

MESOECONOMICS FROM THE HETERODOX PERSPECTIVE AND ITS STRUCTURE¹

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The paper discusses the logic of the development of the structure of mesoeconomics as a new direction of heterodox economic theory. It develops and complements previously published works of the authors (Kirdina-Chandler, Maevsky, 2017; Kirdina-Chandler, 2018; Maevsky, 2018; Mesoeconomics: status and prospects, 2018; Mesoeconomics: elements of a new paradigm, 2020), devoted to discussion of the methodology and specifics of mesoeconomic research. This paper proposes the grouping of heterodox mesoeconomic studies by their directions, which is based on a historical-chronological approach and takes into account the specifics of the mesostructures studied in Russia and abroad. The grouping comprises four directions, namely “mesoeconomics of localised structures”, “mesoeconomics of network structures”, “institutional mesoeconomics”, and “mesoeconomics of reproduction”. A summary table, which describes the main objects of consideration, subjects of research, theoretical bases and instruments in these different directions of heterodox mesoeconomics, is presented. In parallel, the specifics of the methodological foundations of research in modern heterodox mesoeconomics are also discussed.

Keywords: *mesolevel of economic analysis; heterodox mesoeconomics; mesoeconomics of localised structures; mesoeconomics of network structures; institutional mesoeconomics; mesoeconomics of reproduction.*

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МЕЗОЭКОНОМИКА В ГЕТЕРОДОКСАЛЬНОЙ ПЕРСПЕКТИВЕ: ВНУТРИДИСЦИПЛИНАРНАЯ СТРУКТУРА

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В статье рассматривается логика внутридисциплинарного развития мезоэкономики как нового направления гетеродоксальной экономической теории. Данная публикация развивает и дополняет опубликованные ранее работы авторов (Кирдина-Чэндлер, Маевский, 2017; Кирдина-Чэндлер, 2018; Маевский, 2018; Мезоэкономика: состояние и перспективы, 2018; Мезоэкономика: элементы новой парадигмы, 2020), посвященные обсуждению методологии и специфики развития мезоэкономических исследований. В настоящей статье предложена классификация гетеродоксальных мезоэкономических исследований, которая опирается на историко-хронологический подход и учитывает специфику изучаемых мезоструктур в России и за рубежом. Классификация включает в себя 4 направления: «мезоэкономику локализованных структур», «мезоэкономику сетевых структур», «институциональную мезоэкономику» и «мезоэкономику общественного воспроизводства». Представлена таблица, в которой суммированы итоги исследования и описаны основные объекты, предмет исследования, теоретические основания и используемые инструменты, характерные для каждого из выделенных направлений. Параллельно обсуждается специфика мезоэкономических оснований, формирующих методологический фундамент исследований в современной гетеродоксальной мезоэкономике.

Ключевые слова: мезоуровень экономического анализа; гетеродоксальная мезоэкономика; мезоэкономика локализованных структур; мезоэкономика сетевых структур; институциональная мезоэкономика; мезоэкономика общественного воспроизводства.

1. Introduction

The academic community of economists, in contrast to the academics of the natural sciences, seems quite fragmented. According to Arjo Klamer, “Amidst all the economists ... there are but a handful any one of them can talk to” (Klamer, 2007, p. 126). This statement of the famous methodologist of economic science is as true for Russia as for other countries. According to Lyudmila Egorova and Alexey Myachin, the Russian scientific economic

community is divided into three main groups: university professors, academic researchers and expert analysts, each of which can be conventionally split into "advanced" and "traditional specialists" (Egorova, Myachin, 2019, p. 30), and each group of these economists has its own ideas "about scientific importance, prestige and interest" (Ibid.).

The fragmentation and diversity of interests of the scientific economic community may be one of the reasons that explains why the meaning of mesoeconomics is understood in such different ways, and the attitude of modern economists to it. For some researchers, mesoeconomics is one of the most interesting and relevant trends in the development of modern heterodox economic theory - the authors of this paper relate to them. For them, mesoeconomics is here to stay! At the other extreme are economists for whom mesoeconomics is like an economic heresy, and it causes them to reject it as an excess entity in relation to the micro-macro distinction adopted in economic theory. Such economists, denying the need for mesoeconomics as an "excessive level" of economic analysis, refer to the law of parsimony, or Occam's razor ("Entities are not to be multiplied without necessity") and, accordingly, are very skeptical about attempts to develop a meso dimension in economic theory. Georgy Kleiner wittily called the former "mesoactivists" and the latter "mesosceptics" (Kleiner, 2020). Finally, there is a large group of economists for whom mesoeconomics is primarily an empirical field of research devoted to the analysis of corporations, industries and sectors, and economic regions within a country². This last understanding of mesoeconomics can be found most often in standard textbooks on economics or in economic dictionaries.

When we offer a mesolevel of economic analysis as an additional new and fully-fledged direction in economic theory, we anticipate possible difficulties because, as a rule, "taxonomic conventions in modern economic science are extremely inert, and the corresponding innovations are unstable" (Frolov, 2013, p. 132). However, we will defend the need for a theoretical development of the mesoeconomic dimension, especially as, over several decades, not only a significant amount of work has accumulated about this field of study, but also an inherent logic in the development of mesoeconomic studies can be shown.

The basis of our consideration is primarily the works of economists presenting mesoeconomics from a heterodox perspective³. Such studies are conducted in Europe, Russia, Australia, some Asian countries, but mainly outside the North American continent, where representatives of the neoclassical mainstream are concentrated today. This situation is perhaps one of the reasons why the JEL classification codes, published quarterly by the American Economic Association (AEA), still do not include a Mesoeconomics code⁴.

