal entity. Selection of this framework allows convergence of results with other studies of imprinting and thus enables possible contributions to cumulative knowledge development (Simsek, Fox & Heavey 2015, 25).

### 3 TPC IMPRINT – MODEL AND ANALYSIS

The Figure 1 presents the model of TPC imprint in Soviet/Russian economic geography, based on Simsek, Fox & Heavey (2015) theoretical framework. The model contains three interconnected processes, *genesis*, *metamorphosis* and *manifestations* of conceptual imprinting on Russian economic geography and regional policy, which are discussed in the subparts of this chapter.
3.1 Genesis

During the genesis phase, several entities (the imprinters) provide a motivational force and a set of characteristics, which impose the imprinting effect upon the imprinted entity. Both the imprinters and the imprinted may be composed of multiple conceptual and analytical levels (Simsek, Fox & Heavey 2015, 6). In the framework of the model, this phase is composed of five elements: imprinter characteristics, imprinted entities, imprinting processes, sensitive period and imprints.

Imprints

The TPC imprint can be defined as a paradigmatic (e.g. Zyglidopoulos 1999) and cognitive frame with preference to vertically controlled economic planning, enforced and directed by the central government, and the logic of organizing economic geography with distinctive resemblance to the theoretical assumptions and parameters of the TPC model. The imprint originates from formal and theoretical rationalities (Kalberg 1980) within paradigms among collective of actors in economic geography discipline, central planning organs and associated decision-makers in regional policy environment. Similarly to other studies of cognitive imprints (Fauchart & Gruber 2011; Gruber 2010; Koch 2011), the influence of the imprint extends to the content, range and stability of strategic choices of the imprinted entities.

Theoretical outlines, assumptions and implications of the Territorial-Production Complex (TPC), a Soviet model of industrial organization, formed the core content of the imprint. The purpose of this definition is not to propose that the Soviet-type TPCs are reintroduced in the
economic geography of contemporary Russia. Rather, the idea of TPC as an organizational imprint suggests that cognitive and paradigmatic characteristics of the model formed an institutional paragon of regional development for the associated organizational collective.

As an economic concept, the TPCs emerged as an integral unit of Soviet territorial planning. The term had been already introduced during the GOSPLAN regionalization scheme in 1920s, but their archetype form was first outlined by the leading Soviet economic geographer¹, Nikolay Kolosovskiy in 1947 (Saushkin 1966; Kolosovskiy 1969). Kolosovskiy (1969, 142 – 183) defined the TPC as “an interdependent (coordinated) combination of production enterprises and lodgings (population centers) either in particular territories (local complexes) or within the economic region or sub-region (regional complexes)”. Internal connections are in the core of TPC structure and may extend to other regional complexes in coordinated use of production endowments, such as water, energy, natural resources, transportation, labor, construction materials, cultural and scientific resources and so on. Production links within the TPC divide into horizontal and vertical dimensions. Vertical links describe the production-chain and connections from original production process to higher steps, leading to finished products in separate branching processes. Horizontal links develop between adjacent branches of different vertical steps. Additionally, TPCs may participate in co-operation at the lower levels of production, leading to complexity of different manufactured products, similarly to a conglomerate. Service links within the complex ensure continuity and provide ancillary support for the production process. In Kolosovskiy’s view, the organization of different linkages and production procedures took place in so-called (energy-) production cycles, which covered the production chain from energy resources into a ready-made product. According to Kolosovskiy,

¹ During the 1920s and 1930s, Kolosovskiy was involved in the most pressing challenges of economic geography in the Soviet Union, first as a direct participant of the GOELRO electrification program and then as the head of organization committee for GOSPLAN presidium in construction of the Ural-Kuznetsk Combine (Kalashnikov et al. 1969).
vertical and horizontal linkages in the TPC production cycle were based on consistently recurring elements of production. External linkages of TPCs were formal and served to connect TPCs with national markets on one hand and on the other, addressing the local demand needs by contributing to regional self-sufficiency (Karaska & Linge 1978, 161).

During the Soviet period, a key imprinted assumption was that industrial production in geographical space according to the TPC model was economically and organizationally the most efficient method for vertically coordinated economic system. After endorsement of the orthodox Kolosovskiy model, Soviet economists and geographers developed and reinterpreted theoretical and functional elements of the model without questioning its foundational principles or underlying assumptions, suggesting cognitive institutionalization of the imprint. According to Pokshishevskiy (1979, 136), the field of Soviet economic geography was “endowed with considerable internal unity”. The dominant institutional logic in economic planning, consisting of epistemological assumptions regarding efficient economic and organizational form of TPC model in socialist system, remained largely unchanged during the Soviet era. During the 1990s, the TPC imprint metamorphosed with other theoretical paradigms within Russian economic geography.

