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Is *Homo Economicus* Performative? Evidence From a Beauty Contest Experiment With Mainstream and Non-Mainstream Academic Economists

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ABSTRACT

Does studying mainstream microeconomics cause individuals to behave more like the textbook version of *homo economicus*? Most studies suggesting a positive answer have used student samples and focused on self-interested behaviors in collective dilemma situations. In our study, we conducted an online “beauty contest” experiment with a sample of 1019 academic economists in Russia. The Russian case is of particular interest in this context, as the country’s economic discipline is markedly divided between those who associate themselves with “Western” science—typically having received standard training in mainstream economics—and those who reject it in favor of a native intellectual tradition. The latter group usually openly denies the universal applicability of theories that describe economic life as an interaction between rational, self-interested agents. We leverage this division by examining variations in beauty contest game strategies within the group of academic economists rather than across disciplines, thereby reducing unobserved heterogeneity. We analyze whether those who embrace the international economic mainstream make choices closer to equilibrium compared to those who reject it and specifically describe *homo economicus* as an inadequate model of human behavior. The results show no statistical association: Economists who rely on theories assuming common knowledge of rationality did not expect more rational behavior from their colleagues.

JEL Classification: A11, A29

1 | Introduction

Does academic economics produce its own subjects—opportunistic and calculating *homines economici*? A sizable body of literature seeks to demonstrate that training in mainstream economics correlates with less cooperative behavior in collective dilemma situations (usually dictator or ultimatum games), making individuals behave closer to what game theory defines as equilibrium and what common sense regards as selfishness (Frank et al. 1993; Miller 1999; Hellmich 2019).

This discussion may be seen as a continuation of the debate on performativity in sociology and science and technology studies, which began with Callon’s influential statement (Callon 1998). As is usually the case with social-scientific concepts, “performativity” is used in a variety of meanings, all implying, however, that there is a feedback loop between economists’ descriptions of economic realities and the realities thus being described (MacKenzie et al. 2020; Boldyrev and Svetlova 2016; Gond et al. 2016). In its radical form, performativity suggests that market economies would function in

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a totally different way—and much less like their descriptions by academic economists—had these economists not been involved in economic decision-making and the training of other decision-makers (MacKenzie 2006, 30). One needs economists for modern economies to function according to economics textbooks, these textbooks serving as blueprints rather than descriptions. Put another way, economists are market-makers rather than market-takers.

The idea of performativity could be thought of as a specification of one of the central ideas in 20th-century sociology, known as “the Thomas theorem”: that definitions of a situation, if believed to be real, are real in their consequences (Thomas and Thomas 1928, 572). As science is one of the major sources of modern ideas about what is real, social-scientific theories are always suspect as an independent force in the production of the realities they describe. Among classical works putting forward this position forcefully, Polanyi’s *The Great Transformation* may be cited (Polanyi 1944). Polanyi argued that the idea of self-regulating markets preceded the emergence of the modern market economy; the idea served as a blueprint for various reforms aimed at engineering conditions that would make the assumptions of classical economic theory true. Thus, to Polanyi’s disapproval, liberal reformers intentionally destroyed all forms of rootedness and attachment that could prevent human beings from acting as a mobile workforce following the laws of supply and demand.

This paper makes a dual contribution to the debate on whether *homo economicus* is a performative concept. First, it extends it by focusing on an additional characteristic of *homo economicus* that neither dictator nor ultimatum games fully capture. In addition to being selfish (and expecting others to be so as well), *homo economicus* is, presumably, rational, believes that others are rational and believes that others believe the same—*ad infinitum* (the common knowledge of rationality presupposition—Gintis 2009, 114–115). In this paper, we analyze whether belief in economic theories presuming common knowledge of rationality correlates with the expectation that others will behave rationally in practical situations. Do economists who, in their professional roles, espouse belief in the rationality of others behave according to these beliefs in their own daily lives? In other words, we study whether academic economists are willing to bet money on others behaving in accordance with the theories they preach.

The second contribution of this paper is to fill a gap left by earlier studies. Most previous research on the effects of economics training on human behavior has compared economists with non-economists—for example, undergraduate students majoring in different disciplines. This approach is likely affected by unobserved heterogeneity: Differences between economists and non-economists may stem not only from the concepts of human nature used in their disciplines but also from other characteristics (e.g., empirical knowledge of economic life and general interests). One way to reduce the impact of this heterogeneity is to focus on variation within the economics profession, comparing groups that differ in their training and theoretical beliefs.

For this, we would need a community of academic economists that includes both mainstream and non-mainstream

researchers. However, economics, unlike other social science disciplines, provides little heterogeneity in most national contexts. Although a group of so-called heterodox economists exists (Lawson 2006), it is relatively small in most countries and entirely absent at many universities. Here, Russia offers a unique opportunity. Over the last three decades before the full-scale invasion of Ukraine, Russian economic scholarship became increasingly globalized (Ofer 2007); however, this process was far from uniform. In addition to Western-trained economists, a significant part of Russian academia does not share the ideas of mainstream economics and explicitly rejects the concept of *homo economicus* as a model of human behavior.

Thus, we use a survey experiment with a large group of Russian academic economists who are divided in their opinions of mainstream Western economics and, more specifically, hold different views on whether *homo economicus* offers an adequate model of human behavior. We invited them to participate in a “beauty contest” experiment (Nagel 1995), directly comparing their expectations about others’ rationality. In a nutshell, we find no difference in behavior between those who embrace mainstream economics and those explicitly critical of it. The fact that economists endorse the idea of *homo economicus* in their classes does not make them more likely to assume that the individuals they interact with are rational. We discuss possible reasons for this negative result, both those specific to Russia and more general ones.

This paper proceeds as follows. First, we discuss studies on the attitudinal performativity of economics and position our research within this field. Second, we briefly review the “beauty contest” literature. Third, we provide an overview of the field of economics in Russia and argue that it allows for studying how economists’ beliefs correlate with their behavior. We then introduce the data and methods, followed by the presentation of results. The discussion section concludes.

2 | Do Economics Students Learn to Be Selfish?

An early paper by Marwell and Ames (1981, 306–307) was reportedly the first to notice the tendency of economics graduate students to play less cooperatively than other student groups in public goods games. This phenomenon became the focus of an influential paper by Frank et al. (1993), who asked whether studying game theory could foster self-interested behavior. They also addressed the methodological challenge that studies on this topic inevitably face: Educational indoctrination is a lengthy and time-consuming process that is difficult to reproduce in laboratory conditions except in the most superficial forms. At the same time, given the prevailing philosophy of modern education, it is highly unlikely that course selections are made on behalf of individuals without considering their preferences and interests. This means that identifying natural-experimental conditions in which individuals are randomly assigned to experimental or control groups is improbable, thus raising the problem of causality. On the one hand, more selfish and greedier individuals might be attracted to studying economics because its individualistic and calculative portrayal of human beings aligns with their views of self and

others. On the other hand, such views could be inculcated in economics students even if they initially lacked a predisposition toward them. This ambiguity later became known as the “selection” versus “indoctrination” problem, and much of the literature on the selfishness of economists has attempted to resolve it (see Hellmich 2019; Miragaya-Casillas et al. 2023 for reviews). Moreover, with randomization being impossible, there is no way to reject the hypothesis that the correlation between behavior in experimental situations and studying economics is spurious, with both being influenced by a third variable.

Frank, Gilovich, and Regan sought to address the “selection” versus “indoctrination” dilemma by measuring the cooperativeness of economics students before and after some of them took a course in game theory and others studied the economic history of China. Whereas the pre-course measurements differed only insignificantly, the post-course results demonstrated a marked gap. However, this solution could be criticized on the basis that groups with different predispositions may primarily differ in the speed at which they learn equilibrium behavior. Frank and Gilovich addressed one more potential criticism of their findings by seeking to demonstrate that acquired patterns persist throughout life. As evidence, they cited the results of a survey demonstrating that academic economists are allegedly more reluctant to donate to charities compared with teachers in other disciplines.

