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MESOECONOMICS: ELEMENTS
OF A NEW PARADIGM

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Аннотация. В монографии обобщаются итоги развития мезоэкономических исследований, представленные в современной англоязычной и русскоязычной литературе. Выявлена и обоснована внутридисциплинарная структура современной мезоэкономики, включающая «мезоэкономику структур четкой локализации» (преимущественно отрасли и регионы); «мезоэкономику сетевых структур»; «институциональную мезоэкономику» и «мезоэкономику общественного воспроизводства». Основное внимание в монографии уделено изложению результатов в двух областях. Во-первых, представлены разработки в области «институциональной мезоэкономики» – наиболее мощного на сегодня направления мезоэкономических исследований, развиваемого в России и за рубежом. Во-вторых, излагаются результаты, полученные в рамках нового оригинального направления «мезоэкономики общественного воспроизводства», развиваемого в Институте экономики Российской академии наук (г. Москва, Россия). Оно опирается на положения новой теории воспроизводства капитала и институциональные представления о денежном обращении. Монография рекомендуется для экономистов и студентов экономических факультетов, интересующихся современными исследованиями в области гетеродоксальной экономики.

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Abstract. The book summarizes the results of mesoeconomic studies presented in contemporary academic literature in English and Russian. The intradisciplinary structure of modern mesoeconomics is identified and justified. It includes the mesoeconomics of clearly localized structures (mainly industries and regions); mesoeconomics of network structures; institutional mesoeconomics, and mesoeconomics of reproduction. The book focuses on results achieved in two areas. Firstly, we introduce institutional mesoeconomics as the most powerful stream of mesoeconomic research to date. Secondly, we report the results obtained in mesoeconomics of reproduction which is a new original field researched at the Institute of Economics of the Russian Academy of Sciences (Moscow, Russia). It relies upon the provisions of the new theory of capital reproduction and institutional views on money circulation. The book is meant for economists and students of economic departments who are interested in modern research in the field of heterodox economics.

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Part 2
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FOREWORD

This book is based on research results of the project «The Phenomenon of the Meso Level in Economic Analysis: New Theories and Their Practical Application» (supported by the Institute of Economics of the Russian Academy of Sciences in 2017–2019). These results were discussed at academic seminars, symposia and conferences in Russia and abroad. During these discussions, a community of experts interested in this field has emerged. Our joint work resulted in two monographs.

The first one was published in 2018 under the title, «*Mesoeconomics: Current State and Prospects*» (in Russian: «Мезоэкономика: состояние и перспективы»). Its main goal was to identify the continuity of mesoeconomic studies in Russia, follow their genesis and compare it with foreign contributions. It showed the particular approach to meso-level studies used by Institute of Economics researchers, with regard to the theory of the shifting mode of economic reproduction, theory of institutional X-Y-matrices, and economic synergetics. The book was positively reviewed in *Voprosy ekonomiki*, the most high-rated economic journal in Russia (Maltsev, 2019).

The current volume differs from the 2018 book. Foreign scholars made their contributions. This book focuses on the

most promising, in our opinion, areas of mesoeconomic analysis, namely **institutional mesoeconomics** and **mesoeconomics of reproduction**, and the contents are organized accordingly. Each of these two parts features methodology, main analytical schemes and practical applications.

Institutional mesoeconomics is, perhaps, the most substantive area of mesoeconomic research, being developed in Russia and abroad. This section's authors include the well-known scholars Claude Menard and Wolfram Elsner, as well as researchers from the Institute of Economics, Moscow State University Lomonosov and the Skolkovo Institute of Science and Technology.

As for the **mesoeconomics of reproduction**, it is an original research field mostly promoted by scholars of the Institute of Economics RAS. It contains both theoretical concepts and mathematical models. Its features include money circuits and transmission mechanisms in the context of reproduction processes, which is often omitted in contemporary theories of money and finance.

The authors are grateful to the reviewers of the book: Georgy Kleiner, one of the founding fathers of mesoeconomic studies in Russia, and Georgy Gloveli, as well as to all colleagues who took part in the discussion of the ideas and results presented here. The authors would like to extend special thanks to Alexander Ya. Rubinstein, supervisor of the theoretical economics research area at the Institute of Economics, RAS.