**Imprinter characteristics**

Following Simsek, Fox & Heavey (2015, 7), imprinters are entities that provide the imprint’s template, form and content. In their framework, imprinter types are divided into three major categories: the environment, individuals or groups and organizations. In the case of TPC imprint, the imprint formation draws from each of these categories. First, the environmental dimension includes both specific economic-geographical and political-institutional context. The economic-geographical environment is closely linked to physical geography: in terms of size, the Soviet Union was by far the largest country in the world, consisting of logistically
challenging remote regions with harsh climatic conditions and a set of allocated infrastructure. In the political-institutional context, many institutional practices and administrative structures associated with the socialist economic system extended to the organizational environment of economic geography. Environmental characteristics from these spheres influenced the persistence of several institutional forms of socialist economy, such as governing role of the planning apparatus and state-owned enterprises, but their combined impact was particularly strong in the form of Soviet economic regionalization model, which preceded the introduction of TPC system.

Second, the influence of key individuals shapes imprinted entities. Marquis & Tilcsik (2013) particularly stress the role of political leaders and influential entrepreneurs as imprinters of organizational collectives. In the Soviet Union, the role of “entrepreneurs” falls in this instance to key economic geographers, whose highly established authority within the academic system was important in the endorsement and imprinting of TPC model. Particularly, Nikolay Kolosovskiy and Nikolay Baransky, the first theorists of the TPC model, and other advocates (often affiliated as supervised doctoral students or colleagues) in their department of economic geography in Moscow State University were central figures in establishing and upholding the scientific paradigm based on the TPC system. Influence exerted by this group of imprinters was not limited to the founding period of the TPC imprint, but remained continuously during the late Soviet era, imprinting the mindset of leading academics into organizational culture (Shepherd, Patzelt & Haynie 2010). As documented in Saushkin’s (1966) historiographical account of the Soviet economic-geographical discipline, different academic viewpoints had hierarchical order and while prevailing paradigms could be challenged, they ultimately followed the perspective of the foremost authority.

Third, the organizational imprinting influence was enforced by state institutions. Despite important role of socialist ideology in shaping the imprinter characteristics, the TPC imprint
itself was more associated with economic organization than ideological goals. The GOSPLAN and industrial ministries adopted and routinized their planning and investment protocols according to the TPC model. This determined institutional and operational framework of state-owned enterprises and other economic organizations (such as research institutes), who became increasingly interdependent as well as horizontally and vertically integrated with other intraregional economic units, according to the administrative structure of each TPC. Within the complex system of informal institutions in Soviet industrial management (Berliner 1988; Conyngham 1982; Nove 1986), the actors within the economic system (managers, employees, regional officials) had greater incentives to adapt to the imposed regional system, rather than to challenge its efficiency.

**Imprinted entities**

The most common focal entities in imprinting studies are organizations and individuals (Simsek, Fox & Heavey 2015). In the case of TPC imprint, the entity is defined as an economic geographic organizational collective, consisting of Soviet academics, professionals and decision-makers at the top- and middle-level, who actively participated in regional economic policies in the Soviet Union and post-Soviet Russia. Members of this collective share(d) characteristics from geographical (embeddedness to national context), organizational (embeddedness to forms of economic organization) and institutional sources (Marquis & Tilcsik 2013, 205-206), including embeddedness to inter-institutional system (Friedland & Alford 1991). Both theory and practice of economic geography in Soviet Union and post-Soviet Russia are subordinate to high degree of political and bureaucratic administration under distinct institutional conditions, which distinguish them as organizational environments. During the Soviet era, economic geographical development, consisting of industrial site selection, resource allocation and industrial and infrastructural investments was coordinated by centrally planned administrative organization under the control of Soviet bureaucratic apparatus and
Central Committee of the Communist Party (Zaleski 1980; Dellenbrant 1986; Kornai 1992). Unlike in market economies, where regional economic development is closely related to the behavior of individual firms, central planning in the Soviet Union was analogous to organizational management and the models of planning represented organizational and institutional characteristics of the socialist economic system (Kornai 1992). Theoretically grounded economic models, such as the TPC, were employed as strategic tools to develop economic geography towards desired directions and thus the context of regional planning was analogous to organizational decision-making and management.

**Sensitive period**

Marquis & Tilcsik (2013) underline that the imprinting process is activated during limited time intervals, when the entities are excessively vulnerable to external influences. These sensitive periods are relatively short phases of time, but may occur repeatedly at key developmental stages during the life span of entities. According to Boeker (1989), changes in the dominant strategy also evoke a window for imprinting, as a number of contemporary interests become simultaneously vested towards execution of adopted course of action. During the Soviet period, two particular sensitive periods regarding TPC imprint are specified. Both of these periods can be characterized as eras, when the Soviet planners and leadership reconsidered the course of regional strategy and debates arose within the field of economic geography to discuss possible directions of development. As a consequence, the TPC model received backing as the main template for development of regions and industrial districts.