The objective of this paper is to present heterodox mesoeconomics as a relatively new, but already established, area of economic theory with various directions. In Section 2 we show the logic of the construction of our grouping, i.e., highlighting the main thematic areas of modern heterodox mesoeconomics. The grouping comprises four directions. Section 3 presents works supporting the first direction – "mesoeconomics of localised structures" with which, in our opinion, mesoeconomic studies began. Section 4 describes the second (in the chronological sense) direction – "mesoeconomics of network structures". Section 5 presents the third direction which is about one of the most developed areas of modern heterodox mesoeconomics – "institutional mesoeconomics". Section 6 is devoted to the presentation of the fourth direction developed by the Moscow team of scholars from the Russian Academy of Sciences – "mesoeconomics of reproduction". In conclusion, the main ideas will be summarised.

² In Russia, where there are a lot of economists who still remember well the reality of the USSR, there are many who associate mesoeconomics with the middle level in a hierarchical system of planned management of the national economy.

³ Therefore, we did not include in our survey the works of some well-known and respected scholars who called themselves mesoeconomists, for example, Yew-Kwang Ng (1982; 1986, 1992) or Hans-Rudolf Peters (Peters, 1981), but hardly considered themselves as representatives of heterodox economics.

⁴ This is despite the fact that a proposal to introduce a new category: (S0) Meso Economics: General, in the JEL classification was made more than 15 years ago (Dopfer, Foster, Potts, 2004, p. 263; see also Holland, Black, 2018, p. 15).

2. The logic for constructing a grouping of topical heterodox mesoeconomics

We can see that theoretical mesoeconomics, first declared as a new area of economic theory decades ago, has already passed along a certain path of formation and development. This gives us a reason to carefully analyse its structure, to identify the main directions of research and discuss the specifics of the methodology used.

Attempts to classify mesoeconomic studies have been undertaken previously. In 2013, Russian researcher Daniil Frolov examined various taxonomies of a multi-level hierarchy of the economic space and the respective scientific fields for their study. In mesoeconomics he then identified two main areas, conditionally called “industrial mesoeconomics” and “institutional mesoeconomics” (Frolov, 2013, p. 126). Further, in 2017–2019 in the *Journal of Institutional Studies*, a series of works was published where the main “loci” of mesoeconomic studies were analysed in more detail. Based on a retrospective analysis of the English-language (Kruglova, 2017) and Russian-language (Volynskii, 2017) literature, the main areas of mesoeconomic research were described, as well as the specifics of the objects of mesoeconomic analysis (Volynskii, 2018). Finally, in 2019, a paper was published in which a comparison of mesoeconomic studies in heterodox English-language economics and in post-Soviet Russia was made (Kruglova, Volynskii, Kirilyuk, 2019). In that paper the authors classified the approaches of heterodox English-speaking mesoeconomists as follows: the Neo-Schumpeterian Interpretation, the Evolutionary Approach, and Neo-Institutionalism (Ibid, p. 42). In post-Soviet Russian-language literature, these authors have identified other approaches to the classification of mesoeconomic studies: “the system approach, in which the meso level is understood as the process of intra-industry interactions between economic agents with the goal of harmonizing the economic system; a regional-spatial approach that considers regional economic structures as part of the meso-level; and a theoretical approach to methodological institutionalism that addresses interdisciplinary intersections of economics and sociology” (Ibid., p. 42).

We can see that these classifications of mesoeconomic studies were connected with various theoretical areas of economic thought (system analysis, evolutionary theory, synergetics, etc.). The authors of the classifications did not suggest a special task to analyse the development of the topics of mesoeconomics itself as a relatively independent section of economic theory. This nuance matters: when one demonstrates the connection of system analysis, or evolutionary theory, or synergetics with the development of mesoeconomics, the focus is on the methodological significance of these theoretical approaches within the framework of mesoeconomics, and this, of course, is very important for understanding the heterodoxy of mesoeconomics. However, when the directions along which mesoeconomics develops are established (including objects of research) as the basis for the classification of mesoeconomics, then attention is focused on the progress of mesoeconomics itself. In this case, it becomes possible to see mesoeconomics as an evolving discipline, which has its own inherent intradisciplinary structure. Such a view of classification does not contradict the view presented by Kruglova, Volynskii, Kirilyuk, but without it the modern vision of mesoeconomics is, in our opinion, incomplete.

An important feature of our grouping and its difference from the classifications considered above is that we tried to trace the logic of the evolution of mesoeconomic studies. For Daniil Frolov, and especially for Maria Kruglova, Andrey Volynskii, and Igor Kirilyuk, their classifications were based on differences in the theoretical approaches and methodological traditions on which mesoeconomists relied. The authors of these classifications did not set themselves the task of tracing the patterns of formation of mesoeconomic studies, nor of identifying and showing the features of the main objects of the emerging heterodox mesoeconomics⁵. In this paper we will try to solve these problems. In constructing the grouping, we will rely on a chronological

⁵ Some aspects of the identification of mesolevel objects were considered in (Volynskii, 2018).

approach and take into account the specifics of mesostructures, which are consistently included in the orbit of research interests of mesoeconomists.

We also believe that the grouping presented below is more universal and “international” in the sense that the different directions of the mesoeconomics grouping are common for different countries and cover heterodox mesoeconomists who may adhere to different approaches and follow different scientific traditions.

So, following the “time axis” and exploring those phenomena that have attracted the attention of European, Russian and other mesoeconomists, we believe it is possible to distinguish the following directions of heterodox mesoeconomic studies: “mesoeconomics of localised structures”, “mesoeconomics of network structures”, “institutional mesoeconomics”, and “mesoeconomics of reproduction”. Our grouping of topical heterodox mesoeconomics is based on the specificity of phenomena-structures as objects of mesoeconomic analysis. We will show that the directions of mesoeconomics identified by us started sequentially one after another but the ongoing development of each area has continued in parallel with the other areas and so the time frames for the development of each of the identified directions sometimes overlap. Nevertheless, each subsequent direction, absorbing the achievements of the previous ones, was the next step resulting in a deeper understanding of the nature of the mesostructures studied.