We thank Maria Kruglova for translating the chapters contributed by our foreign colleagues, Andrei Shastitko for the scientific editing of the chapter written by Claude Menard, and Anton Sviridov for technical assistance.

INTRODUCTION

Discussions about the crisis of modern economic theory have taken place for more than one decade (Полтерович, 1998; Blaug, 2002; Davar, 2015; Boyle, Simms, 2019). This crisis is associated with the fact that accumulated data are poorly explained by theoretical schemes prevailing in economics. Nevertheless, the neoclassical mainstream survived three «revolutions» (Keynesian, rational expectations and monetarism). With its basic assumptions and the division into micro and macroeconomics, it remains the dominant paradigm in economic theory. These ideas, views and concepts, conceptual schemes, models for posing academic problems and methods for solving them, research methods, and finally, basic terminology (scientific paradigm) dominate in the academic community and continue to dictate its rules to the economists.

Today it is difficult to name a new paradigm that would be able to replace classical or neoclassical paradigms (Davar, 2015, p. 73). The authors of this book are generally in agreement with the statement. At the same time, the fact that different areas of economic theory (inside and outside the neoclassical mainstream) are in search of new ideas is hard to dispute. New concepts are emerging, which claim to solve economic problems from other theoretical and methodological positions. Mesoeconomics is one example. «With a certain heterogeneity and incompleteness of the conceptual foundations, mesoeconomic

nomics is a rather promising direction of modern economics» (Мальцев, 2019, p. 147).

We do not expect, however, that filling a gap between the micro and macro levels of economic analysis will immediately restructure all economic theory on a micro-meso-macro basis (Dopfer, 2012), or construct a new metatheoretical scheme, as some researchers suggest. But it is also hard to deny that in some cases mesoeconomics offers a key to a theoretical understanding of the economic structure and dynamics (Dopfer, 2011). Examples are demonstrated in this book.

The main goal of the previous book (Мезоэкономика..., 2018) was to describe the origins and current stage of mesoeconomic studies, mainly in Russia. The purpose of the current book is more ambitious – to focus on the aspects of mesoeconomic studies containing elements of a new paradigm (for modern definitions of «paradigm», see Appendix 1). These aspects suggest new scientific standards that refute the prevailing thinking «patterns». Elements of the new paradigm offer different postulates and new analytical programs. They serve as a basis for subsequent constructions, generalizations, and models. The focus of this book is on these new perspectives.

Mesoeconomics as a stream of economic theory can hardly be considered as a young one. Quite a few previous authors (see reviews in (Мезоэкономика..., 2018)) justify the need to distinguish an intermediate mesolevel between micro and macro, which implies a relatively long tradition. However, despite a certain historical background (the first mention of the mesolevel related to economy dates from 1962)¹, so far «the consideration of the mesolevel as an object and subject of research is rather exotic for modern economists» (Кирдина-Чэндлер, 2017, p. 5). In our opinion, it is due to the weaknesses [or: sensitivities] of mesoeconomics, namely tangible gaps and contradictions in the existing constructions. In mesoeconomics, a methodological

1. For a detailed retrospective analysis of mesoeconomic studies in Russian and English, see (Kirilyuk, Kruglova, Volynski, 2019).

order has not yet been established, the principles of identifying economic phenomena as objects of the mesolevel remain unclear, and there is no unambiguous understanding of the mesoeconomic analysis methods.

At the same time, certain standards of mesoeconomic studies are in the making. We see some recurring elements of the new methodology and analytical programs, as well as the subject specifics and the mathematical apparatus used by mesoeconomists. The specificity of mesofoundations in economic theory is also obvious. Altogether, we can talk about the elements of a new mesoeconomic paradigm in economic analysis, and the task of the book is to highlight them. Therefore, not only well-known Russian researchers, but also such well-known scholars as Claude Menard (France) and Wolfram Elsner (Germany), whose names are already associated with mesoeconomic theory, were invited to contribute.