First period began in the aftermath of Stalin’s death in the 1950s and concluded after the formation of coordination and planning councils in 1961 (Saushkin 1966, 49 - 53). During that time, Nikita Khrutschev’s economic policies and reform programs were introduced to Soviet society, which brought along institutional and structural changes to industrial economy. At the
same time, economic geography of the Soviet Union was experiencing transitions, due to damages caused by the Second World War and consequent relocations of industries (Davies 1998, 58 - 67). The window of sensitivity closed, when 20th Party Congress in 1956 declared the guidelines for economic policy and put forth the associated Sovnarkhoz-reform, a new model for regional economic management (Kibita 2013). At the same time, the theoretical model of TPCs, first published by Kolosovskiy in 1947 (Kolosovskiy 1969), was officially recognized by the Coordination and Planning Councils.

The second sensitive period opened up in the 1970s and closed shortly after the 25th Party Congress (in 1976). During the late 1960s and 1970s, the concept of TPC was intensively debated in Soviet geography journals (Lis 1975; Probst 1977; Privalovskaya 1979), which increased the theoretical depth of the concept and legitimized its role in the Soviet economic geography. At the same time, many Soviet economists considered that the management model based on decentralization principle and sectoral ministries was ineffective (Kuznetsov & Mezhevik 2017). TPCs received official endorsement from the Central Committee in its Basic Guidelines for the Development of the National Economy in 1976-80, which alongside the establishment of associated science institute in Novosibirsk cemented its position as the principal economic geographical model and as a practical planning tool (Linge, Karaska & Hamilton 1978).

**Imprinted processes**

Imprinted processes describe the occurrence of imprints and adherent mechanisms, which take place during the sensitive period. Marquis & Tilcsik (2013) suggest that imprinting is a process of orientation to new contextual and component influences and internalization of values (Marquis & Qiao 2018). The process may draw from historical background of the imprinted entity. The imprint process of TPCs into Soviet economic geography manifested as recognition
of the model as the main blueprint for regional development. This precluded possibilities to consider or develop other types of models for development or organization of regions and particular industrial districts. In academic sphere, the TPC model became a paradigm for economic geographical science, strongly backed up by scientific and administrative authorities within Soviet system. In practice, official and scientific endorsement of TPC spread the exposure of imprint within Soviet bureaucracy and economic apparatus, shaping the culture of the organizational collective. The paradigmatic status of the imprint was established during the first and reinforced during the second sensitive period.

During the first sensitive period in the 1950s, the TPC concept gained prestige, when GOSPLAN and the Coordination and Planning Councils adopted it as the main template in development of economic regions. Up to that point, the TPCs had been conceptualized as an organizing component of Soviet economic regionalization (see table 1), but its role as the primary model for industrial development was established in the 20th Party Congress in 1956.

One contributing factor to this was the introduction mathematical models into economic geography in the 1950s and cybernetic movement (Peters 2016), which found congruent elements with application of TPC theory (Linge, Karaska & Hamilton 1978). However, another source of imprinting stems from sequence of events prior to the Party Congress. The creator of TPC theory, Nikolay Kolosovskiy had died in 1954 only two months before the 1955 congress of the Geographical Society USSR, which had the task of pre-planning geographical aspects of industrial development for the forthcoming Party Congress in 1956 (Saushkin 1966). Kolosovskiy’s posthumous article, *The scientific problems of geography* was published after the congress and had a testament-like influence for Soviet geographers, who were preparing their contribution to the upcoming Five-Year plan.

During the second sensitive period in the 1970s, the Soviet leaders made the decision to pursue further development of large peripheral regions, specifically in Western Siberia, Sayan and
South Tadzhikistan, using the TPC template (Pokshishevskiy 1979). Orientation to construction of massive heavy industry complexes followed the 1960s tendency to promote industrial expansion in eastern regions, which served administrative and institutional purposes of Soviet bureaucracy (Kornai 1992) and the long-term tradition to locate industries close to raw material sources (e.g. Lis 1975). This policy had long-lasting repercussions, because the time horizon of these projects extended to 1990s (Overchuk 1982) and further on, ensuring the dominant status of TPC model in Soviet economic geography for the rest of the nation’s existence.

3.2 Metamorphosis

After the process of imprint formation, the subjected entity is opposed to the different processes of metamorphosis, which may empower or decrease the vitality of an imprint. Surface characteristics and effects of imprints are also subject to change (Simsek, Fox & Heavey 2015, 12). This section examines how dynamics of persistence, decay, amplification and transformation affected the imprinting of TPC model during the transition to post-Soviet era.