We also identified that each time an appeal to new objects of mesoeconomic analysis developed, the methodology and theory of mesoeconomic studies changed accordingly. Here we see a manifestation of the abduction principle⁶, through which new ideas in science arise and develop and which “goes hand in hand with intuition and imagination” (Ruzavin, 2001, p. 32). The inclusion of new data in the analysis requiring explanation, made it possible to improve the plausibility of preliminary hypotheses, which were then verified by the logical inference of empirical laws from them. “As the history of science testifies, this is precisely how the discovery of theoretical laws and the construction of integral theories and theoretical systems took place” (Ibid., P. 44), and we can observe this abductive logic in the development of heterodox mesoeconomics and its intradisciplinary structure.

3. The mesoeconomics of localised structures

So, the first direction in the grouping from which, in our opinion, mesoeconomic studies began, is characterised by the consideration of structures comprising groups of various economic entities (in contrast to neoclassical economics which generally considers only individual firms). Such mesoeconomic structures are more complex in comparison with individual firms: they are not one-dimensional, but multi-dimensional. These structures have a supra-corporate nature and are characterised by “local connections” in economic spaces, such as regions, sectors, industries, etc. Therefore, we call such direction “the mesoeconomics of localised structures”.

Indeed, one of the first definitions of mesoeconomics as a new area of research appeared in English-language literature in the 1970s and was associated with a sharp increase in the role of new market forces - primarily giant national and transnational corporations (TNCs). Mesoeconomics was then defined as the field of study of the economic activity of precisely such large corporations, especially TNCs. As noted by mesoeconomists of that period and later, oligopolistic competition and new forms of industrial coordination led to the creation of mesoscale entities (Ozava, 1999) such as “leading firms” (Holland, 1974; Holland, 1987), or “corporations with market power” (Holland, Black, 2018, p. 19). Their peculiarity was

⁶ The term “abduction” (in addition to deduction and induction principles) was coined by Charles Sanders Peirce (1839–1914), an American philosopher and the founder of American pragmatism. As he says, “[a]bduction is the process of forming explanatory hypotheses. It is the only logical operation which introduces any new idea” (Collected Papers..., 1958, vol. 5, p. 172); elsewhere he says that abduction encompasses “all the operations by which theories and conceptions are engendered” (Collected Papers ..., 1958, vol. 5, p. 590). A modern understanding of abduction is not so much a process of inventing hypotheses but rather as one of adopting them (Douven, 2020), which very often is an internal mechanism for the development of scientific research.

that they were able to create the rules of market activity themselves, and not just follow them, like ordinary firms whose behaviour was studied by microeconomics. Therefore, new corporations, which had market power and spread widely in the economy, became objects of study, which the authors mentioned above called mesoeconomics.

The next objects studied in the direction that we call the mesoeconomics of localised structures were regional and sectoral systems, as well as diversified complexes. This follows, for example, from a definition of mesoeconomics by a Dutch social geographer Jan Lambooy: “Meso-economics can be defined as the intermediary level between macro-economics and micro-economics. The field of mesoeconomics is subdivided into the study of regional economics and that of sectoral developments or the industrial organisation” (Lambooy, 1990, p. 254; Duijn, Lambooy, 1982). We also find such an understanding of mesoeconomics as a research area, not only of large corporations, but also of particular sectors, e.g. construction, industrial, etc. (Preston, 1984; Allen, 1989; Carassus, 2000; Andersson, 2003). A similar understanding of mesoeconomics as the economic exploration of sectors and groups, and as a useful instrument of analysis between microeconomics (the analysis of markets) and macroeconomics (the analysis of economies), is presented in some chapters of the collective monograph (*Sectors matter!: Exploring mesoeconomics*, 2011). A common understanding of mesoeconomists working in this area of the analysis of economy, from the perspective of sectors, is that it helps to “clarify driving forces in the economy” (Jašová, Kadeřábková, Čermáková, 2017, p. 256).

Later, a similar understanding of mesoeconomics as the mesoeconomics of localised structures is found in works of one of the pioneers of mesoeconomics in Russia, Georgy Kleiner. At the beginning of his mesoeconomic studies, he stated that the subjects of consideration and regulation in mesoeconomics are the totality of enterprises and organisations that demonstrate the behaviour of a group of objects and the one group object (Kleiner, 2003, p. 15). In a book “Mesoeconomics of development”, 2011 (G. Kleiner as an editor) the mesolevel is treated 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) (*Mesoeconomics of development...*, 2011, p. 9). We can see that in all cases it is about localised structures at various levels.

The regional and sectoral principle of identification of meso objects stipulated in these definitions is still one of the most common in Russian academic literature. It is presented in textbooks (*Economic theory...*, 2018), economic dictionaries⁷ and even scientific journals. For example, in *Журнал экономической теории* [the Journal of Economic Theory], 27 out of 29 papers published under the heading of “Mesoeconomics” over the past five years (the heading was introduced in the journal in 2016) are devoted to regional⁸ and industrial complexes, plus 1 paper about the urban economy and 1 about ecosystems of services.

