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Economic Analysis Models: Structural Analysis

Abstract

This study examines the theoretical and methodological foundations of structural changes and structural shifts in the economy, emphasizing their dynamic and multidimensional character. It highlights that these concepts are often used interchangeably, though structural shifts typically precede structural changes and are linked to crises within economic systems. The research also explores cognitive and behavioural dimensions, showing how perception, decision-making, and organizational adaptation influence economic transformation. Furthermore, the study applies the Weber–Fechner law to determine the perceptibility threshold of structural shifts, integrating psychophysiological aspects into economic analysis. The findings suggest that structural shifts represent not only quantitative transformations but also qualitative and cognitive transitions shaping economic development.

Keywords: *structural change, structural shift, economic structure, cognitive transformation, behavioural shift, Weber–Fechner law, sustainable development*

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İqtisadi təhlil modelləri: struktur təhlil

Xülasə

Bu tədqiqat iqtisadiyyatda struktur dəyişikliklərin və struktur yerdəyişmələrin nəzəri və metodoloji əsaslarını araşdırır, onların dinamik və çoxölçülü xarakterini vurğulayır. İşdə göstərilir ki, bu anlayışlar çox vaxt bir-birinin sinonimi kimi istifadə olunsa da, struktur yerdəyişmələr, adətən, struktur dəyişikliklərdən əvvəl baş verir və iqtisadi sistemlərdə yaranan böhranlarla əlaqələndirilir. Tədqiqat, həmçinin, koqnitiv və davranış yönümlü ölçüləri təhlil edir, idrak, qərar qəbul etmə və təşkilati adaptasiyanın iqtisadi transformasiyaya necə təsir etdiyini nümayiş etdirir. Bundan əlavə, tədqiqat struktur yerdəyişmələrin hissedilmə həddini müəyyən etmək üçün Veber–Fexner qanununu tətbiq edir və psixofizioloji aspektləri iqtisadi təhlilə inteqrasiya edir. Nəticələr göstərir ki, struktur yerdəyişmələr təkcə kəmiyyət dəyişiklikləri deyil, həm də iqtisadi inkişafı formalaşdıran keyfiyyət və idrak transformasiyalarıdır.

Açar sözlər: *struktur dəyişiklik, struktur yerdəyişmə, iqtisadi struktur, koqnitiv transformasiya, davranış yönümlü yerdəyişmə, Veber–Fexner qanunu, dayanıqlı inkişaf*

Introduction

Numerous scholarly works have been devoted to the study of the structure of the economy at various historical stages of economic science (Barnes, 2001, p. 9). Structural analysis involves the division of a whole into its constituent parts. Such a decomposition of the studied object creates the initial conditions for managing the whole through its components.

In the study of socio-economic relations, methodological diversity is observed in the approaches to structuring objects. This can be partly explained by the fact that the decomposition of any object essentially represents the process of understanding and comprehending it. Many philosophers, including Plato and Aristotle, believed that concepts are the means of grasping the fundamental characteristics of objects. The separation of components, their characterization, and the description of their interrelations are considered one of the methods of generating new knowledge.

Research

Many researchers believe that the structure of socio-economic phenomena changes dynamically and has a cyclical nature. M.A.Hasanov notes that “the structural development of the economy is characterized by periodicity and self-organization” (Gasanov, & Tyutyushev, 2012).

According to other scholars, however, it develops in a consistent and progressive manner (L.Abalkin, V.Avtonomov, A.Anchishkin, D.Kantorovich, S.Shatalin, & Y.Yaremenko). In recent years, foreign literature has primarily examined structural changes in the context of sustainable development (Akinsola, Awosusi, Kirikkaleli, Umarbeyli, Adeshola, & Adebayo, 2022), carbon emissions (CO₂) (Xu, Umar, Kirikkaleli, Adebayo, & Altuntaş, 2022), and the ecological transformation of economies (Mbeva, Makomere, Atela, Chengo, & Tonui, 2023; Pata, & Yurtkuran, 2023). Researchers, particularly O.S.Sukharev (Sukharev, 2016), note that there is no universally accepted approach in the scientific literature regarding the concepts of “structural changes” and “structural shifts.” According to certain definitions, a structural shift is understood as a process involving qualitatively changing interrelations among comparable elements of the macroeconomic system. This process encompasses the adaptation of key proportions of the socio-economic system to endogenous and exogenous changes, resulting from the unequal dynamics of their quantitative characteristics (Gasanov, & Tyutyushev, 2012).