Since then, a significant amount of work has been done to extend and validate early empirical results. A recent review of research contributing to solving the “selection” versus “indoctrination” problem (Miragaya-Casillas et al. 2023) identified 44 papers addressing the issue. Most of these studies relied on experiments, although some used self-reported attitudes (Wang et al. 2011), whereas others collected behavioral data, such as participation in on-campus charities (Bauman and Rose 2011; Frey and Meier 2003, 2005). The major approaches to distinguishing indoctrination from selection effects were either cross-sectional comparisons, examining the performance of students studying economics for different numbers of years, or manipulating laboratory conditions. The latter, understandably, allowed only an extremely stylized form of indoctrination and measured only short-term effects (Ifcher and Zarghamee 2018). The only study using panel data so far appears to be Bauman and Rose (2011).

The results from these studies were highly inconsistent (Hellmich 2019). Many, but not all, found that economics students were more selfish than others, although studies varied significantly—and somewhat uncontrollably—in terms of who was chosen as the “others” group (Carter and Irons 1991; Gerlach 2017). In some cases, however, no effects were found (Yezer et al. 1996; Hummel et al. 2018; Girardi et al. 2024), or, conversely, economics students showed a greater tendency toward cooperation (Hu and Liu 2003). The variability of results suggests that the behavior being studied is highly sensitive to minor aspects of the experimental situation, although these variations were never systematized. Overall, the majority of studies that found effects typically favored selection over indoctrination (Frank and Schulze 2000; Bauman and Rose 2011; Miragaya-Casillas et al. 2023).

The vast majority of studies focused on small samples of students, with only a few after Frank et al. (1993) examining “adult” economists. The results of studies on this latter group, however, were equally ambiguous. For example, economists demonstrated much more integrity in paying association fees than presumably more civic-minded sociologists (it needs to be noted though, that, counterintuitively, the American Economic Association charged much lower fees at the moment than the American Sociological Association) (Laband and Beil 1999).

Another conceptual ambiguity unresolved in the literature relates to the primary source of fostering selfishness: Whereas Frank et al. (1993) specifically pointed to game theory, others pointed to microeconomics more broadly, and still others to mainstream economics in general, including unlikely candidates such as institutional economics (Wang et al. 2011, 645). The reason this uncertainty is often tolerated is probably that much of the effort in economics since the mid-20th century—aimed at grounding macroeconomics in microeconomics, and microeconomics in game theory with its individualistic premises—has been successful. As a result, the economic mainstream is widely regarded as a coherent intellectual whole, extending from anthropological presuppositions to macroeconomic applications (as we will see later, this is how it was perceived by the Russian academics in this study).

In spite of the inconclusiveness of the evidence, Miller (1999), in an impactful paper, used it to analyze the potential wider effects on society of the “norm of self-interest” transmitted through economics courses. This norm presumably leads people to view egoistic behavior as the default and altruism as an anomaly. As a result, individuals who internalize this norm are inclined to expect egoism from others, and even if they are genuinely altruistically motivated, they may avoid displaying altruistic behaviors for fear of being misunderstood. Miller drew on classical situationist social psychology (Ross and Nisbett 2011), which argues that, although spontaneous human behavior is inconsistent and reactive to situational cues, and individuals have little self-insight into their own cognitive processes, their perceptions of these processes can be consistent, though often inaccurate. But, accurate or not, it can be real in its consequences. Thus, ascribing motives to oneself and others can be performative, influencing individuals to behave as if those motives were true (Ferraro et al. 2005).

A notable feature of most studies is that they focus exclusively on one trait associated with *homo economicus*—their presumed immorality. Little attention has been given to whether training in mainstream economics makes individuals more prone to the “cool analytic approach to interpersonal behavior” associated with this model (Wang et al. 2011, 645), or more likely to expect it from others. The preferred experimental models—dictator or ultimatum games—measure individuals’ commitment to fairness in interpersonal relations and their expectation that others will be eager to punish unfair behavior even at the cost of reducing their own payoffs (ultimatum). However, these models do not capture the calculating approach to social relations expected from *homo economicus*. This paper contributes to filling this gap by using another experimental model that measures expectations of others’ rationality, rather than their selfishness or morality.

3 | “Beauty Contest Games” and Level-K Models

In its canonical form, the “beauty contest game” experiment proceeds as follows (Nagel 1995; Mauersberger and Nagel 2018). Subjects are asked to choose a number between 0 (or 1) and 100. The winning number is the one closest to $2/3$ of the mean of the numbers chosen by the participants. In the case of a tie, the prize is split equally. Nagel’s beauty contest experiments allow for estimating the number of “I think that they think that they think” iterations or measuring the depth of level-k reasoning (also known as mentalizing in psychological literature) (Arad and Rubinstein 2012). The equilibrium-based expectation is that all players, adhering to the common knowledge of rationality, would ultimately choose the lowest possible number, resulting in an equal split of the prize. Empirically, Nagel and those who followed in her footsteps discovered that answer distributions typically show distinct peaks around the values of 33, 22, and a smaller one around 15, with relatively few participants choosing 0 or 1. The likely interpretation is that many players perceive the distribution of answers from naïve, or Level 0, players as a random distribution of numbers with a mean of 50. Level 1 players then choose the best response to what they expect Level 0 players to do, selecting $2/3$ of this average (33). Level 2 players respond to Level 1 players (22), and Level 3 players respond to level-2 players (15), and so on. The lower the number, the greater the “depth of reasoning” expected from others.

Further studies focused on two themes already present in Nagel’s pioneering work. First, they attempted to catalog the empirical types of players and provided various measures for estimating their distribution in the population. Overall, it seems that all studies established a significant presence of “pure” (or “degenerate”; Bosch-Domenech et al. 2002) Level 1, Level 2, and, with somewhat less certainty, Level 3 types in all studied populations. Almost 50% of the numbers chosen in Nagel’s original study were within the neighborhood of either iteration step 1 or 2 (Nagel 1995, 1318). There is much more ambiguity concerning the presence and significance of what Stahl and Wilson (1995) called “worldly types”—those who know they are facing a diverse group of opponents representing various levels of iterated reasoning. The second major theme was the nature of learning in “beauty contest” experiments, which documented a gradual convergence to equilibrium among repeatedly interacting players, measurable by a decrease in averages and, consequently, in winning numbers. The major empirical outcome here is that, whereas players orient themselves to a moving target and expect others to do the same, the observed levels of iterated reasoning seem to decrease over the course of repeated interactions, with players engaging in the most levels of iterated reasoning during the first trial (Ho et al. 1998).

Numbers chosen in beauty contest dilemmas have been used as an independent variable measuring strategic intelligence (Loewen et al. 2015), as well as a dependent variable measuring situationally induced predispositions to mentalizing, such as increased stakes (Ho et al. 1998) or exposure to conspiracy theories (Balafoutas et al. 2021). It was observed that level-k reasoning varies significantly between different samples. Summarizing early experiments with students, Camerer (1997, 180) notes that the means of numbers chosen varied from 21.88 (Caltech

undergraduates) to 46.07 (Singapore undergraduates). One factor responsible for these differences is the participants’ college major. In a recent study (Alaoui et al. 2020), STEM students strongly outperformed those from the humanities. The authors interpreted this as a sign that choosing STEM majors is “long-lasting, persistent, and salient indicator of the subjects’ cognitive sophistication” (8). Similarly, specialized training seems to play a role: Whereas undergraduate students rarely choose the equilibrium value of zero, more than 20% of game theorists did so in one sample (Camerer 2003). Academic economists (particularly those trained in game theory), financial specialists, and scientists generally demonstrate higher levels of iterated reasoning and progress to equilibrium faster than others (Ho et al. 1998). Finally, age appears to play a role: A distinguished group such as the Caltech board of trustees, including prominent scholars and CEOs, produced a mean of 42.62 (median of 40), much higher than the average for US undergraduates, who had a mean of 32.45 (median of 28). However, given the small sizes of the samples in experimental conditions or the unknown nature of the samples in newspaper experiments, the available evidence seems insufficient to draw reliable conclusions about a wide scale of the attributes influencing mentalizing processes.