Mesoeconomics of localised structures became the first direction of heterodox mesoeconomics (although not known by that name at the time), not only historically but also logically. Historically because it was formed before other areas and continues to develop. Moreover, for many mesosceptics mesoeconomics of localised structures still represents mesoeconomics in its entirety. Logically, it preceded other areas, because attention was paid more easily to observable phenomenological objects that have fairly discrete geographical and technological boundaries. However, with the accumulation of empirical data related to the emergence of new phenomena in an increasingly complex economy, and with the intensification of mutual contacts between mesoeconomists and other representatives

⁷ See, e.g., a definition of mesoeconomics in: *Economics and Mathematics Dictionary...* by Leonid Lopatnikov (2003; see also <http://lopatnikov.pro/slovar/m/mezoeconomika/>)

⁸ At the same time, there is a pronounced primacy of regions over cities, although urbanisation is no less significant than regionalisation (Frolov, 2013, p. 131).

of heterodox economics including complexity economics (Kirdina-Chandler, 2018), evolutionary economics, etc, the effect of abduction noted earlier in the paper proved itself as a characteristic of scientific research. This contributed to the further development of both topics and the methodology of mesoeconomic research.

4. The mesoeconomics of network structures

When network structures, first represented by clusters, began to be more widespread in the economies of different countries, the mesoeconomic approach also came to be used for their analysis. Perhaps for the first time it was presented in a book “Industrial and Regional Clusters: Concepts and Comparative Applications”. Its authors, Edward M. Bergman and Edward J. Feser, noticed: “We ...focused most attention on methods that attempt to identify clusters from a comprehensive analysis of the regional economy. Such approaches we labeled “meso-level analyses” (Bergman, Feser, 1999). Since then the study of such stable network forms of interactions began to form a new direction of heterodox mesoeconomics, which can be called the “mesoeconomics of network structures”.

This direction has been split from the mesoeconomics of localised structures arising from the spread of analysis of regional and industrial clusters⁹ and then clusters of innovation. Of course, network coordination mechanisms were also present in transnational corporations, in regional and industry complexes. However, in network structures, such as clusters for example, these mechanisms are increasingly detached from their material basis, since clusters differ from traditionally understood spatially fixed formations by the presence of relations not only of a purely material or technological, but more of an informational, organisational and institutional nature (Manning, 2008; Gareev, 2012, p. 12). In addition, in the activities of such new entities, network mechanisms and hybrid coordination mechanisms (Shastitko, 2009) begin to dominate, which becomes the subject of study by mesoeconomists.

We attribute to the mesoeconomics of network structures those works whose authors declare the need to use (and use it!) the mesoeconomic approach to analysing clusters. Among the objects they study are clusters of innovations (Brette, Mehier, 2008), science and engineering clusters (Manning, 2008), a cluster system of international economic integration (Rekord, 2012; Hervas-Oliver, Boix-Domenech, 2013; Laiko, Kovalenko, 2020), etc.

In Russian literature we can address to the study of Leonid Markov and Miron Yagolnitser titled “Mesoeconomic systems: Problems of typology”, 2008, which emphasises that the cluster concept, which considers clusters as a type of mesoeconomic system, 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” (Markov and Yagolnitser, 2008, p. 21), 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” (Ibid., p. 20). A similar definition was later given by another Russian scholar, Timur Gareev, who described clusters as “localised 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” (Gareev, 2012, p. 8).

We can find analogical emphasis in the concept of *mesoeconomic plexus* by George Chorafakis and Patrice Laget (developed for the analysis of innovation clusters), which “includes territorially embedded formations, such as regional clusters, as well as territorially non-embedded, inter-firm networks” (Chorafakis, Laget, 2008, p. 52–53). Clusters were considered by them as “the mesoeconomic locus, where innovation and technological change

⁹ “Intermediate conceptions of market structures and industry clusters ... have often used ‘meso’ to describe the domain of that problem” (Dopfer, Foster, Potts, 2004, p. 269).

emerge, from a systemic point of view that accommodates out-of-equilibrium dynamics and incorporates evolutionary notions” (Ibid., p. 53). Thus, we can see that mesoeconomists, in their studies of clusters, rely more and more upon the theory of complex adaptive systems (CAS) and try to include various theories of industrial organisation and social networks in an epistemic context.

Further development of the mesoeconomics of network structures is associated with the consideration of platform markets as objects of the mesolevel (Elsner, Heinrich, 2009). In his work of 2018, Gareev compared platforms to clusters, revealing in clusters lower representation of institutional characteristics. He considers both clusters and platforms as the so-called two-factor models, where spatial and/or technological and/or institutional factors can be combined. Clusters in this case appear mostly as a combination of spatial and technological factors, while platform markets combine mostly 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 (Gareev, 2018, p. 32). Platforms are also an example of two-sided markets where heterogeneous agents¹⁰ interact (Rochet, Tirole, 2006). The digital factor of their development enables identification of patterns of interactions implemented by heterogeneous agents. These very interaction rules between different users (sellers and buyers, manufacturers, owners of physical objects and marketers) form the essence of digital platforms (Srniczek, 2019, p. 75), and the acceptability of the formulated rules for most agents is a condition for platform survival.

We suppose that it is possible to consider the study of platform markets as an intermediate link between the mesoeconomics of network structures and institutional mesoeconomics – the next direction of modern heterodox mesoeconomic studies. This example shows that the development of heterodox mesoeconomics was a continuous process, and in this process individual studies, depending on the angle of analysis, can be partially attributed to this or that direction of mesoeconomic studies. Accordingly, we consider our grouping of heterodox mesoeconomic studies not as a “cabinet with drawers”, each of which contains studies of the corresponding direction, but as an evolutionarily developing “population” structure with implicit transitions, which nevertheless lend themselves to analysis from the standpoint of systemic historical logic.

5. Institutional mesoeconomics

As we can see, the modern way of analysing network structures and platforms goes beyond the scope of consideration of “purely material objects” and more and more includes an analysis of the institutional factors. This understanding corresponds to a greater extent to the next important area of heterodox mesoeconomic research, which we define as “institutional mesoeconomics”¹¹.