This Introduction has two tasks. On the one hand, we present a brief *review* of approaches regarding the identification of mesoeconomic objects (groups, coalitions, regions, industries, etc.). We will feature the main sections of the emerging modern mesoeconomics. On the other hand, we will show *what* specifically will be considered in this book, and introduce the main results presented in the book.

We note that the mesolevel discourse is represented by heterodox directions of economic thought, and before all, by the institutional-evolutionary theory (Гареев, 2010а, p. 28) and the system-synergetic approach (Дерябина, 2018). The mesolevel seems to provide an opportunity to go from knowledge about individual behavior to knowledge about the groups behavior and the entire evolutionarily developing system. The mesolevel gives us the opportunity to move away from the simple sum of microeconomic variables, as mainstream does (Гареев, 2010b, p. 47) and proceed to the perception of systems above the individual, arising from the emergent effects of co-evolution processes (Elsner, 2007). In other words, we talk about the appearance of mesofoundations.

Here we can see the reason that impedes the entry of mesoeconomics into the wide space of the economic mainstream, or modern orthodoxy. It is because the institutional-evolutionary and system-synergetic approaches seek to present the mesolevel as a space for the formation of sustainable connections, including institutional ones, between objects, to answer the questions of *why* and *how* their formation happens.

Attention to the analysis of structures and mechanisms of economic activity is common for mesoeconomic studies, i.e. to the organization of the economy. Mesoeconomics unites economists who study the economy as a complex, integrated system that develops various structures in the course of evolution to ensure its functioning: spatial, functional, and temporal.

Microfoundations in the modern mainstream involve considering the economy as a system of interacting agents – firms, households, heterogeneous agents (in macroeconomics – representative agents) that maximize their utility functions. In turn, **the mesofoundations** involve considering the economy based on structural concepts, i.e. in terms of its intermediate (meso) level. Interactions between structures are based not on utility functions of agents forming the structure of agents, but under the influence of the priority of economic integrity. Because of this, mesoeconomic foundations involve the consideration of various impersonal supra-individual structures. They allow one to study the features of the development of economic systems that are caused not by the behavioral characteristics of economic entities, but by the properties of its structures².

In modern mesoeconomics, various directions have developed. The specificity is determined by those phenomena-structures that act as objects of mesoeconomic analysis.

One of the directions of modern mesoeconomics is characterized by the consideration of predominantly «object» struc-

2. Structural models built on mesofoundations allow us to study the relationship between the financial and real sectors of the economy (see, for example, Wren – Lewis, 2018).

tures, it can be called the **mesoeconomics of localized structures**. Such structures include, firstly, regional and sectoral systems, as well as diversified complexes³. In foreign studies, large corporations, primarily transnational ones, became the first objects of mesoeconomics. In domestic research, as one of the pioneers of mesoeconomics in Russian, George Kleiner stated, the subjects of consideration and regulation in the mesoeconomics are the totality of enterprises and organizations that demonstrate the behavior of a group of objects and the one group object (Клейнер, 2003, p. 15). In his book «Mesoeconomics of Development» (2011) Kleiner treats mesolevel as a system with four main components: sectoral mesoeconomics (sectors and sub-sectors of the national economy); interbranch mesoeconomics (interbranch vertical complexes and supra-industry complexes of the agro-industrial complex and military-industrial complex type); regional mesoeconomics (regions, territorial groups of enterprises); interregional mesoeconomics (territorial socio-economic formations) (Мезоэкономика развития ..., 2011, p. 9). The regional branch principle of identification of mesoobjects stipulated in this definition is still one of the most common in the Russian academic literature. It is presented in textbooks (Economic Theory, 2018) and in journals: for example, in the Russian *Journal of Economic Theory*, 15 out of 17 articles published in the Mesoeconomics section over the past four years (the section was introduced in 2016) are devoted to regional industrial complexes, 1 – to the economy of cities, and 1 article – to ecosystems of services⁴.

