



## Review of Sergey A. Nefedov's *Factor Analysis of Historical Process*



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**Sergey A. Nefedov. 2008. *Faktornyy analiz istoricheskoho processa. Istoriya Vostoka. [Factor analysis of historical process. The History of the East]*. Moscow: Territoriya Budushchego. 752 pages; ISBN 978-5911290269 Hardcover (not currently available); A PDF of the book is also available online at no cost: <http://www.prognosis.ru/lib/Nefedov.pdf>.**

In this epic book, Sergey Nefedov elaborates his three-factor model of historical process embracing interconnected geography, demography, and technology, and tests the theory by applying it to the military history of ancient, medieval, and early modern Asian and Northern African empires.

Nefedov, a Russian historian with a background in mathematics, is one of the major modern contributors to the neo-Malthusian study of demographic cycles. His population studies advance within the lines of the demographic-structural perspective of Jack Goldstone. Nefedov belongs to the academic circle of Russian macrohistorians who apply mathematical modeling to historical social change, which they refer to as global dynamics or cliodynamics. This intellectual network involves such scholars as Leonid Grinin, Andrey Korotayev, Sergey Malkov, and Peter Turchin, who co-author and edit a book series titled *History & Mathematics* (e.g. Turchin et al. 2006).

Essentially, Sergey Nefedov claims that historical process can be largely explained as an interplay of geographic, demographic, and technological factors (58). In fact, he convincingly explains political, economic, and social cycles and transformations of major pre-modern and early modern Asian and Northern African empires. He accomplishes this task by considering the systemic complexity of interaction between a comprehensive set of variables: ecological (climate

change), technological (primarily military innovations), economic (agrarian production and surplus redistribution patterns), demographic (population cycles and urbanization), political (power relations between the ruler, elites, and commoners), social structural (inequality and mobility), and external social environment (technological diffusion and warfare).

Sergey Nefedov employs a quite telling format in presenting his argument. At first, he establishes a solid conceptual ground, reviewing existing explanations of historical change and explicating his own perspective in the starting theoretical chapter. Further, he covers 11 epochs, linking each fundamental military innovation revolution with the rise of the largest Asian and Northern African empires and their structural dynamics: 1) Unmounted archers mark the rise of Sumer, Akkad, and Early-Mid Kingdom Egypt; 2) war chariots were found in Babylon, Assyria, New Kingdom Egypt, Shang and Zhou China; 3) iron weaponry in New Assyria, New Babylon, Sais Egypt, and the Warring States of China; 4) cavalry in Persia and Qin China; 5) heavy infantry in Macedonia, Seleucid and Ptolemaic Egypt; 6) mounted archers in Hun, Former Han China, Parthia, Sassanid empire; 7) Islam in the Arabic caliphates;<sup>1</sup> 8) heavy cavalry in Sui, Tang, Song, and Jin China, 1st millennium India, Iraq and Iran, and Early Byzantine; 9) saber in Seljuk and Turk empires, Muslim India, and Komnenos Byzantine; 10) Mongol bow in the Mongol empire, and Iran and Middle East in between Mongol invasions, Mamluk Egypt, Delhi sultanate, Hindustan, Gujarat, and Mongol China; and 11) gunpowder in the Ottoman empire, Safavid Iran, Great Moguls, Ming and Qing China. In the concluding chapter Nefedov summarizes all the presented evidence, highlights where his theory has been verified and where refuted, and synthesizes the discovered regularities.

From Nefedov's perspective, the crucial variable is the demographic factor, defining extension and contraction phases of cycles. The extension phase is characterized by land colonization, increase of arable land, population growth, limited urbanization, low bread prices, high salaries and high consumption, low rent, low taxes and little usury. The contraction phase is marked by high demand for land, increased social stratification, slavery, unemployment, artisanship, trade, extensive urbanization, high bread prices, indebtedness, increased usury, political centralization, conquest, conflict among the state, elite and commoners, rise of opposition, and violent land conflicts. When the limits are reached, demographic pressure leads to a crisis, marked by famines, bankruptcy, state breakdown, wars, sometimes revolutions and autocracy. A full cycle is usually around 100-150 years, though an interstitial crisis can prolong a

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<sup>1</sup> Although it is unusual to see Islam listed alongside forms of weaponry, Nefedov interprets Islam as an organizational innovation (spiritual fellowship) for conquest purposes.

cycle; after crisis there is an intercycle period, whose dynamics are determined not by demographic regularities, but by idiographic military conflicts (20).