Dynamics of decay and persistence

Stinchcombe (1965) offered three explanations for persistence of imprints: vested interests, continuing efficacy of imprinted traits and lack of competing alternatives. The persistence of imprints is also dependent on their fit with dominant institutional features, such as logics and hierarchical structures of entities (Zyglidopoulos 1999; Burton & Beckman 2007). In turn, decay of imprints may be caused by negative feedback, such as aging, bad performance, incremental changes in contextual or organizational composition, competitive pressures to converge with isomorphic trends and fraction between imprint and surrounding institutional realities (Simsek, Fox & Heavey 2015).
The collapse of the Soviet Union triggered multiple processes of organizational change and transformations within both contextual and organizational composition. Vested interests and central endorsement in Soviet industrial policy had ensured the stability of organizational structures of TPCs during the Soviet period (Kornai 1992). When the Soviet Union collapsed in the early 1990s, its regional economic system broke down and existing industrial networks were disconnected from the control of central management during privatization (Pilipenko 2005). The Soviet regional system, based on the production cycles of TPCs declined heavily, when the state-governed interconnections and planned linkages between enterprises and production complexes broke down along with the old economic system (Khayrullina 2014; Chasovsky 2015). However, formal decay of TPC system did not cause its complete disintegration. Preplanning designs for each territorial-production complex had been drafted up to the year 1990 already in the late 1970s and though large-scale reforms to existing system were called forth, their full implementation was not possible, while Russian economy was experiencing massive financial crisis. Sunk costs of investments to industrial geography and paralysis of the state to initiate genuine economic reforms increased the importance of maintaining and characteristics of the TPC imprint in the Russian economic system during the 1990s transition towards market economy. Although TPC-structures are becoming replaced with other models of urban planning in the European part of Russia, there are still 10 functioning TPC structures in the Siberian macroregion (Bezrukov 2014). Overall, the share of large enterprises has remained high, accounting for 84% of employment and 85% of GDP in 2004 (Pilipenko 2005, 9). Since the early 2000s, the central government has made attempts to regain its dominant role in directing economic development. Parallel to the way in which the Soviet planners created and regulated TPCs, the Russian government has tightened its control of regional authorities in order to control forms of economic development (Kinossian & Morgan 2014). In 2013, when the Ministry for Regional Development of Russia (Minregion)
introduced a working group to collect ‘pilot project’ bids for creation of urban agglomerations, 15 out of 16 initiated programs were coordinated by regional governments. Later in 2014, the Minregion was disintegrated into new ministries, which hold a distinct resemblance to TPC-era ministerial control (Kinossian 2017a).

In academic communities, the concept of TPC fell quickly out of favor in the 1990s, giving ground for alternative concepts, such as “territorial organization of industrial production” or “territorial industrial system”. The decade after the collapse of the Soviet Union was mostly spent in reorientation towards Western economic and economic-geographical theories, while the universities faced deep cuts to their budgets. Suspitsyna (2005) has demonstrated how the introduction of Western economic theories into economic faculties in Russian universities in the 1990s took place as difficult adoption process, where the old Soviet paradigms and traditions in teaching blended with new practices, rather than being discarded. Especially in the Moscow State University, the Soviet tradition and routines remained persistent due to their central role in the institution’s organizational identity (Suspitsyna 2005, 63 - 83). This observation supports the assumption that a similar process of paradigmatic transmission into post-Soviet era was associated with the TPC imprint.

**Dynamics of amplification**

Instead of merely persisting or decaying over time, imprints may also amplify and become further ingrained within focal entities (Simsek, Fox & Heavey 2015, 13). Dynamics of amplification may be caused by constrains that the imprint imposes on possible strategic choice sets, which limit alternative institutional compositions, or increasing incentives to rely on imprinted traits or decisions. Path dependence is also one (but not the only) mechanism of amplification; other variants, such as self-legitimation narratives, performance feedback or organizational learning may also reinforce imprints vitality Simsek, Fox & Heavey (2015).
Depending on the length of perspective, repeated reinforcement of the TPC model in Soviet economic geography may be defined as amplification of the imprint, rather than belonging to a separate sensitive period during the genesis phase. After the collapse of the Soviet Union, this tendency declined rapidly and willingness to promote or reintroduce Soviet economic models was in short supply. Within economic geographical community of Soviet scholars, the orientation turned towards development of theories and practices according to Western paradigms (e.g. Krugman 1991). During early 2000s, Michael Porter’s (1998) cluster model began to attract attention among the focal collective entity (Korolev 2013; Korabeynikov, Ermakova & Sinyukov 2013), with the purpose of turning away from TPC-based economic geographical composition, but genuine movement towards market-driven industrial regionalization has been slow to materialize. Initiatives of the state to invest in state-managed regional growth in the form of techno-parks and artificial business environment (e.g. Kinossian 2013), indicates that imprinted TPC-type features in economic management remain attractive for central economic decision-makers, since they do not risk the balance off institutional composition.