Later, a network approach began to acquire comparative popularity, defining stable network forms of interactions as various objects of the mesolevel: the **mesoeconomics of network structures** began to take shape. It began to split from

3. In the book, we will not dwell on it – we wrote more about this earlier (Мезоэкономика ..., 2018), when we noted that both the foreign and Russian traditions of mesoeconomic studies were based initially (in the 1970s and 80s) on the principle of identification various kinds of stable (physical) structures as objects of the mesolevel.

4. As of November 14, 2019

the mesoeconomics of localized structures in connection with the spread of *cluster* analysis. The study of Leonid Markov and Miron Yagolnitser «Mesoeconomic systems: Problems of typology» (2008) emphasizes that «the cluster concept ... implies various spatial and economic structures», which include «both agglomerations of small and medium enterprises with predominantly horizontal connections, as well as sectoral and territorial production complexes ; both individual industrial sectors and entire areas »(which corresponds to the regional-sectoral approach). At the same time, the «integral property» of the cluster «is the systematic nature, which is caused by various relationships between the cluster members and generates synergetic effects» (Марков, Ягольницер, 2008, p. 20-21). A similar definition was later given by Timur Gareev who described clusters as «localized mesoeconomic systems with fuzzy boundaries, which consists of interconnected heterogeneous independent economic agents and local specific institutions determining the roles of these agents and stimulate the innovative development of these systems» (Гареев, 2012, p. 8)

Further development of the mesoeconomics of network structures is associated with the consideration of *platform markets* as objects of the mesolevel. In the work of 2018, Gareev contrasts platforms with clusters, revealing in clusters the lack of institutional characteristics. He considers both clusters and platforms as the so-called two-factor models, where spatial, technological (industry) and institutional factors can be combined. Clusters in this case appear as a combination of spatial and technological factors, while platform markets combine technological and institutional factors. Among the «institutional» characteristics of platforms are «the presence of rules (for example, joining the platform) and the formation of stable game equilibria and mechanisms for direct and indirect enforcement of established rules» (Гареев, 2018, p. 32). Platforms are also an example of bilateral markets where heterogeneous agents interact (Rochet, Tirole, 2006). The digital factor of their development enables identification of patterns of interactions implemented by heter-

ogeneous agents. These very interaction rules between different users (sellers and buyers, manufacturers, owners of physical objects and marketers) form the essence of digital platforms (Срничек, 2019, p. 75), and the acceptability of the formulated rules for most agents is a condition for platform survival.

As we see, the modern way of analyzing network structures and platforms goes beyond the scope of a «purely object» consideration and corresponds to a greater extent to the next important area of mesoeconomic research, which we define as **institutional mesoeconomics**. The first part of the book is devoted to the presentation of this research area.

Attention to the study of institutions has distinguished mesoeconomists. Thus, the «founding fathers» of mesoeconomics both in Russia and abroad included institutions in their studies. Kleiner argues, «In fact, the study of mesoeconomic structures is equivalent to the study of institutions ... Mesoeconomics is a natural field for the formation and operation of economic institutions» (Клейнер, 2003, p. 16). Kurt Dopfer and colleagues take a similar view when he defines the mesolevel as the space for the transition of a particular rule into a generic rule through the perception of these rules by a population group. As a result, the institutional order of interactions between agents is formed. (Dopfer, Potts, 2008, p. 102-103). Such attention to institutions sometimes gives an impression that institutional economics and mesoeconomics are the same. However, this is not the case presented in **PART ONE «Institutional Mesoeconomics»**.

The chapters of **Section 1 of Part One** show the history of the separation of institutional mesoeconomics and the specifics of its methodology. The first two chapters show the separation of the mesoeconomic direction from the New Institutional Economics, or NIE, and the specifics of the category of «mesoinstitutions», one of the promising concepts of modern institutional economics.