Clearly, Nefedov views demography as connected with economy, in particular by population-price oscillations—the Malthus-Ricardo cycles. Naturally, he applies the technology-ecology link, in particular regarding the extension of the carrying capacity of ecological niches. Other scholars have demonstrated that capacities themselves change; for instance, intensification of agriculture can boost production in the short run, but exhaust the environment in the middle run, as occurred in Viking-era Iceland and Greenland by the fifteenth century (Diamond 2005). Nefedov associates changes in demography with changes in socio-political structure: the relative size, power and revenues of the state, elites, and commoners. One of Nefedov's key terms is the population pressure, defined as the ratio of current to maximally possible population density (40). It is worth mentioning that some anthropologists criticize this concept on the grounds that it is an abstraction (for example, re. the inability of the government to prevent numerous subjects from fighting over land or other vital resources), which tends to overestimate objective conditions, and disregard the flexibility of food systems and the freedom of choice people make about their quality of life.

Another principal factor in Nefedov's theory is technology. Primarily, these are fundamental innovations, which increase the production of food and thus extend ecological capacity, or military innovations (in weaponry or tactics) that widen territory at the expense of neighbors (23). The author appears to group diverse technologies into one cluster. However, sometimes he implicitly specifies what sociologists would label as social structure or social norms—for instance, state bureaucracies or tax reforms. His strength is reckoning with impacts of technological innovations on transformations of the socio-political structure, and considering the changing proportions of resources redistributed between state, elites, and commoners.

Finally, Sergey Nefedov takes into account the so-called geographical factor. This, in my opinion, would be more accurate to define as a complex of external factors. Basically, he aggregates influences of technological diffusion and changes in external social environment, such as conquests (11). Besides, ecological conditions (a conducive or hindering climate) are viewed as an additional variable, which can prolong or shorten a cycle. He observes the geographic-demographic link: conquests bring demographic catastrophes, breaking population cycles and starting them from the beginning.

The author elaborates a typology of societies: private ownership (A), étatist monarchy (B), xenocratic estate monarchies (C), monarchy with private ownership (A<sub>b</sub>) and feudal monarchy (A<sub>c</sub>). In an earlier article (where he presents a laconic demonstration of his preliminary test of the theory), Nefedov (2005) introduces the central concepts. In particular, Nefedov explains that society with private ownership is the one with a “democratic or oligarchic form of government”;

étatist monarchy is the state with inherent “autocracy, state regulation of the economy, and predominance of state ownership of land”; xenocratic strata monarchies are formed when outside enemies conquer this state, do not change its frame, but become a prevailing military estate; monarchy with private ownership refers to cases when due to a weakening of state regulation, relations of private ownership, including large land property emerge; feudal monarchy is identified when weak monarchic authority coexists with feudal lands and private lands (2005: 3).

In total, Sergey Nefedov has identified 61 population cycles with relevant transformations between respective societal types. In 18 of 24 cases, private ownership societies evolved into étatist monarchies, while in each of the remaining 6 cases the transformation was ruptured by external causes, either ecological crises or conquests; therefore the transition from private ownership into étatist monarchy within one cycle is a regularity (746). Of 20 cases of étatist monarchies, 5 transformed into estate monarchies, 2 survived crises, and the main 13 transformed into feudal monarchies or monarchies with private ownership; thus, a cycle starting from an étatist monarchy usually ends up in its collapse and the transition to a private ownership society (748). Estate monarchy can follow two trajectories: of the 17 cases, in 7 cases they devolved into feudal monarchies, while in 8 cases they transformed into étatist monarchies, though in 2 cases they persisted (749). Thereby, the tested model has been proven to explain substantially the states studied.

The chronological structure of the book, highlighting major military innovations and theoretical considerations, facilitates understanding and makes the thesis quite clear. In many cases, the author uses the same standard wording and formulae. This is understandable, as the same model manifests itself in different circumstances and requires exact formulation. On another note, Nefedov’s use of the concept of the “East” is obviously obsolete and might be perceived as Orientalist, but it reflects the legacy of the Soviet historiographical tradition.