**Dynamics of transformation**

The increased interplay of decay, persistence and amplification dynamics after the transition to post-Soviet period has contributed to dynamics of imprint transformation. Simsek, Fox & Heavey (2015) suggest that radical environmental shifts make imprints vulnerable to destruction or transformation, depending on the gravity of institutional change. Zyglidopoulos (1999) introduced a configurational model of organizational transformation, seeing changes in interrelationships of three imprints (technological paradigm, organizational structure and dominant logic) as the source of transformation dynamics. When any of these imprints changes, it has repercussions on the other two in the form of either incremental or radical change within focal entity.
Changes imposed by the collapse of the Soviet Union on TPC imprint may be categorized with these three sub-imprints. The technological paradigm has been the most strongly contested area, due to interest generated by Western economic geography models and associated paradigms (Klochikhin 2012). The most pivotal transformation has been the conceptual change from TPC-centered development theory to cluster-oriented approach. This paradigmatic change has been received as a both incremental and radical change amongst Russian economic geographers. While some scholars are ready to exploit cluster concept’s vagueness to consider former TPCs as clusters of the past, others disagree and see fundamental differences between the two models and their content (Pilipenko 2005; Korabeynikov, Ermakova & Sinyukov 2013, 56). There are also those who consider that the positive agglomeration effects associated with industry clusters should be actually credited to Soviet economic geographers: in Adamesku’s (2014, 164) words, it is “unfortunate that during the recent years, the conceptual understanding of (TPCs) has been attributed to artificially created clusters, which are now introduced into the Russian economy” (author’s translation).

The organizational structure of socialist central planning has been equally transformed, being subject to dissolution of the Soviet state. However, the dominant logic of authoritarian management in regional economy has remained mostly intact. Although being similarly challenged by the collapse in the early 1990s, the poor performance of the competing alternative, transformation to market economy via shock therapy (Marangos 2002), has reinstated the popularity of authoritarian regime and state control of economic development among the Russian political leadership.

3.3 Manifestations and imprinting impact

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Manifestations are the relevant implications and outcomes that follow from the imprinted traits of subjected entities. Simsek, Fox & Heavey (2015) framework make a distinction between proximal and distal manifestations, which may appear in entity’s behavior and strategy. Imprints may also have either direct or indirect ramifications, which complicates evaluation of causal chains. Manifestations tend also to appear inconsistently over long periods of time (Simsek, Fox & Heavey 2015, 24). Categorization of specific imprint manifestations is difficult, because outcomes of institutional and organizational characteristics are usually result of interplay of multiple imprints. Controlling for the influence of multiple imprints is generally conducted using multivariate econometric models (Simsek, Fox & Heavey 2015), but in qualitative analysis, distinction between imprint sources is more challenging. However, the conceptual evolution in Russian economic geography and the dominant logic of state management in Russia’s current regional policy are outcomes of development, which sport a signature of imprinting influence.

Assimilation of different innovation-based agglomeration models in Russian urban agglomeration policy parallels some features of prior TPC paradigm and its development. The prominent involvement of Russia’s central government in directing the development and creation of new regional agglomerations resembles the way in which Soviet bureaucracy translated economic policies into planned regional structures. For example in the case of Skolkovo Innovation Center, the Russian government representatives retain executive decision-making power in the boards of key companies and foundations, while the investment funds are allocated through the Federal budget (Kinossian & Morgan 2014). Although dominant geopolitical role of urban core over periphery has deep roots in earlier centuries of development in Russia, in the sphere of economic geography, institutional logic of central management became dominant during the Soviet era. It was also notably reinforced by the
events that increased endorsement of TPCs during those sensitive periods, when the Soviet strategy was momentarily open for alternative options of development.

This manifestation of TPC imprint reflects the process of exaptation (Marquis & Huang 2010; Marquis & Tilcsik 2013, 224), where original responses to initial conditions become useful in different environment. Exaptation helps to explain, why imprints, based on certain external conditions during their genesis, may result in complex and unpredictable manifestations, when surrounding environment undergoes significant changes. The original conceptualization of TPCs as regional production systems, which were primarily controlled and directed from the above by central administration, was an adaptive response to institutional system of command economy. This tendency had been previously reinforced during three different historical phases. First reinforcement took place when the original GOSPLAN regionalization scheme was conceptualized in early 1920s, while the immediate goal of Bolsheviks was to establish their rule over political economy. Second phase of endorsement turned out when Kolosovskiy’s TPC theory corroborated with Stalinist totalitarian and bureaucratic control. Third event which empowered existing line was the 24th Party congress validated official endorsement of TPC-based development of Siberian regions, during the stagnant and conservative reign of Leonid Brezhnev. All of these imprint-reinforcing responses followed the logic of increasing state control in regional economic planning. However, a fourth occasion, when similar course was adopted in economic geography took place during the early 2000s, when Russia, led by Vladimir Putin, increased its institutional control over economic sectors and regional planning (Kinossian & Morgan 2014) and at the same time, the concept of state regulation began to appear more often in the discourse of Russian economic geography. This change of policy was a response to similar external pressures to maintain economic and political stability after devastating performance during Yeltsin’s regime, but simultaneously it enabled reproduction of imprinted organizational characteristics in Russian economic geography. In this field,
introduction of industrial cluster theory took place via intermixing of conceptual contents of TPCs and clusters (Pilipenko 2005; Korabeynikov, Ermakova & Sinyukov 2013, 56), and the resulting discourse of state-led modernization via urban agglomerations retains the imprint of central administration, inherited from the cognitive frame of TPC conceptualizations.