Beauty contest experiments evaluate a behavior strongly associated with *homo economicus*, but previously not analyzed: the ability to best respond to others’ reactions and the belief that others are best responding as well. Indeed, the readiness to follow such iterations *ad infinitum* is part of most equilibrium solutions and, thus, an essential element of mainstream economics (Crawford et al. 2013). Importantly, beauty contest experiments lack the moralistic overtones present in studies involving ultimatum or dictator games and avoid the grave irony of prisoner’s dilemma-type games, where iterated reasoning decreases collective outcomes. This removes a potential source of inconsistency in the results of previous studies. Indeed, it could be argued that there is ambiguity in the lessons economics students derive from studying collective dilemmas. After all, economists are likely aware that self-interested behavior in prisoner’s dilemmas leads to maximum collective punishment, and they may expect other economists to take this grim prospect into consideration as well. This awareness could, under certain conditions, deter them from equilibrium behavior. In contrast, beauty contest games involve competition in which equilibrium behavior does not decrease collective outcomes and is not associated with unfairness or treachery. In this way, they allow for measuring belief in others’ rationality without the interference of additional factors.

In our paper, we therefore focus on how mainstream economics training affects level-k reasoning. To investigate this topic, as mentioned above, we look at the case of Russia, where internal heterogeneity of the community of economists allows us to test the effect of the within-discipline variation rather than compare behavior across different disciplines and fields.

4 | Empirical Case: Russian Economists

Economics was a widespread academic specialty in the USSR, with training provided by dozens of universities and research conducted by several Academy of Sciences institutes. Soviet economists would not be surprised to learn that economics can be

performative. In fact, the performativity of Soviet economic science was an official doctrine, holding that, in contrast to capitalist economies governed by the capricious laws of supply and demand, Soviet society developed according to a plan designed by social scientists. At the top of the pyramid of Soviet economics stood mathematical economists (who were tasked with developing plans for the national economy and devising mechanisms for their implementation) (e.g., setting prices) and Marxist political economists who provided overall ideological direction. The mass economic specialties—accountants and planning economists (*planovye ekonomisty*)—were regarded as street-level bureaucrats responsible for implementing country-wide plans at the level of individual enterprises. Most of these economists had little to no contact with Western economics; Russian economic thought developed in isolation from the West and under significant political pressure from the Communist Party (Alexeev et al. 1992). In addition to these groups of economic professionals, there was a smaller group of specialists focused on the economies of capitalist countries and on “bourgeois economic doctrines.” These specialists provided expertise on economic developments in the West and criticized the alleged intellectual shortcomings of Western economics. They were thus the only people with at least a general understanding of how capitalist institutions worked.¹ It is no surprise that it was within this group that secret admirers of the West were concentrated by the onset of Perestroika, and it was from this group that some radical economic reformers, as well as some oligarchs of the 1990s, were recruited.

The radical economic reforms of the 1990s and the drastic decline in living standards that accompanied them strongly polarized the economics discipline. The majority of former Soviet economists were critical of these reforms and generally leaned toward the ideal of an autarchic and state-directed economy (Zweynert and Boldyrev 2017). Although they were required to teach what had previously been defined as “bourgeois doctrines,” they blamed Western economics and economists for what they saw as a national economic catastrophe. Understandably, they sought intellectual alternatives, including reformed versions of Soviet political economy and various theories emphasizing the role of cultural and historical factors in the functioning of economies. They were also eager to embrace any explanation of why neither Western economic theories nor Western policy solutions were applicable to Russia (Zaostrovtshev 2016). This group was opposed by another group that embraced the global economic mainstream, was pro-market in its economic views, and was strongly liberal in its political leanings. Ultimately, it led to the fragmentation of the Russian economic community (Safonova and Sokolov 2024). Whereas some Russian economists saw themselves as part of the global mainstream (and some of them effectively integrated into it, producing a flow of high-profile publications), others rejected it and its key elements, including the ideas of utility maximization, game-theoretical methods, and *homo economicus* (Zweynert and Boldyrev 2017; Libman and Zweynert 2014). In economics, as in other social sciences (Safonova 2012; Sokolov 2012), the two groups tended to form isolated social worlds located at different institutions, with little interpersonal contact between their members.

The character of this multifaceted polarization is reflected in what we refer to as the Anti-mainstream Scale (Table 1; see also Appendix S3), which emerged from our survey of economists

(see below). The scale, presented with factor loadings on the first component of a principal component analysis that explains 29.1% of the variance, combines beliefs in the uniqueness of Russian society, the irrelevance of Western theories for understanding it, animosity toward the West, and skepticism about the merits of the market economy and English-language scholarship, clearly showing that the Russian academic profession is structured by a broad mainstream–anti-mainstream divide.

Russian economists provide a unique opportunity for studying the effects of intellectual allegiances on real-life behavior. In contrast to many other national economic communities, there is a sizable (even numerically dominant) population of economists who reject mainstream economics, and specifically, *homo economicus* as a model of human behavior. A direct question was posed to our sample of economists, asking them to agree or disagree with the statement: “The selfish and rational *Homo Economicus* presents a distorted picture of human nature and is mostly useless for explaining behavior in the real world.” Of the respondents, 39.5% agreed or mostly agreed, whereas 29.1% disagreed or mostly disagreed, and 31.4% were undecided. This statement correlated significantly with the Anti-mainstream Scale ($\rho = 0.292^{***}$), suggesting that *homo economicus* is indeed regarded as an essential element of Western-style economics.

Do people who believe that *homo economicus* is an adequate theoretical description of reality expect others to behave accordingly in practical situations? Asking “adult” economists, who have had the most opportunities to internalize theoretical dogmas, provides possibly the least stringent test of the performativity thesis; if it fails with them, it likely fails with everyone else. Although their behavior aligning with equilibrium models would be difficult to attribute to either indoctrination or selection effects, discovering that members of the opposing camps perform the same number of steps of iterated reasoning would lead us to conclude that *neither* indoctrination *nor* selection has a decisive effect.

Notably, in addition to the direct ways in which embracing Western microeconomics can influence one’s beauty contest strategy, there are also indirect ways. Most obviously, Westernized economists are more likely to be familiar with beauty contest literature. The Anti-mainstream Scale correlated with responses to a question asking economists to estimate what share of their reading is in English, at a level of -0.228 . This effect, however, points in the same direction as the previous one. Thus, the same logic applies—if the study fails to find a difference, we can conclude that the influence of all factors is unimportant.

5 | Data and Methods

The empirical basis of our analysis is a large-scale survey of Russian academic economists conducted in autumn 2021 (i.e., right before the invasion of Ukraine, meaning that the tectonic shifts associated with it did not affect our results). The data were gathered as part of a research project aimed at analyzing the degree of convergence between bibliometric measures and the results of disciplinary reputation surveys in the social sciences. In addition to gathering data for reputation rankings, survey participants were invited to provide

TABLE 1 | The Anti-mainstream Scale ($N=882$).