We must note that attention to the study of institutions has always been a distinctive feature for heterodox mesoeconomists. Thus, the “founding fathers” of mesoeconomics both in Russia and Europe included institutions in their studies. Russian mesoeconomist G. Kleiner (whom we mentioned earlier) 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” (Kleiner, 2003, p. 16). Kurt Dopfer and his colleagues take a similar view when they define 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 (Dopfer, Potts, 2008, p. 102–103; Dopfer, 2012, p. 133). The mesolevel embraces not only the process of creation and functioning of the rules-institutions, but also the changes

¹⁰ In contrast to the homogeneous representative agents considered in orthodox economics.

¹¹ We distinguish institutional mesoeconomics from institutional research carried out within the framework of the orthodox economic mainstream (e.g. new institutional economics), which is based mainly on well-known microeconomic foundations, such as methodological individualism, rational maximising behaviour, equilibrium and price mechanism.

in the rules. The process of meso coordination “will itself tend to become institutionalised” (Dopfer, Foster, Potts, 2004, p. 277) being reinforced by constant repair and maintenance to support meso order in the economy, for example, through the embodiment of a rule in law (Ibid., p. 269). It is a way how the institutional order of interactions between agents is formed.

Institutional mesoeconomics is, perhaps, the most substantive area of mesoeconomic research being developed in European countries and Russia. Institutional mesoeconomics, which has as its object the study of the institutions and the rules of their formation, has spun off from (and at the same time continues to rely on) several theoretical traditions in economic theory (Dopfer, 2004). Among them are evolutionary economics, complexity economics, and new institutional economics. It should be noted that this division is very arbitrary, since many researchers, whom we will quote below and call institutional mesoeconomists, have simultaneously worked and continue to work, creatively developing not only one but more than one of these theoretical traditions. However, such a separation, nevertheless, is useful in order to show what exactly the institutional mesoeconomics took from each of these areas for its development.

Institutional mesoeconomists who “came” from evolutionary economics pay particular attention to how such rules are formed and changed in the course of economic evolution. “In the micro – meso – macro framework ... (C)hange is the defining property of meso (i.e. the origination of new rules and the dynamics of each rule population), and of network mechanisms and hybrid coordination mechanisms” (Dopfer, Foster, Potts, 2004, pp. 268–269). Dopfer explains the mechanism of the origination, establishment and dissemination of norms, for example, based on the Schumpeter’s innovation concept. This mechanism, in his opinion, is similar to “carrying out innovations” when the innovative solution developed by the micro-level agent - if it is effective - is borrowed by imitators, bringing it to the mesolevel, and thereby the solution for one entrepreneur generated at the micro-level becomes the norm for the whole economy and pushes the development of the whole system “from the inside” (Dopfer, 2012, p.144; Dopfer, 2006). The same processes take place with regard to institutional rules, so economic development is the result of the emergence, adaptation, diffusion and institutionalisation of rules, and this happens at the mesolevel of the economy (Dopfer, Foster, Potts, 2004).

In turn, those mesoeconomists who rely heavily on complexity economics pay special attention to the endogenous formation of mechanisms that coordinate the actions of agents of a complex economy in conditions of uncertainty and lack of information (Elsner, Heinrich, 2009; Elsner, 2010; Elsner, Schwardt, 2014). They understand economic development as an irreversible process of evolution with successive changes in the hierarchy of structures and mechanisms of increasing complexity. However, they also share the belief that usually changes take place in between the micro and macro levels, so they call them meso-phenomena (Arthur, 2013). Such mesoeconomists often draw attention to the fact that the necessary coordination of economic agents, the mechanisms of which are formed at the mesolevel, involves not only market but also redistributive (Zezza, Llambí, 2002; Dementiev, 2018) and cooperative (Elsner, 2001) mechanisms, which explains the need to study heterogeneous mesoeconomic structures that are “invisible” in mainstream economics.

Finally, for those who come to institutional mesoeconomics, realising the limitations of new institutional economics, the analysis of “mesoinstitutions” as a new category of mesoeconomics is of particular interest. Mesoinstitutions are characterised 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 (Ménard, 2014). In other words, mesoinstitutions form an intermediate link between the level at which general rules and rights are determined, and the level of organisational mechanisms (markets, firms, hybrids) through which economic transactions are actually

carried out (Ménard, 2018, p. 8). Mesoinstitutions, therefore, translate, implement, monitor and enforce the general rules, adapt them depending on the sector, region, etc. (Kunneke, Ménard, Groenewegen, 2010; Ménard, 2017; Kruglova, 2018; Shastitko, 2019).

Despite the differences between the approaches of institutional mesoeconomists, organically connected with each of the above theoretical traditions, they are united by general ideas about the need to develop a theoretical concept for understanding how the micro and macro levels of the economic system interact during its development. They try to answer a question how the rules that arise at the micro level - and needed for the development of the entire economic system, - are distributed and fixed in it, regulating the activities of all participants in economic life. These processes occur mainly at the mesolevel: the structures and methods of coordination that arise here, then become institutionalised, constituting rules of economic activity, types of mechanism that set “from above” the rules of activity for micro-agents and “start” and support “from below” the development of the entire economic system. Institutional mesoeconomists explore the logic of the formation of economic mechanisms that create patterns of economic life and the spread of change. Institutions make any economic order more flexible and, therefore, more durable, distributing its pillars over a “wider area”.

In our opinion, in modern heterodox institutional mesoeconomics (at a new stage in the development of economic theory) there is a return (in a spiral) to the traditions of political economy, as Brian Arthur wrote about in relation to heterodox economic theory as a whole: it takes into account that the economic world is organic, evolutionary, and historically contingent (Arthur, 2013).