4 IMPLICATIONS

Modelling of Russia’s economic geography development as imprinting opens up possibilities to hypothesize how deeper, unobservable dynamics within the focal entity operate, using comparative findings from imprinted entities in different contexts. It seems plausible to predict that a complete detachment from the traditional Soviet elements in Russian economic geography and regional policy will not happen quickly, due to the length of exposure to the TPC imprint (e.g. Banalieva et al. 2017). Since 1920s, the Soviet regionalization scheme has contributed to path-dependent development of infrastructure and industrial allocation, which accorded with the system of TPCs (Saushkin 1966; Hill & Gaddy 2003). Until 1980s, the Soviet leaders were strongly committed to maintain a strategic status quo (Geletkanytcz 1997) and adjustments to existing policy due to changes in external environment were superficial (Bradshaw 1991). Since then, the Russian economic geography has sought to implement new theoretical advances from Western literature, but in addition to organizational inertia, the physical composition of Russia’s industrial infrastructure and reliance on old resource-based production have made it difficult to introduce radical changes, especially to the development of peripheral regions. This in turn favors tendencies to develop existing economic geography either incrementally by either a) assimilating the legacy as a component in new development or b) through experimental pilot projects (e.g. cluster programs), which nevertheless conform with norms imposed by the existing organizational and institutional environment.
The analysis of different mechanisms of metamorphosis suggests that despite the formal breakdown of TPC-associated production cycles, certain elements of the TPC imprint have been able to survive the intense dynamics of decay caused by the collapse of the Soviet Union. Subsequent dynamics of persistence and transformation have also assimilated some of these elements and vested interests into Russia’s contemporary regional policy. This assimilation process has maintained, and to an extent, amplified imprinted elements of central management and preference for urban agglomerations, both originally associated in the TPC system. At the same time, the dynamics of transformation have been more felt in rhetoric practices, leading to a formal discarding of the TPC template as a dominant model for economic organization. In terms of Zyglidopoulos’s (1999) three-fold imprint model, it could be said that the TPC has lost its status as a dominant technological paradigm, but continues to influence contemporary policies informally through continuities in dominant logics and organizational structure.

A consensus-breaking question in imprint research is, whether the outcomes of imprinting shape selection and retention of imprinted characteristics (Simsek, Fox & Heavey 2015, 16). In the light of Russia’s current economic situation, it seems counterintuitive that imprinted characteristics continue to amplify in regional policy, despite weak outcome performance. One possible explanation is that the primary goal associated with the TPC imprint is not its economic efficiency as proposed by Kolosovskiy’s (1969) original theory and its amendments, but rather the preservation of vested interests and the underlying logic of maintaining the authoritarian role of central government in economic management (Gel’man 2016). This hypothesis implies that retention of imprinted characteristics is primarily dependent on envisioned goals of the dominant organizational logic, which enforces the overall course of action in focal entity, but may not represent all members of the collective or rhetoric discourses. Thus, not all Russian economic geographers uphold the characteristics associated with TPC
imprint, but the decision-making logic in the collective that includes executives of regional policy, remains influenced by the manifestation effects.

5 DISCUSSION

Despite the collapse of the Soviet Union and demise of socialist ideology, the contemporary forms of regional policy in Russia demonstrate adherence to imprinted characteristics of its past. Examination of different dynamics within the framework of imprinting reveals that while the imprinted organizational community of Russian economic geography has attained influences from Western economic models and modified conceptual discourses, the persistence of dominant authoritarian logic seems to flourish in the regional initiatives of the central government. Surveying the development of Russian economic geography as a process of imprinting builds on the approach of utilizing history in theory development (Kipping & Üsdiken 2014). On one hand, using theoretically informed model to investigate Russia’s regional transition provides a systematic framework for studying dynamics and historically contingent elements of entity development. On the other hand, the case study of Russian economic geography touches on recent studies of socialist imprinting and demonstrates how paradigms and associated logics of socialist economic organization may influence contemporary policy-making through persistence and exaptation without invoking the ideological content of the original imprint. The study also addresses the acknowledged dearth of imprinting studies on higher organizational level of analysis (Simsek, Fox & Heavey 2015, 24) by focusing on organizational collectives (Marquis & Battilana 2009; Almandoz, Marquis & Cheely 2016), which carry distinct cognitive characteristics (e.g. Marquis & Qiao 2018), acquired during sensitive periods in the past, that continue to influence strategic choice and direction of development.
A step further in pinpointing the imprint effect of different metamorphosing dynamics would be to extend the empirical grounding of the paper, which is currently limited by its focus on academic publications and secondary literature. On one hand, the selected approach has made it possible to examine several processes of imprinting over lengthy periods of time and construct a broad overview model of the phenomena and its implications. On the other hand, however, this approach provides only a restricted insight on the micro-processes of imprinting within the focal organizational collective. In order to address this, several phases of analysis can be undertaken. First, the individual manifestations of the TPC imprint can be dissected from other possible imprint sources through a more focused discursive and thematic analysis of the focal organizational domain. In the case of Russia’s regional decision-makers, measuring the strength of TPC’s paradigmatic influence and its embeddedness to organizational practices would provide better understanding of the ways in which the past affects contemporary strategic behavior. Second, the evaluation of different dynamics of metamorphosis and their mutual interdependence would benefit from more specific analytical strategies with more focused time frames. Especially during the 1990s, when institutional and economic transformations in Russia had a strong impact on the vitality of the TPC imprint, the organizational collective of Russian economic geography faced multidimensional influences, which could be uncovered in a more finely-grained analysis that has been feasible within the frames of this paper.
REFERENCES


Chasovsky, Vladimir (2015), Key Directions of Sectoral and Spatial Changes in the Russian Industry. Baltic Region, 3, 121 - 134.