Statements	Factor loading
Theories created by Western economists do not explain much in Russian life; we should work with native theoretical models	0.654
Many achievements of Soviet political economy have been undeservedly forgotten	0.647
The complete rejection of planned economy and the forced transition to a market economy were mistakes	0.632
Economic sanctions against Russia are a form of unfair competition by Western countries, aiming to hinder our country's economic development	0.606
When conducting research, economists should primarily think about the interests of their own country and state	0.601
In the humanities and social sciences, priority in evaluating research productivity should be given to publications in Russian	0.587
Russian economists should strive to preserve and develop the national tradition in economic science	0.586
Certain restrictions on cross-border capital movement are necessary to ensure economic stability	0.529
For cultural and historical reasons, there are more differences than similarities in how the economies of different countries are organized. Therefore, economic policy prescriptions developed for one country are often not applicable in others	0.519
Privatization of state enterprises usually increases their efficiency	-0.457
Economically, Russia would have definitely benefited by unilaterally lifting economic sanctions imposed on Western states in 2014	-0.497
The average methodological level of articles in leading English-language journals is higher than in leading Russian ones	-0.503
The share of private ownership in business and production should be increased	-0.525

Note: Unrotated factor solution. KMO test of adequacy was 0.874, and Bartlett's test of sphericity was significant ($\chi^2(91)=1752.4, p<0.000$). Cronbach's alpha for the 13-point scale equals 0.754.

other information that would help draw a broad picture of the state of social sciences in Russia. This included demographic data, employment details, and responses to questions about their views on economic science and economic policy (some of which formed the basis of the Anti-mainstream Scale discussed above).

At the end of the survey, participants were invited to take part in an "online experiment aimed at analyzing how professional economists themselves behave in situations commonly used in behavioral economics as models of economic life." Before the "beauty contest," participants were invited to take part in a coordination game, in which they were asked to choose a number between 1 and 100 that most people would name (50 was the winner, with 13.8% of votes), and an anti-coordination game, in which they were asked to name a number no one else would name. Then, the beauty contest was introduced with the following instructions: "Name any integer from 1 to 100. A prize of 10 points will be awarded to those who name the number closest to $2/3$ of the average of the numbers named by all participants in this experiment (for example, if the average is 40, the winners will be those who name 27, since $40 * 2/3 = 26.666...$)." Points were awarded for each answer, convertible into electronic certificates from OZON (Russia's online marketplace similar to Amazon), with each point worth 500 rubles (approximately 7 dollars). Winning the

"beauty contest" game awarded the winner 10 points, or 5000 rubles. It should be added that, as this study revealed, the median monthly income of Russian economists at the time fell in the 50,000–60,000-ruble range.

The invitation to take part in the survey was sent to all economists who listed "Russia" as their address, had at least three papers indexed by the Russian Science Citation Index (a bibliometric index covering most more or less reputable Russian journals) in the last 5 years, and were registered with eLibrary, the owner of the Index.² Although there are some Russian economists who publish exclusively in English, their set is very small and thus can be ignored for the purposes of our study (and most of them, if they are affiliated with a Russian institution, would have been registered with eLibrary anyway). Overall, 36,756 invitations were sent, and 6392 responses were received (a response rate of 17.4%).³ Given the large sample size, we divided it into six equal-sized subsamples, each receiving slightly different versions of the questionnaire (A–F). The survey was conducted in two large waves between late October and December 2021. In the first wave, the first four versions of the survey (A–D) were sent out, with the experimental part included in all of them. Given the high number of responses and limits on prize funds, we removed the experimental part from the questionnaire after the first week. By that time, 1910 participants had completed the questionnaire with the invitation to take part in the

experiment, and 1019 (51.8%) accepted the invitation. Of these, 258 responded to the Questionnaire A, which included the *homo economicus* question and formed the basis for calculating the Anti-mainstream Scale (the survey response flow is charted in Appendix S1).⁴

As the major **independent variables**, we used (1) responses to the *homo economicus* question and (2) scores on the Anti-mainstream Scale, standardized to a mean of 0 and a standard deviation of 1. Both measures are open to certain criticisms. The *homo economicus* question conflates human egoism with calculative inclinations, whereas the Anti-mainstream Scale includes attitudes toward a wide range of policy issues, the connection of which to underlying anthropological models may be rather indirect. Indeed, individuals may reject the *homo economicus* model on the grounds of its presumed egoism while embracing its assumptions about agents' calculative abilities. To deal with this problem, we used two approaches. First, we looked at the content of texts produced by the Russian non-mainstream economists. Empirically, most of them appear to share the rejection of the theoretical mainstream (both egoism and rationality) and market-oriented policies. In Appendix S2, we provide a short summary of the key arguments of Russian non-mainstream economists (of course, somewhat stylized given that this group is very diverse).

Second, we approached this problem empirically by disentangling the Anti-mainstream Scale into several subscales and using them separately for our analysis. Appendix S3 presents the full factor analysis of the questionnaire items used to construct the Anti-mainstream Scale. In our data, there is indeed a tendency toward disintegration into two components: one primarily loaded with items related to policy issues—such as preferences for privatization and open trade versus state ownership and protectionism—and the other with items reflecting attitudes toward mainstream economic science. Following this pattern, we divided the Anti-mainstream Scale into two parts: the *Autarchy* Scale (based on policy attitudes) and the *Heterodoxy* Scale (based on views of academic economics). Descriptive statistics and factor loadings for both are reported in Appendix S3.

However, the two scales are substantially correlated ($r = 0.605$). The Spearman ρ between the *homo economicus* question and the *Autarchy* Scale is 0.177*** and with the *Heterodoxy* Scale is 0.419***, indicating convergence between different aspects of mainstream orientation in the perception of Russian economists. To simplify the presentation of our findings, we use the *Autarchy* Scale in the main text, but calculations for the other two scales are provided in Appendix S4. As shown there, the principal findings remain consistent across all three measures.

The benefits of using online experiments are similar to those of using press experiments (Bosch-Domenech et al. 2002, 1687): (1) They allow offering greater prizes incentivizing subjects to exert greater effort at solving the task (Alaoui and Penta 2016), (2) they allow the subjects greater time, and (3) they allow a greater diversity of subjects. In addition to that, they allow larger samples and, in contrast to newspaper surveys, gathering additional information about the subjects, together making possible post

hoc statistical controlling for a wider variety of variables. This, in turn, helps bypass the impossibility of experimenting with ideological indoctrination and addressing potentially spurious correlations. In this study, we control for four such variables that might independently influence both “beauty contest” strategy and opinions about mainstream economics. We thus included in the analysis:

1. **Age**, measured by a 6-point scale (*below 30, between 30 and 39, ... 70 and above*). Age correlates with Anti-mainstream Scale scores (Spearman correlation 0.174) and, at the same time, a sizable literature exists suggesting that mentalizing skills are declining with age (Fischer et al. 2017), thus suggesting a possibility of a spurious correlation between Anti-mainstream scores and lower levels of iterated reasoning.
2. **Gender** (self-identification as “male,” “female,” or “other”). There is a long tradition in feminist literature suggesting that *homo economicus* is a portrait of specifically male rationality, and the ability for unemotional calculation is, undoubtedly, an element of traditional Western portrayal of masculinity. At the same time, another literature suggests that women are more empathic and capable of taking other's viewpoint (Greenberg et al. 2023), which is relevant for performing mentalizing tasks. Gender may therefore influence the association between self-identification with the economic mainstream and performance in “beauty contest” games, likely in the direction opposite to that suggested in the performativity literature.
3. **Specialization**. Survey subjects were invited to choose their areas of specialization from a list of JEL categories. While choosing to specialize in subjects such as microeconomics or behavioral economics might itself be an outcome of holding certain worldviews, it can also result from other factors. Whatever the case, it is likely to lead to deeper indoctrination and a higher probability of being aware of Nagel's work. We thus included as dummy variables if an individual expressed interest in a list of categories based on JEL.
4. **University rank**. One additional control variable we used was university rank. The Russian higher education system is significantly stratified, with a few leading universities enjoying higher prestige, attracting better students, offering higher salaries, and placing greater emphasis on the research performance of their faculty. Working at one of these institutions could also serve as a proxy for engagement with the current literature, including “beauty contest” literature. It could also be regarded as an (obviously imperfect) proxy for general abilities leading to career success, which are known to be strongly correlated with mentalizing skills (Gill and Prowse 2016; Levine et al. 2017) and with proficiency in mathematics, which is essential for studying mainstream economics. We thus included a dummy variable measuring if the subjects were employed at one of the universities participating in “5–100” Project—the channel through which major state research funding was poured via block grants to the universities having the greatest research capacities in Russia in 2012–2020.⁵

By including these measures, our paper contributes to the beauty contest literature by extending the scope of variables whose influence on the iterated reasoning process has been previously studied.