Even more expressively, the traditions of classical political economy manifest themselves in the next newest direction of heterodox mesoeconomics, which we called “the mesoeconomics of reproduction”.

6. The mesoeconomics of reproduction

Returning to the chronology of the inherent development of heterodox mesoeconomics, we can see the following logic. At first, the main attention was paid to identifying mesoeconomic structures in the economic space. The formation of mesoeconomics of localised structures corresponded to this stage. At the next step, when clusters began to appear and the complications of both the mesoeconomic structures and the relationships between them was becoming more and more evident, we see a gradual separation of mesoeconomics of network structures, where non-linear, evolutionary and complexity economics approaches became more and more important. Further, mesoeconomists began to pay more attention to the study of the rules and mechanisms of forming links within mesoeconomic structures and to consider these structures themselves as mechanisms of economic development: this stage corresponds to the development of the next direction of mesoeconomic studies – institutional mesoeconomics. It recreates the traditional ideas of political economy about the subject of economic theory in all its social conditionality and complexity. In this regard, the next step seems logical when the time comes for mesoeconomists to look inside the processes of economic reproduction, which were the main object of analysis in the classical, including Marxian, political economy and almost forgotten in mainstream economics. We are talking about a new and little-known direction of heterodox mesoeconomics – “the mesoeconomics of reproduction”.

This direction, in contrast to those described in sections 3 to 5, has no international character and is being developed by a group of Moscow economists of the Russian Academy of Sciences. It has a number of features. First, continuing the traditions of Soviet science¹², this trend is methodologically related to the classical theory of capital reproduction of Karl Marx

¹² One of the consequences of *perestroika* (started by Soviet leader Mikhail Gorbachev in the 1980s) and the subsequent dissolution of the Soviet Union was a revision of Soviet economic science, which had been based largely on the ideas of Karl Marx. As often happens, “the baby was thrown out with the bath water”, and in *post-perestroika* Russia, Marxist traditions were almost everywhere replaced by neoclassical mainstream economics. One of the few centres that retained a Marxian economic school was the Institute of Economics of the Russian Academy of Sciences, where the main representatives of the mesoeconomics of reproduction work.

and creatively develops it. The consequence of this is the second feature of this direction of heterodox mesoeconomics, namely, the attention to the money circuits within the economy itself¹³. These money circuits are similar to the Marxian circuits of the metamorphoses of capital¹⁴. At the same time, the “institutional envelope” of money circuits (for more details, see: Kirdina-Chandler, 2020) and the role of money power (Arestis, Sawyer, 2006) are important, which gives us grounds to consider the mesoeconomics of reproduction as a direction logically following institutional mesoeconomics.

Research in the mesoeconomics of reproduction began in the 2010s. It started with the development of a new theory of capital reproduction, considering the principle of a shifting mode of economic reproduction (Maevsky, 2010). The salient feature of the theory is an emphasis on the analysis of coordination mechanisms of real economic processes and the consideration of material and technological factors. However, unlike Francois Quesnay, Karl Marx and their followers, who built their idea of economic reproduction by analogy with reproduction in agriculture, the new approach relies on the phenomenon of “the shifting mode of capital reproduction”, which is inherent in industries and is distinguished primarily at the mesolevel.

The mesolevel in this theory is presented as a set of interconnected production structures (mesostructures), each of which is able to produce goods of two types: capital goods and consumer goods. Taken together, these production structures form the economy as a whole, and each of these production structures differ from each other in age of fixed capital used. From this point of view we can talk about “younger” and “older” production structures. The need for periodic replacement or renewal of the fixed capital of each of the production structures is the material basis of the shifting modes occurring at the mesolevel and provides the process for the reproduction of the complete economy. Researchers identify at least two types of shifting modes, one of which (temporal) manifests itself only in the non-financial sector, and the second (monetary) – in both the financial and non-financial sectors.

The first, the *temporal shifting* mode, means that the production structures of the mesolevel renew their fixed capital in turn, that is, in a certain time sequence – first the oldest structure, then the younger one, and so on to the youngest one. This process, during which mesostructures shift from the production of capital goods (for renewal of their fixed capital) to the production process of consumer goods (for sale on the market), is constantly repeated.

The second, the *monetary shifting mode*, manifests itself in the framework of the mesoeconomic money circuits serving the interaction of production structures of different ages. The mesoeconomic money circuit includes two “local” circuits: the circuit of the “short-term” (fast) money that serves the movement of consumer goods, and the circuit of the “long-term” (slow) money that is used for investment (capital goods). In a mesoeconomic money circuit the metamorphoses of the “short-term” money into “long-term” money take place continuously and vice versa (Maevsky, Malkov, Rubinstein, 2016, p. 41). These shifts of money from one function to another within the money circuits serving the process of economic reproduction are connected with the fact that mesostructures of different ages at different times shift their production from renewal of fixed capital to the process of producing goods.

To date, several versions of the original mathematical models based on the concept of the shifting mode of capital reproduction have been proposed and tested as part of the mesoeconomics of reproduction (Maevsky, Malkov, 2014; Maevsky, Andryushin, Malkov, 2016a, 2018, 2019)¹⁵. A distinctive feature of these models is that they succeeded in linking commodity and cash flows, on the one hand, and investment with consumption, on the other hand. Thus, in these heterodox mesoeconomic models, it is possible to overcome the

¹³ The idea of money circulation mechanisms as the most important subject of mesoeconomic research was first outlined in the works of Victor Dementiev (2002; 2015) and Vladimir Maevsky (2018).

¹⁴ The metamorphoses of capital and its circuits mean the transformations of money-capital into productive capital, productive capital into commodity-capital and commodity-capital again into money-capital (Marx K. Capital. Vol. 2. Part 1).