Chapter 1 written by Claude Menard shows the need to introduce the concept of «mesoinstitution» as a new category of mesoeconomic theory. Mesoinstitutions are characterized as

intermediaries responsible for the implementation of general rules by forming specific recommendations and providing feedback from agents that are affected during the implementation of the rules (Menard, 2014). In other words, mesoinstitutions form an intermediate link between the level at which general rules and rights are determined, and the level of organizational mechanisms (markets, firms, hybrids) through which economic transactions are actually carried out (Menard, 2018, p. 8). Mesoinstitutions are a set of devices and mechanisms that determine the methods and principles of applying specific rules, the degree of their regulatory impact on individual micro-level actors and the processes of their interactions with each other. «Mechanisms» are interpreted as coordination and monitoring procedures, and «devices» are interpreted as organizational conditions by which mechanisms operate. The regulatory process is a mechanism, and the regulatory body is a device (Menard, 2018, p. 8). Mesoinstitutions, therefore, translate, implement, monitor and enforce the general rules, adapt them depending on the sector, region, etc. (Kunneke et al., 2010; Menard, 2017). They play a central role in bridging the gap between the general rules of the game, established at the macro level, and microinstitutional entities operating according to these rules.

From our point of view, the concept of mesoinstitutions puts forward a workable principle of identification of mesoeconomic objects, while at the same time performing two important methodological functions. First, in the mesoinstitutions, the network and hierarchical principles for describing mesoeconomic objects are reflected: institutions, on the one hand, are the result of network processes of self-organization, and on the other, the result of the influence of reform strategies from above. The balance of the two trends, according to Menard, serves as a guarantee for various institutions. Secondly, the concept of mesoinstitutions takes mesoeconomics from the theoretical studies to the practical study conducted within the framework of the institutional direction of reform theory. Elinor Ostrom showed that in many cases, ordinary people who have no special training, and

often are completely illiterate, are much better able to cope with various social dilemmas than experts and politicians» (Ostrom, 1990; 1999; Капелюшников, 2010). But the dominant position among the developers of the reform theory is disregard of the implementation of institutional norms generated at the macro level into a reformed institutional environment. Technical methods for optimizing these processes also virtually ignore the upward processes of institutionalization of informal norms. The theoretical space of mesolevel, defined as mesoinstitutions, gives these processes the necessary methodological legitimacy.

Chapter 2 (authored by Andrei Shastitko) continues the discussion about mesoinstitutions. This concept is not studied much in the context of the NIE. Here it focuses on the relationship between the concept of mesoinstitution and other areas, namely, the theory of public choice. The study reveals hidden contradictions of this concept. The critical analysis turns out to be useful for practical application of the mesoinstitution concept. Special attention is also paid to how to apply mesoinstitutions in the process of the institutional changes design in Russia.

The first two chapters show the formation of mesoeconomics as a possible answer to the challenges that the NIE and the theory of public choice state, then the next two theoretical chapters discuss the links of institutional mesoeconomics with complexity and evolutionary economics.

So, first we will talk about complexity economics, which became the foundation for the development of ideas about mesoeconomic structures that provide the necessary institutional coordination of complex processes during economic (co) evolution.

Chapter 3 (author Svetlana Kirdina-Chandler) focuses on complexity economics and mesoeconomics, their similarities and differences. Kirdina-Chandler shows the connections between the two areas and their specifics. This chapter returns to the discussion on the appropriateness of highlighting the mesolevel of economic analysis. To compare with earlier works (Кирдина-Чэндлер, 2017; Кирдина-Чэндлер, Маевский, 2017), in this

chapter the formation of mesoeconomics is associated not only with practical needs and the logic of development of the economic discipline itself, but also with paradigm shifts in the system of scientific knowledge in general. The «ontological turn», recorded primarily in the social sciences, means that not so much the social reality, but rather the «principles of connection» (Latour, 2014, p. 27) of its elements become the object of analysis. Following this path, the social sciences will be able to avoid the well-known and insoluble contradictions of micro and macro (Бурбулис, 2015, p. 62) by exploring the structures of the mesolevel that play an integrative role in the modern complex world.