6 | Results

Figure 1 shows the distribution of numbers chosen by the experiment participants. The distribution has a median of 33

and a mean of 34.913. To win, individuals needed to choose the number 23, which 8 people did. Only 17 participants (1.7%) reached the equilibrium solution of 1, whereas 7.6% chose strictly dominated values above 67. These results are generally consistent with those from other “beauty contest” studies. For instance, in the first period of Nagel’s (1995, 1316) experiment with a student sample, the median was also 33, the mean was 36.7, 10% of participants chose values above 67, and the optimal choice was 25.⁶ The most noticeable divergence from Nagel’s observations is that, although there is a marked peak

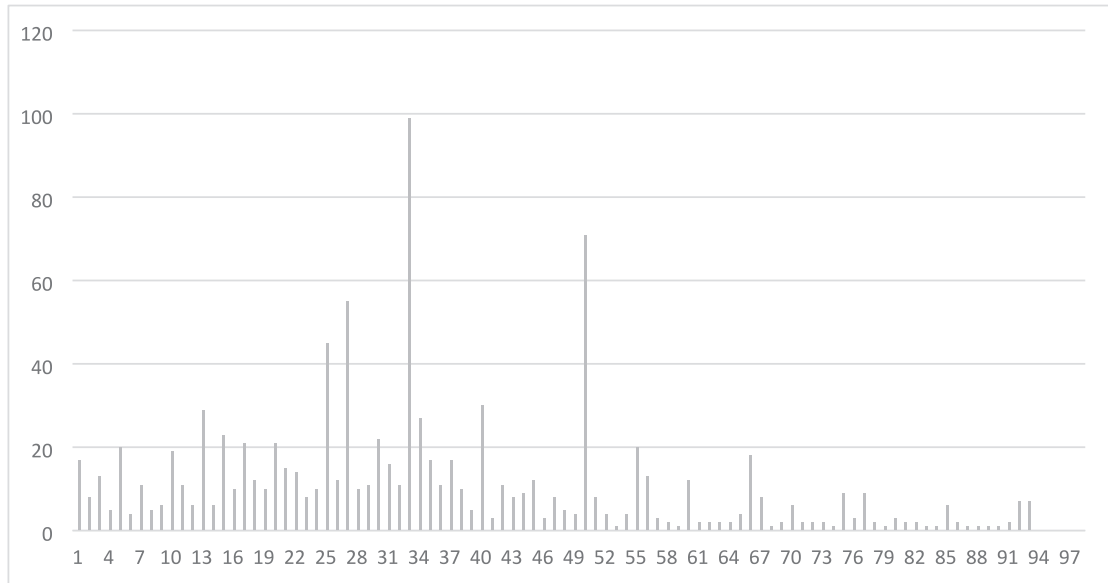


FIGURE 1 | Frequencies of choices in “beauty contest” experiment ($N=1019$).

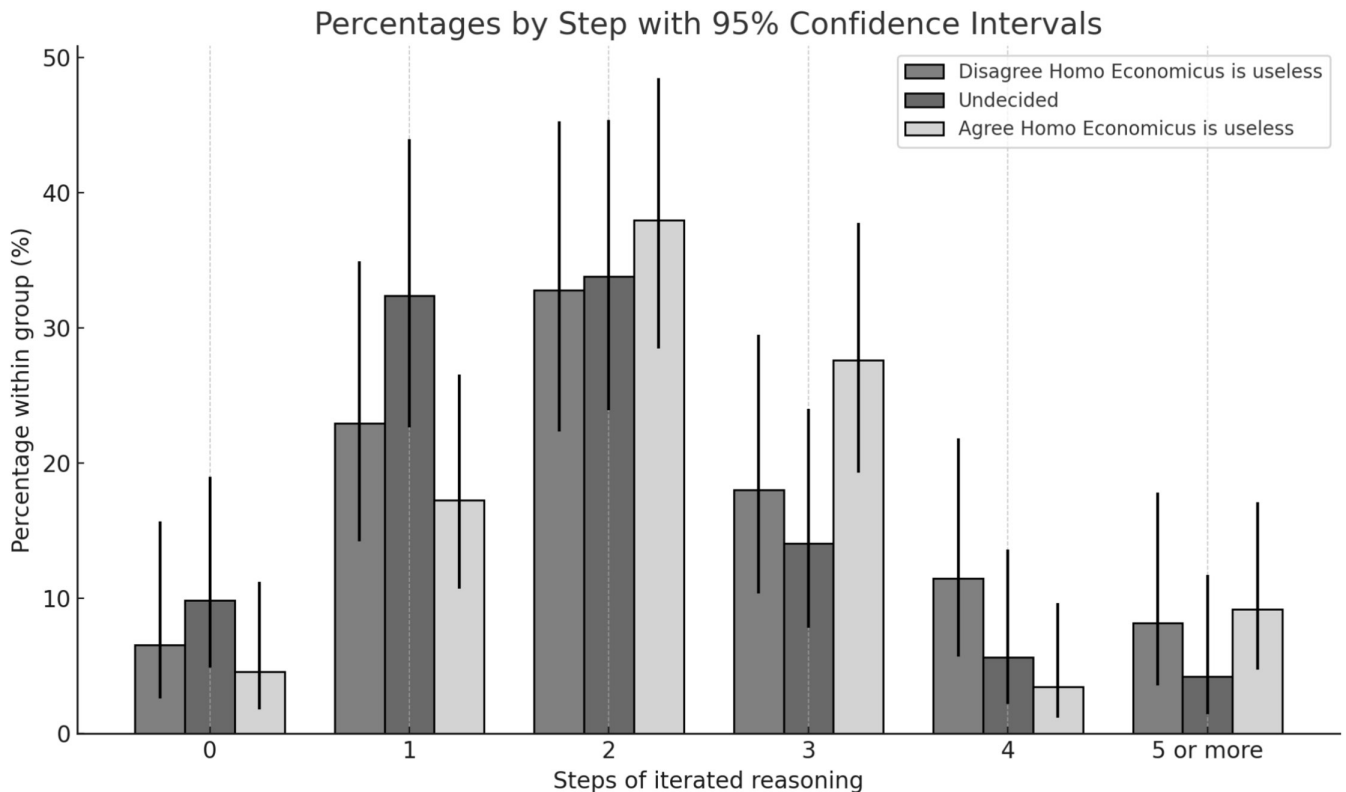


FIGURE 2 | Responses to the *homo economicus* question, by levels of violated dominance (95% Wilson score confidence intervals, $N=250$).