The development of economic activity and the uneven growth of individual regions and territories (Roshchina, n.d.) reveal the manifestation of structural changes both at the regional level and within the national economy. Against the backdrop of the increasing occurrence of such phenomena, the systematization of methodological approaches becomes particularly relevant. Such systematization makes it possible to preserve the conceptual integrity of economic analysis methods. A structural shift is a complex phenomenon whose boundaries, necessary and sufficient characteristics, and complete classification have not yet been clearly defined. Modern researchers generally interpret structural shifts as changes occurring at the sectoral (industry) level (Hasanov, Karimova, Shirov, & Klimovich, et al.), and these changes are often studied within a regional context — in terms of their impact on the economic indicators of a specific region or territory.

Based on our analysis of the literature, it can be observed that researchers generally do not distinguish between structural changes and structural shifts, treating these concepts almost as synonyms. Nevertheless, the life cycle of structural changes has been at least partially explored by some scholars. M.A.Hasanov notes that “...the transformation of the economic structure occurs as a result of structural shifts. This process is preceded by a structural crisis, which arises from contradictions between the elements of the structure” (Gasanov, 2012).

Changes occurring in corporate culture, individual value orientations, the structure of needs, or at the level of an organization or an entire country can be viewed as cognitive structural shifts. In economic practice, these changes manifest themselves as investment-oriented or management-oriented structural shifts. Cognitive structural changes arise as a result of an individual's, enterprise's, region's, or country's critical awareness of trends in the external environment and directly influence the worldview of the economic agent as well as the process of economic decision-making (Shirov, 2016).

Significant changes in the behaviour of an individual, organization, or an entire country, in turn, can be considered behavioural structural shifts. These include fundamental transformations in areas such as approaches to resource management, methods of asset management, decision-making techniques, and supplier selection criteria, among others (Klimovich, 2021).

A quantitative criterion is proposed to determine the “significance” level of a structural shift. One form of such an assessment is an approach based on the laws of psychophysiological perception. This approach takes as its foundation how a human being — the primary economic agent and decision-maker — perceives changes.

The author’s proposal involves the adaptation of the Weber–Fechner law, an empirical psychophysiological principle stating that the perceived intensity of a stimulus is proportional to the logarithm of its actual physical intensity. The key feature of this logarithmic relationship is that as the intensity of stimuli increases, the perceived change in intensity gradually diminishes on a subjective level.

For example, consider a situation in which a manufacturing company gradually automates its production process. At first, when automation replaces 10% of manual labour, employees and managers clearly perceive the change — productivity increases, workflows shift, and staff must adapt to new technologies. However, as automation expands from 60% to 70%, the perceived difference becomes much smaller, even though the objective technological change remains significant.

According to the Weber–Fechner law, this happens because each additional unit of change (stimulus intensity) produces a smaller perceptual effect. Thus, while the company continues to evolve structurally, the people within it may *feel* that change is slowing down. This principle helps economists quantify when structural transformations — such as investment shifts, digitalization, or management reforms — are strong enough to be noticed and acted upon by decision-makers, providing insight into the alignment between objective economic shifts and subjective human perception.

Applying the Weber–Fechner law to economic relations makes it possible to quantitatively determine the “perceptible” threshold of structural shifts at both the individual and enterprise levels and thereby allows researchers to evaluate how economic changes correspond to subjective perception.

Conclusion

The analysis of scholarly literature on structural changes and structural shifts in the economy reveals the complexity and multidimensionality of these phenomena. Economic structure has long been an object of theoretical reflection and empirical investigation, with research perspectives evolving from classical decomposition approaches to more dynamic, system-oriented interpretations. Structural analysis, rooted in philosophical traditions tracing back to Plato and Aristotle, remains a fundamental method for understanding the interrelations among the elements of socio-economic systems and for generating new knowledge about their internal dynamics.

Despite extensive theoretical and empirical contributions, there is still no universally accepted framework that defines the boundaries, characteristics, and classification of structural shifts. The concepts of *structural change* and *structural shift* are often used interchangeably, though certain authors, including Hasanov and Sukharev, stress their causal relationship—where structural change emerges as the result of structural shifts, often preceded by a structural crisis arising from contradictions within the system.

Furthermore, contemporary approaches have broadened the notion of structural transformation to include cognitive and behavioural dimensions. Cognitive structural shifts reflect the evolving awareness of individuals, organizations, and nations in adapting to external change, while behavioural structural shifts manifest as concrete transformations in management practices, decision-making, and resource allocation.

Finally, the adaptation of the Weber–Fechner law offers a novel quantitative perspective for assessing the perceptibility of structural shifts. By linking economic transformations to

psychophysiological perception, this approach emphasizes that not all changes are equally “felt” by economic agents. The perceived intensity of structural shifts depends on the logarithmic relationship between actual and experienced change, thus integrating subjective human cognition into the analysis of objective economic processes.

In conclusion, structural shifts represent not only measurable economic adjustments but also perceptual, behavioural, and systemic transitions that shape the trajectory of development. Understanding their mechanisms, thresholds, and subjective dimensions remains a vital task for advancing both economic theory and policy design in an era of global transformation.

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