Chapter 4 (author Wolfram Elsner) shows the connection between modern institutional mesoeconomics not only with complexity economics, but also with the evolutionary tradition of economic research. Here we study the patterns of interaction between populations of economic agents — they are called mesogroups — with an emphasis on cooperation between them. When analyzing mesogroups as mesolevel structures, it is emphasized that they are formed during competitive cooperative interactions in the process of coevolution (Elsner, 2009; Elsner and Heinrich, 2009; Elsner and Schwardt, 2014). They are not reduced to their initial components. Moreover, the microlevel in this concept refers to agents and their interactions, whereas the structure (institution) resulting from these interactions, existing in a structured form and independent of individual agents and their actions, refers to the mesolevel (Elsner, Heinrich, Schwardt, 2015, p. 423–424). Thus, mesostructures, primarily understood as stable structures of group interactions, are identical to institutions. To study the processes of formation of institutions as mesolevel structures, the methodology of the evolutionary games theory is used, in particular, the repeating «prisoner's dilemma». Under information asymmetry and insufficient certainty of acceptable transactions result, the society finds a solution in creating mesostructures, or institutions understood as a set of stable rules of interaction (Elsner and Heinrich, 2010).

Chapter 5 analyzes the creation of institutions and the institutional change at the mesolevel within the framework of the evolutionary game theory. Timur Gareev analyzes the problems and prospects of formal modeling of institutional changes at the mesolevel⁵. According to Gareev, mesoeconomics is not yet treated separately along with micro and macroeconomic theory, however, mesoeconomic studies have already created proper formalized tools. The game-theoretic approach and multi-agent modeling are perhaps the typical tools of institutional mesoeconomics. The chapter compares the advantages and limitations of each approach. At the same time, game theory is proposed to be considered as a broader alternative compared to multi-agent modeling, which is only one way to find «probable» solutions in games of a certain level of difficulty.

In the chapters of the first «theoretical» section, the practical use of the ideas of institutional mesoeconomics is selective and illustrative. Then the chapters of **Section 2** of the **Part One** are completely devoted to the instrumental design and practical application of institutional mesoeconomics.

Chapter 6 (author Igor Kirilyuk) reviews the mathematical models that are used in the study of institutional changes at mesolevel. The author previously studied the models that are mostly used in mesoeconomic studies (Мезоэкономика ..., 2018; Кирилюк, 2018). In this book he focuses mainly on models applicable to research institutional changes and institutional design, which better «serves» institutional mesoeconomics. In addition to the game-theoretic and multi-agent models discussed in detail in the previous chapter 5, here, in chapter 6, we study the possibilities, limitations, and prospects of econometric models, general equilibrium models, econophysical models, and discuss the prospects of artificial intelligence, and not only as a

5. For the development of the ideas of the game-theoretic approach in the evolutionary-institutional theory, Gareev in 2019 was awarded the Leonid Abalkin Prize, which is awarded to young scholars in the field of evolutionary and institutional economic theory. The prize was awarded at the XIII International Pushchino Symposium on Evolutionary Economics (Pushchino, Moscow Region, September 4–6, 2019).

tool for describing economic phenomena, but also as a tool for influencing society.

Chapter 7 (authors Olga Koshovets and Nikolay Ganichev) shows how to use the ideas of institutional mesoeconomics to study a new model for the development of microelectronics and information technology in the context of the «fourth industrial revolution» and the related project of ‘digital economics’. The chapter pays particular attention to the analysis of the real mechanisms of functioning of economic systems. Of interest is the appeal to the analysis of digital platforms and their relationship with the largest «digital» multinational corporations. This allows us to present the global project of the «digital economy» as a new business model of global market coordination. The project aims to consolidate the monopoly positions of transnational corporations in the field of IT technologies with the goal of sustainable production of «technological rent». The chapter shows how the system of institutional rules is formed at supranational and regional levels and draws attention to the risks for the development of national economies, including the Russian one.

In **Chapter 8** (author Peter Orekhovsky), the mesolevel methodology and institutional analysis is used to analyze mechanisms of obtaining monopoly market power in a wider context than in the previous chapter. This chapter discusses the process of «diffusion of power» as such, caused by the formation of network structures, both in the sphere of economics and in the field of public administration. Researchers and politicians pay little attention to the mesolevel where major economic and social changes take place today. This increases the risks of revolutions and social instability. In this case a rupture of existing structures can lead to economic and social chaos. That is why the paradigm shift in economic theory is so important. Authors of the book connect this shift with the development of mesoeconomic analysis.