Table 1. Development of economic regionalization in the Soviet Union between 1917 - 1990

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>Regional division</th>
</tr>
</thead>
<tbody>
<tr>
<td>1917</td>
<td>October Revolution</td>
<td>Background: 19 regions identified by P.P. Tyan-Shanskiy in 1880, based on climate, soil, economy and agricultural conditions</td>
</tr>
<tr>
<td>1920</td>
<td>Adoption of the GOELRO plan</td>
<td>8 major regions (North, Industrial Center, Volga, Donets-South, Urals, Caucasus, Turkestan, Western Siberia)</td>
</tr>
<tr>
<td>1921</td>
<td>Decree of the Council of People's Commissars: &quot;On the plan for the electrification&quot;</td>
<td>10 major regions (Industrial Center, Chernozem Center, Southern mining and industrial region, Northwest, Urals, Middle Volga, Southeast, Caucasus, Western Siberia, Turkestan)</td>
</tr>
<tr>
<td>1922</td>
<td>GOSPLAN regionalization scheme</td>
<td>System of 21 regions as power-producing complexes, designed to apply over 15 years</td>
</tr>
<tr>
<td>1939</td>
<td>Adoption of the third Five-Year plan</td>
<td>- Division of the RSFSR into 9 regions (European North, Northwest, Center, Volga, North Caucasus and Crimea, Urals, Western Siberia, Eastern Siberia, Far East) - Individual union republics regarded as regions themselves</td>
</tr>
<tr>
<td>1940</td>
<td>Regional division for statistical and planning purposes</td>
<td>9 regions in the entire country (Center, West, North and Northwest, South, Southeast, Transcaucasia, Central Asia and Kazakhstan, Urals and Western Siberia, Eastern Siberia and Far East) - Proposed for 15 years (1943-1957)</td>
</tr>
<tr>
<td>1946</td>
<td>4th Five-Year plan, adopted by the Supreme Soviet</td>
<td>13 autarkic economic regions proposed by GOSPLAN: Center, Northwest, North, West, South, North Caucasus, Volga, Urals, Transcaucasia, Kazakhstan and Central Asia, Western Siberia, Eastern Siberia, Far East</td>
</tr>
<tr>
<td>1954</td>
<td>Kolosovskiy's proposal for new economic regionalization system</td>
<td>26 regions for the next 15 year period</td>
</tr>
<tr>
<td>1961</td>
<td>Establishment of coordination and planning councils for major economic regions</td>
<td>17 economic regions</td>
</tr>
<tr>
<td>1963</td>
<td>Amendment to regional scheme by GOSPLAN</td>
<td>18 regions</td>
</tr>
<tr>
<td>1982</td>
<td>Administrative amendment</td>
<td>“Severo-Zapadnyi” region splitted to “Severnyi” and “Severo-Zapadnyi”, consisting a total of 19 regions</td>
</tr>
</tbody>
</table>

Table data based on Alampiev (1963); Saushkin (1966); Linge, Karaska & Hamilton (1978); Kuznetsov & Mezhevik (2017).
Figure 1: TPC imprinting model in Soviet/Russian economic geography.
APPENDIX A– A SUMMARY OF DATA

The objective of the study was to analyze different processes of imprinting during a long-term period within the frames of a one model. As a results, the constraints regarding the availability of data from Soviet/Russian sources have directed methodological choices and selection of materials for this paper.

The data used in this study can be roughly divided into two categories, based on demarcation between the Soviet and the post-Soviet periods. The first one includes sources, which have been used to study the period extending from 1920s to 1990 and to construct the *Genesis*-component of the model. The main body of materials in this section is composed of published theoretical literature concerning TPCs and their role in economic geographical planning. In total, the Soviet scholarship on TPCs was extensive. According to Pokshishevskiy et al. (1971), the bibliographical listing of TPC literature, published by Soviet State Institute of Scientific Information contained over 1000 titles, majority of them published between 1966 and 1971. For this paper, electronic access to articles published in the *Soviet Geography* journal and the use of complementary outlets (identified using search engines and bibliographical listings) produced 84 articles, which have been studied in detail to construct “genesis”-part of the model.