Percentages by Step with 95% Confidence Intervals

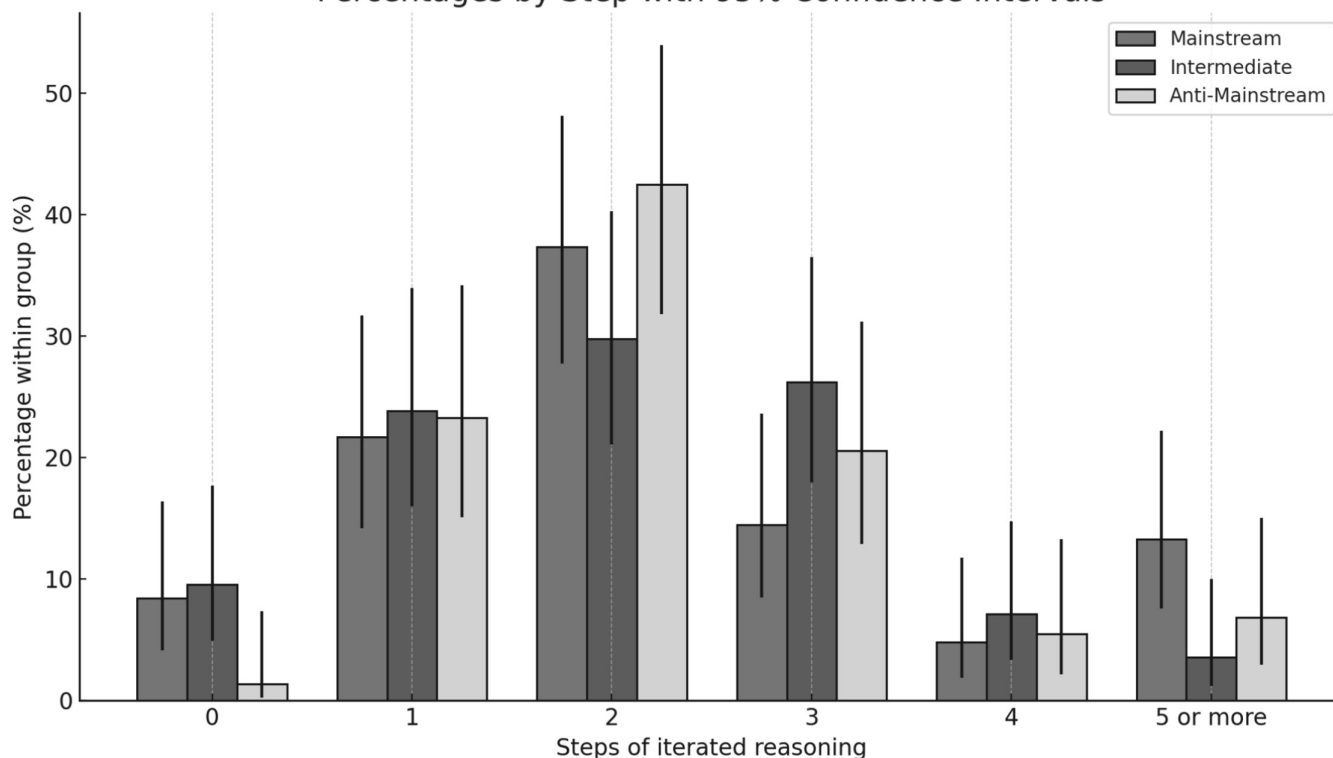


FIGURE 3 | Anti-mainstream Scale scores, by levels of violated dominance (95% Wilson scale confidence intervals, $N=258$).

at 33, corresponding to one step of iterated reasoning, there is no peak around 22 (but there is a peak at 50 absent from her findings).

Does belief in *homo economicus* as an adequate model of human nature, or in mainstream economics in general, result in choosing numbers closer to the equilibrium solution? Figures 2 and 3 summarize the distribution of choices according to the levels of dominance these choices violated. Importantly, although certain choices can clearly be interpreted as violations, no choice can serve as definitive proof that a certain level of iterated dominance was achieved. For example, choosing 7 may result from either a Level 4 best response to 50 or a preference for “magical” numbers. In setting the boundaries of the intervals, we took a conservative approach, relying on the levels of dominance that a given choice clearly violated, and thus, the number of steps in iterated reasoning that an individual certainly undid (see Ho et al. 1998, 960, for a similar approach). Thus, any choice of a number equal to or exceeding 68 signals a violation of Level 0 dominance (because even if all other subjects chose 100, the rounded $2/3$ of the mean would equal 67). Any number exceeding 44 violates Level 1 of iterated dominance (because this choice is justified only if an individual believes that some others would violate level-0), and so on. The resulting intervals are as follows: 68–100 (Level 0), 44–67 (Level 1), 30–43 (Level 2), 20–29 (Level 3), 13–19 (Level 4), and below 12 (Level 5 and beyond).

The resulting distributions are depicted in Figure 2 (for the *homo economicus* question, combining the categories “(dis)agree” and “mostly (dis)agree”) and Figure 3 (for the Anti-mainstream Scale, divided into three comparably sized segments: high [above

0.5 standard deviation], low [below that], and intermediate). The immediate conclusion is that no clear-cut tendencies are observable. The mean value for the numbers chosen is 33.384 for those who disagree with the *homo economicus* statement (median = 33), 40.365 for those who are undecided (median = 35), and 31.747—the lowest of all—for those who agree with it (median = 31). The chi-square statistic for the Kruskal–Wallis H test coefficient for the *homo economicus* question is 9.524 ($p=0.009$) when “undecideds” are included, but 0.145 ($p=0.703$) when only those decisively agreeing and disagreeing are included (t -test value for the two latter groups = 0.526, $p=0.599$).

The most salient tendency—statistically significant at the 0.01 level when combining Level 0 and Level 1 violations—is that those who are undecided in their response to the *homo economicus* question tend to choose answers corresponding to a lower number of iterations, possibly as a result of lesser involvement in the task. There is also an apparent peak at the third level of violated dominance among those who reject *homo economicus* as a model of human behavior, as well as a slight overrepresentation of those holding the opposite views at the next level. However, the chi-square coefficient for the distribution of both groups across the third and fourth levels of violated dominance is only 3.35 ($p=0.067$), at best approaching statistical significance. Both groups are represented equally as we move closer to equilibrium values.

Similarly, for the Anti-mainstream Scale, the Spearman correlation between it and the number chosen is -0.047 ($p=0.450$), and the chi-square statistic for the Kruskal–Wallis H test is 1.182 ($p=0.554$). Overall, there is no evidence of a statistically

significant association between economic beliefs and the tendency to gravitate toward equilibrium choices. Likewise, we could not identify any tendency to make particular choices, such as 1, 25 (the winning number in Nagel's study), or 33, based on belonging to one of the ideological groups.

Some comment is necessary on the emergence of the peak at the value 50, which is absent from other beauty contest studies.⁷ It could have been related to specific experimental conditions: unlimited time and unsupervised setting. A further explanation was that it resulted from anchoring to the earlier coordination game, in which 50 indeed emerged as the Schellingian salient point. However, when comparing the results of the two games, we did not find evidence of such anchoring. In fact, only two participants who chose 50 in the coordination game also selected it in the beauty contest—below what would be expected. At the same time, there likely was some anchoring effect, as indicated by a sizable correlation of 0.289 between the numbers chosen in both games. In Appendix S5, we provide a graph depicting the distribution of the ratios between the two numbers. One notable finding is a sizable group of participants (64) who chose the same number in both games—possibly due to a belief in “lucky numbers.” Meanwhile, an even larger number of participants (72) chose, in the second game, a number close to two-thirds (0.66–0.67) of their initial choice. These effects, while intriguing and deserving further study, seem to fall outside the scope of this paper, as none of these tendencies (e.g., choosing lower numbers or repeating the same number) are correlated with the ideological variables used as independent predictors here.

Increasing the sample sizes could make some of the tendencies possibly present in our data—such as the higher probability of those rejecting the mainstream stopping at the third level of iterated reasoning and those embracing it proceeding further—statistically significant. Even if this happens, however, the combined effect of all factors favoring closer-to-equilibrium choices by mainstream economists would be rather small.

Our control variables also showed little association with the way the “beauty contest” game was played. Table 2 lists the control variables, along with the mean choices and the chi-square statistic for the H test (for age groups)/Z-value for the Mann–Whitney *U* test (for specializations, gender, and university type), along with *p* values. Among specializations, we included “microeconomics” and “behavioral economics,” as well as all those that demonstrated at least a tendency for statistically significant results.

Those specializing in microeconomics, primarily suspected as a source of economic rationality, make choices that are, on average, indistinguishable from choices of those who are not interested in it. The same is true for behavioral economics. Of the 36 JEL specializations included in the survey, only four showed a significant difference from the average, and none of these four was significant at more than the 0.05 level. Contrary to gender stereotypes, women do not differ from men, and faculty at elite universities are indistinguishable from those at less prestigious institutions. Age is the only variable that even remotely approaches significance (Spearman $\rho = 0.073$, $p = 0.021$), with the under-40 age group choosing numbers markedly lower than

TABLE 2 | Statistics on independent variables ($N = 1019$).