In contrast to the global view of the development of meso-economic structures, a more local approach is presented

in **Chapter 9** (by Andrei Volynski). We are talking about the experience of economic self-organization of the inhabitants of a Chinese province, including the well-known phenomenon of Xiaogang Village. This experience began as a rebellion against the rules dictated by the state but was then comprehended at the level of the country's political leadership. As a result, the practice of the villagers was institutionalized at the national level as one of the instruments for a rather harmonious combination of personal and public interests. The chapter shows that the mesoeconomic analysis of this phenomenon differs from both the analysis of development economics and the approaches of Russian sinologists from the perspective of socialist construction in China. However, it allows us to show how self-organization and co-evolution took place under conditions of uncertainty, leading to the establishment of a new rule – the institution. In other words, the analysis demonstrates that this practice is best described using the theoretical principles of institutional mesoeconomics presented in the chapters of the first section. This chapter organically concludes Part One of the book, which contains a synthesis of world and domestic achievements in the field of institutional mesoeconomics.

PART TWO «Mesoeconomics of Reproduction» presents the results in the field of the original direction of mesoeconomic studies developed at the Institute of Economics of the Russian Academy of Sciences. The main subject of this new field is the structure of money circuits and transmission mechanisms in connection with their role in the reproduction process. This aspect usually remains outside the modern monetary and financial theories. On the one hand, this direction develops the ideas of a new theory of capital reproduction, considering the principle of a shifting mode of its reproduction (Маевский, 2010; Маевский et al, 2014, 2018). On the other hand, it is based on the principle of methodological institutionalism in the study of money circulation (Кирдина-Чэндлер, 2019). The salient feature of the mesoeconomics of reproduction is an emphasis on the analysis of coordination mechanisms of real economic

processes and the consideration of material and technological factors of economic development. This direction is based on the shifting mode of capital reproduction models developed by the team under the guidance of Academician Vladimir Mayevsky since 2010.

Part Two begins with **Section 3**, which discusses the theoretical problems of the mesoeconomics of reproduction. This section opens with **Chapter 10** written by Vladimir Mayevsky. It examines hierarchical approach as a possible approach to mesoeconomic research. It raises the question: whether the mesolevel and the objects «filling» it are part of the hierarchical structure of the economy? The chapter discusses the approach of Herman Haken, according to whom self-organization is *a priori* assumed to be preferable to a hierarchically organized structure. The author writes that both self-organization and hierarchical organization in a multi-element open system are objectively existing phenomena that are systemically interconnected. On the one hand, the phenomenon of hierarchical organization of an open system arises as a result of its self-organization, especially in those periods when the system is under the active influence of the external environment. In such cases, self-organization generates its own antipode (a hierarchical structure) within the system, which leads to further complication of the multi-element open system, including the economic one. Accordingly, the triad of «micro-meso-macro» from the point of view of organizing the economic reproduction process can be represented as following: a regulator, for example, the Central Bank of the Russian Federation cannot directly influence the behavior of agents of the microlevel; but there is an intermediate element between the regulator and microlevel agents. It includes mesoeconomic financial organizations – commercial and investment banks; brokerage companies; stock exchanges, etc. Despite their organizational independence from the regulator, it is through mesoeconomic structures that the regulator signals are transmitted to the microeconomic environment. One of the most important tasks of mesoeconomic research is the

analysis of transmission mechanisms of monetary policy, mediating the processes of economic reproduction.

In **Chapter 11** (author Marina Deryabina) the objects of mesoeconomic analysis are also organizational and reproductive structures. However, the analysis of hierarchies is supplemented here by the analysis of network structures, and their evolution in the industrial and post-industrial economy is considered. In addition to the analysis carried out in the previous chapter, it is noted that between the macro and microlevels of the system there are «methodologically new elements» that not only represent the intermediate, «middle» level (as they would be interpreted in the traditional hierarchical model), but represent structures that allow the system to find new development paths. An analysis of this level may turn out to be the most informative, since the structures of the mesolevel contain the necessary information about the evolution of the entire economic system and its self-organization.