In the latter parts (metamorphosis, manifestations) of the model, the most relevant source to study the elements of post-Soviet regional development and discussions has been the literature from the major institutional outlets in the field of regional economic geography. Specific institutional and organizational environment of central decision-making in Russia is heavily reliant on informal practices, (Ledeneva 2006), making direct empirical evaluation of strategy

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4 Although the journal is based in the UK, it published extensively translated Soviet articles from the most influential economic geographical outlets (Soviet Academy of Sciences and publications from the Moscow State University Journal series) of the Soviet Union.
and objectives of the central government a challenging proxy for understanding the depth and form of imprinted characteristics, such as paradigms. Consequently, the imprinted entity – organizational collective of Russian economic geography – is approached using academic articles published in Russian economic geography and economics journals. Academic publishing system in Russia is strongly concentrated around the Russian Academy of Sciences (RAN) and University-based series of publications, which increases the impact and authority of published articles over the readership, i.e. members of the academic and organizational collective, legitimizing certain discursive emphasize as a component of collective paradigms. In order to analyze organizational imprintedness, discursive elements and the conceptual change from TPC-based paradigm (the Soviet period) towards cluster-oriented paradigm (the post-Soviet period), two geographical journals, Izvestiya Rossiiskoy Akademii Nauk: Seriya Geograficheskaya and Vestnik Moskovskogo universiteta: Seriya 5. Geografiya were given special attention in the analysis, as representatives of two of the most influential academic collectives, the economic geographers from the Moscow State University and the Russian Academy of Sciences. Between 1992 and 2018, the former outlet published a total of 1171 articles, and the latter 1099 articles in the categories of geography, economics and history. Based on titles and abstracts, 126 articles from the former and 99 articles from the latter were identified as relevant. From among those, 29 and 31 were selected into the final phase of analysis, where the articles and their discursive elements were studied in detail. To ensure that the sample of articles represented the relevant research domain of regional economic strategies and paradigmatic change, I conducted additional searches with the Russian electronic library database\(^5\) using the key words klaster and territorial’no-proizvoditelyi kompleks, with 229 and 147 initial results, respectively. Out of these, 76 and 28 articles were regarded as relevant.

\(^5\) https://e-library.ru
based on abstracts and titles. A refined selection process based on article contents produced 31 and 22 titles for the analysis, complementing the findings from other categories.

Finally, a wide selection of secondary literature (see references) has been employed in the construction of the model alongside these sources, to fill the gaps of the model and position the study within the framework of studies in the Soviet and Russian economic geography. In some cases, the empirical materials have not sufficiently matched the components of the Simsek, Fox & Heavey (2015) model – in these instances, I have attempted to moderate the confidence level of statements to prevent drawing overambitious inferences or excessive implications of the model. The table 2 presents a summary of the approach and materials used in this study.

Table 2. A summary of review method and sources of articles used as data material

<table>
<thead>
<tr>
<th>Source</th>
<th>Vestnik MGU Seriya Geografiya</th>
<th>Izvestiya RAN (Russian Academy of Sciences): Seriya Geograficheskaya</th>
<th>Keyword searches</th>
<th>TPC-oriented literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain</td>
<td>Main publication outlet of an imprinted entity</td>
<td>Main publication outlet of an imprinted entity</td>
<td>Academic outlets published in Russia</td>
<td>Academic outlets published in Russia</td>
</tr>
<tr>
<td>Access</td>
<td>e-library.ru</td>
<td>e-library.ru</td>
<td>e-library.ru</td>
<td>e-library.ru</td>
</tr>
<tr>
<td>Amount</td>
<td>1099</td>
<td>1171</td>
<td>229</td>
<td>147</td>
</tr>
<tr>
<td>Initial selection</td>
<td>Method</td>
<td>All articles published between 1990 - 2018 in the categories of history, economics and economic geography</td>
<td>All articles published between 1992 - 2018 in the categories of history, economics and economic geography</td>
<td>Titles in the keyword category</td>
</tr>
<tr>
<td>Amount</td>
<td>99</td>
<td>126</td>
<td>76</td>
<td>28</td>
</tr>
<tr>
<td>Refined selection Method</td>
<td>Selection of relevant articles based on titles and abstracts</td>
<td>Selection of relevant articles based on titles and abstracts</td>
<td>Selection of relevant articles based on titles and abstracts</td>
<td>Selection of relevant articles based on titles and abstracts</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------------------------------------------</td>
<td>-----------------------------------------------------------</td>
<td>-----------------------------------------------------------</td>
<td>-----------------------------------------------------------</td>
</tr>
<tr>
<td>Analysis Method</td>
<td>Selection based on content and qualitative analysis</td>
<td>Selection based on content and qualitative analysis</td>
<td>Selection based on content and qualitative analysis</td>
<td>Selection based on content and qualitative analysis</td>
</tr>
<tr>
<td>Amount</td>
<td>24</td>
<td>29</td>
<td>31</td>
<td>22</td>
</tr>
</tbody>
</table>

Analysis Method

- Selection based on content and qualitative analysis
- Selection based on content and qualitative analysis
- Selection based on content and qualitative analysis
- Qualitative analysis

Amount

- 24
- 29
- 31
- 22
- 84