Variable	Mean choice	Nonparametric tests	<i>p</i>
Specialization			
Microeconomics	33.368	−0.444 ^a	0.657
Behavioral economics	34.349	−0.465 ^a	0.642
Demography	30.618	−1.974 ^a	0.048
Law and economics	41.076	2.453 ^a	0.014
Marketing	39.294	2.441 ^a	0.015
Business economics	37.63	2.115 ^a	0.034
Gender			
Women	35.1861	0.093 ^a	0.926
Men	34.5350		
Age group			
Below 30 years old	31.4333	9.294 ^b	0.098
30–39 years old	32.9181		
40–49 years old	36.2618		
50–59 years old	35.5407		
60–69 years old	36.9254		
70 years old and older	33.6379		
University type			
Mass	34.3430	0.474 ^a	0.638
Elite	36.2248		

^aZ-value for Mann–Whitney *U* test.

^bChi statistic for Kruskal–Wallis H test.

older groups.⁸ However, as age correlates positively with both Anti-mainstream Scale scores ($\rho = 0.173$) and agreement with the *homo economicus* statement ($\rho = 0.072$), it could account for the absence of a significant correlation between these variables and the numbers chosen only if we are willing to entertain the counterintuitive suggestion that, when controlling for age, anti-mainstream economists are more likely to choose lower numbers. To test this, we ran an OLS regression (Appendix S6), which demonstrated no association between the variables after the introduction of controls.

7 | Discussion

Since the influential works of Frank et al. (1993) and Miller (1999), it has been widely assumed that studying mainstream economics makes individual behavior more closely approximate *Homo Economicus*. However, in the Russian case and in the within-group variation among economists with different attitudes toward mainstream economics, our evidence does not support this proposition. Those who endorse mainstream microeconomics (and, as teachers, probably encourage others to do the same) and those who reject it behave similarly in practical

situations that require estimates of human rationality. This occurs despite the fact that these are the groups where the effects of both selection and indoctrination are likely to be felt most strongly, that participants had significant time to contemplate their decisions, and that they were directly prompted by preceding survey questions to think about the relevance of mainstream microeconomics for explaining human behavior.⁹ If Russian mainstream economists are to be criticized, it is probably not for inculcating rationalistic selfishness in their students, but rather for preaching doctrines that, on a practical level, they do not themselves live up to.

Our observations appear to be in line with findings from situationist psychology (Ross and Nisbett 2011) that Miller (1999) drew upon. One of the situationists' central ideas was that there is extremely limited consistency in individuals' attitudes and behavioral patterns. Human behavior is a reaction to minor situational cues rather than an expression of general internal predispositions. As a result, explanations in terms of global traits such as "calculativeness" have very low predictive value when it comes to behavior in specific situations. Supporting evidence from the iterated reasoning literature includes a study showing that there is little correlation between an individual's performances across families of iterated reasoning games, even when they are identical in terms of their formal structure (Georganas et al. 2015).

Experiments have demonstrated that subjects can be induced to behave in ways consistent with microeconomic theory if they are directly instructed to do so. For example, in an experiment by Ifcher and Zarghamee (2018), the students' "exposure to microeconomics" took the following form: After subjects played a game for the first time, the experimental group was told they would now be educated on "how to play games like the one you just played" (57) according to economic science. After this, they were indeed able to solve the problem as instructed. However, evidence that such training is easily transferred to structurally similar situations is lacking. Microeconomic training, from this point of view, could be performative, but only under extremely narrow conditions.

The second phenomenon, widely discussed in situationist social psychology and likely relevant for interpreting our experiment, is the limited insight individuals have into their own and others' mental processes (Nisbett and Wilson 1977; Wilson and Dunn 2004). This lack of insight is a source of persistent inconsistency between declared attitudes and observable behavior—a phenomenon known as "LaPierre's paradox." Our ability to reconstruct others' mental processes is similarly impaired, and we can hold sincere but entirely inaccurate beliefs about how decision-making processes occur in humans, including ourselves. From this standpoint, the lack of alignment between Russian economists' professed beliefs and their real-life behavior might serve as a clear example of such persistent discrepancies. Although beliefs may have consequences of their own, these consequences are unlikely to include reforming the behavior of individuals who hold them in most everyday situations.

We must acknowledge several alternative explanations. First, it is possible that the training of many Russian economists is so

poor that they cannot grasp the concept of iterated elimination of strategies or apply it in practice. Some of those who express support for the market economy and the economic mainstream may do so without fully understanding its game-theoretical foundations, simply because in the Russian context such support functions as a stance against autocratic state control and intellectual isolation. As a result, at the time of our survey, only a tiny minority was intellectually equipped to appreciate Nagel's work. There is likely a grain of truth in this argument. However, a significant improvement in the position of Russian economics has occurred in recent years, and this minority was anything but negligible. The number of English-language publications in refereed journals increased fivefold between 2011 and 2021, when our experiment was conducted, and the Higher School of Economics, one of the "5–100" universities, made it into the top 50 of the QS global ranking of economics departments. We might have expected to find, at least among the faculty of elite universities, individuals well qualified to grasp the idea of iterated dominance. However, university rank failed to produce any correlation with "beauty contest" strategy.¹⁰

It could also be suggested that the *homo economicus* question was poorly phrased and failed to measure the belief it was intended to assess and that the Anti-mainstream Scale measured the rejection of Western economics on grounds unrelated to disagreements with its anthropological presuppositions. However, both variables correlate significantly and meaningfully with each other (the difference in Anti-mainstream scores between those who completely agreed and completely disagreed with the *homo economicus* statement was 88.7% of a standard deviation) and with other variables.

The final explanation points precisely to the marked stratification among Russian academic economists. Several studies have demonstrated that sophisticated players behave differently when playing with equally skilled subjects compared to those they expect to be less skilled (Slonim 2005). For example, Alaoui and Penta (2016) found that science students perform fewer steps in iterated reasoning when playing the "11–20" game with humanities students than when playing with other STEM students. It is not hard to imagine that Westernized scholars might be skeptical of the rationality of other Russian economists and, therefore, adjust their behavior to match what they believe is their opponents' lower level of strategic insight.

This is an alternative hypothesis that we cannot entirely reject on the basis of our data and should therefore list as a limitation of our study. However, we believe it is unlikely for two reasons. First, as our 2021 survey shows, each group tended to overestimate its share of the population of Russian economists (not surprisingly, given their institutional segregation). During the survey, economists were asked to name Russian economists who had made the most important contributions to economic science. A subsample was later asked, for a sizeable prize (5000 rubles, approximately \$70), to guess who would be on the top of the resulting ranking. The rankings were markedly different, demonstrating that individuals were clearly able to distinguish between first- and second-order reputations—that is, reputations in their own eyes and in the eyes of others. At the same time, those who voted for mainstream and heterodox candidates were much more likely to believe that their respective

candidates would receive significantly more votes than the other group thought likely. For instance, among those who voted for Sergei Guriev—the most iconic mainstream figure—77.8% believed that his name would appear in the top five, whereas only 51.9% believed the same about Sergei Glaziev, the foremost representative of the non-Western economic thought in Russia, who in fact topped the list (on Glaziev, see Appendix S2). Meanwhile, among those who named Glaziev, only 24.7% named Guriev, compared with 75.3% of those who expected to see Glaziev in the top five. The implication is that mainstream respondents were likely to imagine themselves playing against a much more mainstream population than actually existed.