Substantively, Sergey Nefedov further develops the research of William McNeill (1982), demonstrating links of military technology and armed forces with societal economy, politics, and international relations. While McNeill envelopes the wide panorama of global military history from the eleventh to the twentieth centuries, Nefedov examines military evolution in Asia and Northern Africa from ancient to early modern times. Unlike Fernand Braudel (1992), Christopher Chase-Dunn and Thomas Hall (1997), or Immanuel Wallerstein (2000), each of whom defines the world-system as a unit of analysis and thus extends the study of political economic cycles to a regional or global level, Sergey Nefedov analyzes those cycles predominantly at the polity level. From a postcolonial or a postmodern perspective, this model can be judged as too materialist and reductionist, lacking deep analysis of culture in itself. Notwithstanding, this approach enables the discovery of causal influences, which can then be verified by the historical-comparative method.

In his next book, co-authored with Peter Turchin, Sergey Nefedov elaborated a synthetic theory of secular cycles analyzing the interaction between the principal variables: “economic (including demography), social structure (particularly, how the elites interact with the producing population and the state), and political (state stability or collapse)” (2009: 6). The theory has been tested on a number of agrarian empires, confirming most of the theoretical implications. In particular, Turchin and Nefedov have verified the neo-Malthusian principle, the principle of elite overproduction, and decisive causes of sociopolitical instability.

Sergey Nefedov, as a true macrohistorian, has approached a genuinely holistic explanation of internal dynamics and interaction of premodern and early modern empires. He has conducted the research with an exemplary academic rigor concerning theory, empirical data, methodology, and argument. Despite his statement of a three-factor model, he actually takes into account changes in ecology, technology, economy, demography, politics, social structure, and external social environment, though with varying degrees of scrutiny. He puts immense emphasis on demography, military technology, and state structure, also reckoning with climatic change, economic production and distribution, stratification, and warfare. In my opinion, a more comprehensive and balanced theory of historical change would benefit from greater attention to the systemic structure of international economy (trade, tribute), geopolitics (diplomacy, elite networks), and cultural influences. His purposeful focus on distilling universal regularities, even developing mathematical models of historical dynamics of empires, has provoked an intense debate in academia. Though some historians criticize such an approach, I value quantitative modeling aimed at finding regularities that transcend local and temporary specificities. Regardless of the outcome of this dispute, it is undoubtedly worth discussing. Certainly, Nefedov reestablishes the research agenda of systemic and quantitative study of empires, restoring macrohistory to its most integral version. His exhaustive inquiries of Asian and European ancient, medieval, and early modern empires deserve to be extended both geographically and diachronically by future studies. Therefore, I find Nefedov’s book a valuable scholarly study of the history of empires with far-reaching implications for the challenge of explaining social change, which definitely deserves reading. Once translated into English, this comprehensive macrohistorical research should find a wider audience.

### References

- Braudel, F. 1992. *Civilization and Capitalism, 15th – 18th Century. Vol. 3: The Perspective of the World*. Berkeley, CA: University of California Press.
- Chase-Dunn, C, and T. Hall. 1997. *Rise and Demise: Comparing World-Systems*. Boulder, CO: Westview Press.

- Diamond, J. 2005. *Collapse: How Societies Choose to Fail or Succeed*. New York, NY: Viking.
- McNeill, W H. 1982. *The Pursuit of Power: Technology, Armed Force, and Society since A.D. 1000*. Chicago, IL: University of Chicago Press.
- Nefedov, S. 2005. *The Theory of Demographic Cycles and a Social Evolution of Ancient and Medieval Oriental Societies*. Translated by S. Nefedov. Retrieved July 3, 2015 from <https://escholarship.org/uc/item/8qf580j5#page-1>.
- Turchin, P, L. Grinin, V. C. de Munck, and A. Korotayev, eds. 2006. *History & Mathematics: Historical Dynamics and Development of Complex Societies*. Moscow: KomKniga.
- Turchin, P, and S. Nefedov. 2009. *Secular Cycles*. Princeton, NJ: Princeton University Press.
- Wallerstein, I. 2000. *The Essential Wallerstein*. New York, NY: The New Press.

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