¹⁵ The significance of the theory of the shifting mode of capital reproduction, and of the original mathematical models developed within its framework, has already been noted in Russian economic literature (Kleiner, 2014; Glazyev, 2016, 2016a; Dementiev, 2015, 2016; Kirilyuk, 2016; Kleiner, Rybachuk, 2017, p. 320; Ershov, Tanasova, 2019).

methodological difficulties of the neoclassical approach to modeling the economy associated with the inconsistency of money with other business processes¹⁶ and the exclusion of the sphere of money circulation from the movement of the flows of goods, including capital ones. The approach of the mesoeconomics of reproduction also opens up the possibility of a qualitative analysis of the essence of money, the ability to identify its difference from ordinary goods and to show the true role of money in the processes of economic reproduction.

Based on these developed mesoeconomic models, some interesting calculations have already been made. They demonstrated not only the ability of models to imitate real economic processes, but also give rise to non-trivial theoretical results. One of the latter is the verification of the well-known hypothesis of the neutrality/non-neutrality of money. The calculations based on the mesoeconomic model showed that, in contrast to orthodox macroeconomic theory, where the neutrality of money in the long run has essentially been a given axiom for many years (Blaug 1985, p. 633), the mesoeconomic heterodox approach reveals a different reaction of the economy to the growth of money issue (for more details see Appendix). Calculations showed that the phenomenon of neutrality of money in the long run is a special case, but not a general rule. On the contrary, the general rule can be considered as the phenomenon of non-neutrality of money in the long run (Maevsky, Malkov, Rubinstein, 2019).

* * *

We conclude our review of the four constituent directions of heterodox mesoeconomic studies with a final table “Grouping of heterodox mesoeconomics”, which summarises the analysis of all the above-mentioned works. Clarification of the contents of this table 1 we consider to be the task of our further research.

Table 1

Grouping of heterodox mesoeconomics

Directions of heterodox mesoeconomics	The main objects of consideration	The main subjects of research	The main theoretical bases and instruments	Research began
Mesoeconomics of localised structures	Trans-national corporations and natural monopolies, regions, industries, sectors	Specific characteristics of localised structures (certain growth patterns, specific technological regimes, capital accumulation, etc.) and their role as driving forces in the economy	Prevalence of standard economic methods to studies of particular localised structures (like input-output model, diverse simulation models, optimization models, decision analysis, etc)	Mid1970s
Mesoeconomics of network structures	Clusters and platforms	Network mechanisms and hybrid coordination mechanisms producing synergetic effects	Complex adaptive systems theory, network analysis, etc	Late1990s
Institutional mesoeconomics	Institutions and rules	Forming, change and adaptation of new rules as coordination mechanisms	Evolutionary economics, institutional (neo and original) theories, complexity economics, evolutionary game theory, etc	Early 2000s
The mesoeconomics of reproduction	Process of economic reproduction	Dynamic coordination mechanisms, institutionalised money circuits	Marxian political economy, models based on the shifting mode of capital reproduction theory	2010

¹⁶ In orthodox equilibrium models, this gives rise to a series of logical contradictions that cannot be eliminated without transforming the model itself (Usoskin, 1990, p. 36).

7. Conclusion

As has often happened in the history of science, powerful conceptual innovation over time has transformed into a conventionally supported heuristic, and then into a methodological “trap”, which increasingly becomes a systemic limitation of further scientific progress (Frolov, 2013, p. 123). Such a trap today can be considered the well-established dichotomy of micro-macro in economic theory, which does not allow one to study the increasingly complex relationships in the modern economy and the emerging new structures, the designation of which required its “own theoretical space – meso” (Chen, 2008, p. 121). Gradually, outside the orthodox mainstream, a new area of economic theory began to form in heterodox economics, devoted to the comprehension and analysis of these new phenomena. We call it heterodox mesoeconomics.

In this paper, we tried to identify the logic of the development of mesoeconomics as a new area of heterodox economic theory. We also proposed a grouping of heterodox mesoeconomic studies, which is based on a historical-chronological approach and takes into account the specifics of the mesoobjects studied in Russia and abroad. The grouping includes the following directions: “mesoeconomics of localised structures”, “mesoeconomics of network structures”, “institutional mesoeconomics”, and “mesoeconomics of reproduction”. We have shown that this grouping reflects both the gradually increasing complexity of the real economy in itself, and a deeper penetration of mesoeconomists into the essential processes of economic development – the identification of more complex spatial, functional and temporal economic structures.

Indeed, at first it was predominantly an analysis of structures in an expanding dimension of economic space, and the formation of – “mesoeconomics of localised structures” corresponded to this stage. Further complexity of the economy and the formation of network structures led to the development of the corresponding direction – “mesoeconomics of network structures”. Further, mesoeconomists began to pay more attention to the study of the mechanisms of formation of ties within mesoeconomic structures and to consider these structures themselves as rules and mechanisms of economic development, which led to the formation of “institutional mesoeconomics”. Following this the objects of research are the processes of social and economic reproduction in the unity of their material and monetary dimensions, and this was reflected in the formation of “the mesoeconomics of reproduction” – the latest direction of heterodox mesoeconomic theory.

Heterodox mesoeconomics is characterised by the rejection of “simplified” microeconomic foundations¹⁷, relying on mesoeconomic foundations instead. Among them we distinguish: 1) recognition of the systemic nature of the economy; 2) the primacy of the role of structural and institutional design of economic processes, which means relying on the principle of methodological institutionalism (Kirdina, 2015) instead of on the principle of methodological individualism that dominates in neoclassical micro- and macroeconomics; 3) consideration of the nonlinear nature of economic processes, expressed in the complexity of the economy, and the presence of positive and negative feedbacks - it is this nonlinearity that determines the need for the formation of stable mesoeconomic structures to restrain economic chaos. We believe that further development of heterodox economics – including heterodox mesoeconomics, – can lead to a change in the economic paradigm that will be more consistent with the real complexity of the modern world, and we will see the “revival of the mesoeconomics challenging the bipolar world of micro- and macroeconomics” predicted almost 40 years ago (Hahn, 1983, p. 3).