Further, the ideas of the chapter 10 that opened this section are followed up and developed in **Chapter 12** (author Svetlana Kirdina-Chandler). It deals with the consideration of money circulation as an object of mesoeconomic analysis. The specificity of the mesoeconomic approach manifests itself, first of all, in the fact that money is regarded as an institution, as a functional-temporal structure formed in the economic system in order to reduce uncertainty and ensure the proportionality of the results of past, present and future activities during the reproduction of the economy. This chapter substantiates the hypothesis that the introduction into the economic analysis of increasingly complex ideas about money circulation at one time led to the separation of macroeconomics from microeconomics, and separation of mesoeconomics as a new section of economic analysis continues this trend.

A further presentation of the results in the field of mesoeconomics of reproduction follows the same logic that was applied in the first part, devoted to institutional mesoeconomics: after expounding the main theoretical approaches, **Section 4** contains the results of applied research in this direction.

Chapter 13 (authors Vladimir Mayevsky, Sergei Malkov and Alexander Rubinstein) and **Chapter 14** (the same authors and Elena Krasilnikova) demonstrate the results of applying the ideas of the mesoeconomics of reproduction with the same goal: to compare the results obtained when solving a particular problem within the framework of the new micro-meso-macro scheme with the results of studies of the same problem in the framework of the traditional micro-macro dichotomous scheme, i.e. not taking into account the possibility of mesoeconomics (in this case, the mesoeconomics of reproduction). The results presented in these chapters were obtained using the new mesoeconomic model of shifting mode of reproduction (SMR-4 model) developed by the authors (its description is given in Appendix 2). The authors first examine the well-known problem of neutrality / non-neutrality of money. The calculations based on the mesoeconomic model showed that, in contrast to the orthodox macroeconomic theory, where the neutrality of money in the *long-term* perspective is essentially given, the mesoeconomic approach allows us to reveal a different reaction of the economy to the growth of monetary emissions. Based on the provisions and models of the mesoeconomics of reproduction, in the long-term, monetary emissions affect economic growth. Inflow of new money into the investment sector (considered in the SMR-4 model) leads to an increase in fixed capital and, with a lag, to an increase in the product produced on its basis, i.e. to economic growth. Accordingly, insufficient flow of money into the investment sector leads to an economic downturn. Calculations using the SMR-4 model show that the phenomenon of neutrality of money in the long-term is a special case, but not a general rule. On the contrary, the general rule can be considered the phenomenon of non-neutrality of money in the long-term. The conclusion casts doubt on the correctness of the dominant concept of money neutrality and the recommendations about economic policy based on the concept⁶.

6. Since January 2020, new trends outlined in the Russian monetary policy aimed developing mechanisms for direct monetary stimulation, considering the revealed phenomenon of non-neutrality of money.

Then, in chapter 14, based on the same SMR-4 model, as well as using regression models, authors analyze the proportions of the distribution of cash flows between the investment sector and consumer sector and the effect of these proportions on economic growth indicators. After calculating for 49 countries, the authors identify the important role of the coefficient reflecting the ratio of income indexation and inflation, to characterize the level of investment activity in the country. The results of the comparative analysis allow the authors not only to assess the trend in the efficiency of monetary emissions in Russia, but also to make recommendations in the field of monetary policy.

A study of the banks role in the investment process contributes to the analysis done above (Andrei Vernikov, **Chapter 15**). It is the banks, together with other monetary institutions, that ensure the transmission mechanism of monetary policy, which are the main object of analysis in the mesoeconomics of reproduction. The chapter discusses a metrics system that allows one to assess how banks manage to perform these functions and to evaluate their contribution to the economic system development.

The book's Conclusion summarizes the results of the development of institutional mesoeconomics and the mesoeconomics of reproduction and considers the prospects for the development of mesoeconomics as a new paradigm of economic analysis.