Second, such a situation would arise only if mainstream economists are “worldly types” who know they are facing a heterogeneous population that includes both very sophisticated players, like themselves, and non-sophisticated players. Their best response would then need to aggregate two (or more, if several sophisticated types are recognized) numbers that reflect best responses to each subpopulation. Whatever their variability, these numbers would share two features. First, they are unlikely to exceed 33 (the best response to 50). Second, they are unlikely to peak at values such as 33 or 22 that correspond to “pure” types. In fact, the response distributions across subsamples are much more similar than this reasoning predicts. Mainstream economists are no more likely to violate lower levels of iterated reasoning, and they are no more likely to choose numbers that identify them as pure types. Comparing Kolmogorov–Smirnov statistics for pairs of samples, we find 0.830 ($p=0.496$) for the polar groups on the Anti-mainstream Scale and 0.733 ($p=0.650$) for the *homo economicus* question. Although small samples preclude decisive conclusions, we find no indication that the polar groups differ significantly.

In fact, it is quite possible that mainstream economists, while being aware of the existence of their non-mainstream counterparts in the Russian academic community, would interpret their rhetoric not as an expression of a genuine disbelief in the mainstream assumptions but rather as a strategy in the competition for dominance in the academic field (Bourdieu 1975). From this point of view, non-mainstream economists, while publicly denouncing rational choice, are highly rational—they do so for political purposes to maximize rents and to combat their opponents. Indeed, by rejecting mainstream, Russian non-mainstream economists also reject the symbols of academic status associated with the global mainstream (i.e., publications in international academic journals and participation in conferences organized by main scholarly associations) and either elevate the role of their own status symbols (publications in Russian, membership in the Academy of Sciences) or at least create ambiguity about how one's status could be measured in academia.¹¹ Characteristically, mainstream economists widely accused their non-mainstream opponents not only of being ignorant of modern academic developments but also of plagiarism—an opportunistic behavior one could expect of immoral rationalists.¹² Seen from this perspective, both anti-Western rhetoric and plagiarism are simply tools of unethical rent-seeking aiming at achieving academic success and power. For our study, however, it means that mainstream economists could have believed that the non-mainstream economists are quite rational in their personal lives—unlike their (strategically chosen) rhetoric.

8 | Conclusion

It remains to summarize our argument. The goal of our paper was to provide yet another test of the correlation between economics training and human behavior. Rather than examining selfishness and egoism, we focused on how economics influences beliefs about other individuals' rationality. Rather than comparing economists with non-economists, we leveraged variation in beliefs among different segments of the Russian economics community, where pro-mainstream groups coexist with economists who reject key elements of mainstream economics, particularly the *homo economicus* concept. Our findings, however, do not suggest that acceptance of *homo economicus* as a useful concept correlates with higher other-regarding expectations of rationality. There seems to be a substantial gap between beliefs and actual behavior.

We acknowledge the limitations of our study. Certainly, Russia is a specific country case, and one may question the external validity of our findings. Still, Russia is among the very few cases where within-discipline comparisons among economists are possible at all—in the United States, Germany, or the United Kingdom, the share of economists rejecting key elements of the mainstream would be too small. Furthermore, we acknowledge that an online survey may be a suboptimal tool for an experiment compared to controlled lab conditions. At the same time, obtaining a sample of professional economists as large as the one used in our study would hardly have been possible had we opted for a lab experiment. Finally, although within-group comparisons reduce the impact of unobserved heterogeneity, they do not completely eliminate it: Academics identifying with Western-style economics may still be significantly different from other economists in Russia. Nonetheless, our analysis represents an improvement over comparisons between economists and other disciplinary groups.

As a further caveat, we have to acknowledge that there may be other reasons for iterative reasoning than conscious internalization of the *homo economicus* assumptions. It could also be based on rule-based heuristics, bounded rationality, or strategic prudence. Therefore, it is quite possible that variation in the k-level reasoning is not related to the internalization of mainstream economics concepts or rejection of rational choice. If that is the case though, this would be one further argument suggesting that knowledge of economics (and, specifically, understanding of strategic reasoning) does not explain observed variation in behavior among subjects. Similar behavior can be driven by different factors, with only some of them being even potentially associated with studying economics.

Taking these important caveats into account, the tentative finding that economists who see *homo economicus* as a useful and empirically important concept do not actually expect the individuals they interact with to behave rationally is an important one. We hope that our study paves the way for further experiments exploring this topic in different contexts.

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Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Endnotes

- ¹ Some mathematical economists also developed approaches close to neoclassical economics of that era; many, however, focused on very different topics such as “economic cybernetics” (Boldyrev and Kirtchik 2017).
- ² As the Russian Science Citation Index is widely used for research performance evaluation, its coverage of Russian economists is remarkably high. Overall, over 90% of those meeting our other criteria were registered users at the time of our survey.
- ³ When evaluating the response rate, it is important to note that many emails were inactive, and some recipients, sadly, had passed away.
- ⁴ The probability of participating in the experiment among those who completed the survey decreased consistently with age, with 79.8% of individuals under 30 agreeing to participate, compared to only 43.3% of those aged 70 or older. This cannot be explained by increased interest in experimental methods among younger generations, as the age of those declaring an interest in behavioral economics and those who did not was exactly the same. There is also a tendency approaching statistical significance ($p=0.053$) for those who chose to participate in the experiment to score lower on the Anti-mainstream Scale. No other variable had a comparable impact on the probability of participation, with gender and the rank of the university employing the individual being insignificant.
- ⁵ We added to this list two oldest and traditionally the most prestigious schools, Moscow State University and Saint Petersburg State University, which have their research funding secured by a special federal law.
- ⁶ In newspaper experiments, which, like our online experiment, provided unlimited time for decision-making, the winning numbers were somewhat lower (13, 15, and 17), suggesting, on average, one additional step of iterated reasoning (Bosch-Domenech et al. 2002, 1691).
- ⁷ We are grateful to one of the reviewers for suggesting this analysis. Incidentally, it seems that our study contributed to the beauty-contest literature in an unexpected way. Since Nagel’s (1995) influential work, researchers have assumed that Level 1 players best respond to non-strategic players whose numbers are distributed uniformly between 1 and 100 with a mean value of 50. To our knowledge, no one has checked whether this assumption is correct. Intuitively, other possibilities exist—for example, a preference for “magical” numbers such as 3, 7, or 9 (in European cultures) or the days of one’s birthday. The common feature of such numbers is that they are much smaller than 50. Our coordination-game experiment confirmed, however, that this initial proposition, common to work in the field, was not far from the truth: in the coordination game, 50 emerged as the median and 46 as the mean.
- ⁸ Tellingly, the sample of “adult” economists chose options farther from equilibrium than a sample of 432 undergraduate economics students from Far Eastern University who took part in a “beauty contest” experiment as part of their introductory social sciences course, taught by one of the authors in 2016. The mean for that sample was 34.2, whereas the median was 28.

⁹ Characteristically, there were no significant differences in “beauty contest” strategies between Subsample A, which answered the *homo economicus* and other related questions, and the three subsamples that received different versions of the questionnaire—B (academic labor market and careers), C (attitudes toward academic policy), and D (academic dishonesty).

¹⁰ Using the possibilities of our dataset, we calculated additional metrics to evaluate the inclusion of experiment participants in “global science,” such as the mean impact factor of the journals in which they published their papers. Even the top 5% who predominantly published in journals with an impact factor of 0.9 (which likely indicates that they published much of their work abroad) were not different from the rest.

¹¹ The wide presence of such political motives in formulating one’s attitudes to “global science” can be illustrated by another study of Russian social scientists which showed that these attitudes are markedly correlated with attitudes toward bibliometrics, favoring publications in high-impact journals (Guba 2024).

¹² <https://www.trv-science.ru/2009/12/sonin-tabl/>.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section. **Appendix S1:** Supporting Information. **Appendix S2:** What do non-mainstream economists in Russia believe in? **Appendix S3:** Factor loadings and descriptive statistics for the Anti-mainstream, Autarchy, and Heterodoxy Scales. **Appendix S4:** Responses to the split scale, by levels of violated dominance. **Appendix S5:** Distribution of ratios between numbers chosen in the coordination and beauty contest games. **Appendix S6:** Supporting Information.