¹⁷ Microfoundations are wrong not only because they failed to incorporate key aspects of economic behaviour, e.g. incorporating insights from information economics and behavioural economics, into DSGE models that have come to dominate macroeconomics during the past quarter-century (Stiglitz, 2017), but they are also insufficient to identify the existing stable mesostructures identified above that shape and determine economic development.

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**A different reaction of the economy to the growth of money issue
(the results of the model calculations)**

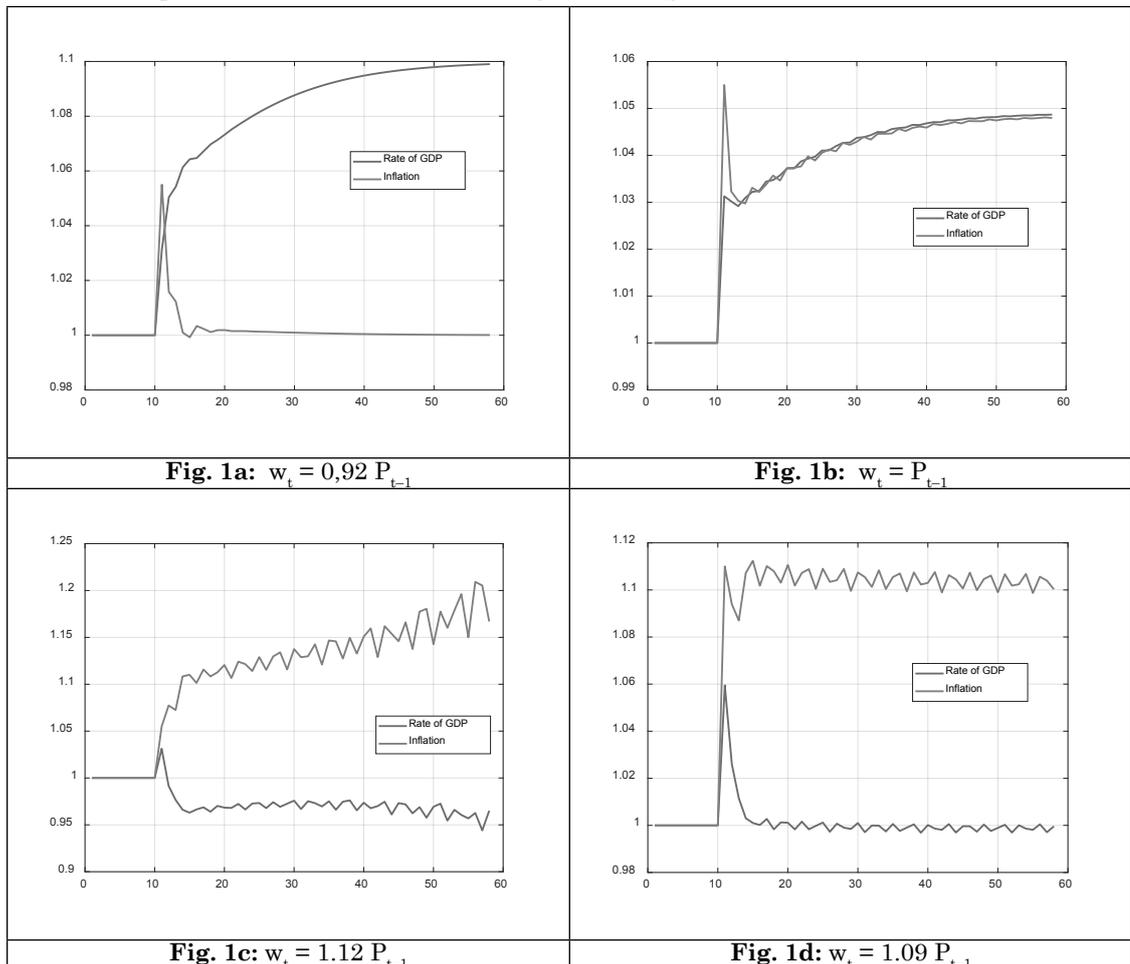
The calculations were carried out on the basis of one of a series of mesoeconomic heterodox models, namely the shifting mode of reproduction models. The results of calculations for various scenarios are shown in Figures 1a-1d below.

Assumptions for some of the conditions for calculations and designations in the figures are listed below:

The annual growth rate of money issue in the long term is constant and is equal to 10% per year; w_t is the coefficient of wage indexation in year t , which varies depending on the scenarios of the calculations; P_{t-1} is the deflator in year $t-1$.

Calculations for various scenarios show that the ratio of GDP growth to inflation depends on the value of the coefficient w_t . If $w_t = 0,92 P_{t-1}$, then money issue generates economic growth without inflation (Fig. 1a). If $w_t = P_{t-1}$, then money issue generates economic growth equal to inflation (Fig. 1b). In the case where $w_t > P_{t-1}$, money issue leads to an increase in inflation against the background of a decline (Fig. 1c). Thus, the three scenarios show a different reaction of the economy to the same volumes of money issue growth, which obviously indicates the non-neutrality of money in the long run.

At the same time, one can see that money is neutral in the long run at certain especially established values: in the model calculations, this value was $w_t = 1.09 * P_{t-1}$. Only under these conditions (Fig. 1d) does money issue generate inflation without economic growth, which corresponds to the condition of money neutrality.



Source: (Maevsky et al., 2019, p. 51).