

REVIEW
of the official reviewer of the dissertation of
Kenzheali Yerkezhan Altaykyzy on the topic “The impact of gender stereotypes on the formation of the labor market in Kazakhstan: theory, assessment and development scenarios” for the degree of Doctor of Philosophy (PhD) on the educational program 8D04101 – “Economics”

№ p/p	Criteria	Compliance with criteria (one of the answer options should be marked)	Justification of the official reviewer's position (comments in italics)
1.	The topic of the dissertation (as of the date of its approval) corresponds to the directions of scientific development and/or state programs	1.1 Compliance with priority directions of science development or state programs: <u>1) The dissertation was carried out within the framework of a project or targeted program financed from the state budget (specify the name and number of the project or program)</u> 2) The dissertation was carried out within the framework of another state program (specify the name of the program); 3) The dissertation corresponds to the priority direction of science development approved by the Higher Scientific and Technical Commission under the Government of the Republic of Kazakhstan (specify the direction)	This dissertation is aligned with the implementation of the following strategic and programmatic documents: - The research is directly linked to the implementation of the Address of the President of the Republic of Kazakhstan, Kassym-Jomart Tokayev, to the People of Kazakhstan dated September 8, 2025, “Kazakhstan in the Era of Artificial Intelligence: Current Challenges and Solutions through Digital Transformation”, which emphasizes the need to modernize the labor market, forecast personnel needs, introduce new competencies, and ensure gender equality in the context of digitalization; - The Concept of Family and Gender Policy in the Republic of Kazakhstan until 2030; - The National Action Plan for the Promotion of Equal Rights and Opportunities for Men and Women for 2024–2027; - The Strategy for Achieving Gender Equality and Empowering Women. Thus, the dissertation topic is fully aligned with the priority areas of state scientific and technical policy and the strategic goals of the Republic of Kazakhstan's socioeconomic development, in particular, the objective of ensuring gender equality in the labour market.
2.	Importance for science	The work <u>does</u> /does not make a significant contribution to science, and its importance <u>is well - disclosed</u> /not disclosed.	The dissertation research represents a valuable contribution to the advancement of scientific knowledge in the field of labor economics, gender studies, and socio-economic transformations. The novelty of its theoretical framework determines the significance of the work, the interdisciplinary methodology employed, and the practical orientation of the author's conclusions. Firstly, the dissertation provides a comprehensive interpretation of the mechanisms underlying gender stereotyping in Kazakhstan's labor market. The author substantiates the cognitive, social, and institutional dimensions of stereotypes and reveals their influence on employment structure, wage differentials, and professional segregation. This approach expands the conceptual field of

			gender economics and deepens the theoretical understanding of the interaction between individual behavior, institutional norms, and economic outcomes. Secondly, the research introduces a new methodological framework combining statistical, econometric, and clustering techniques (PCA, correlation analysis, decision tree classification, and scenario modeling). This integrated approach enables a quantitative assessment of gender asymmetries and allows the identification of hidden dependencies between employment, education and self-assessment factors. The study's methodological innovation ensures its scientific originality and reproducibility. Thirdly, the dissertation presents the Gendered Pathways Model, which describes the reproduction of gender-based behavioral restrictions in Kazakhstan's socio-economic context. The model synthesizes international theoretical concepts such as the pipeline theory, glass escalator effect, and stereotype inoculation model with the specifics of Kazakhstan's institutional environment. This theoretical integration represents a meaningful step forward in adapting global approaches to local research contexts. Thus, the dissertation constitutes a significant scholarly contribution with both theoretical depth and practical relevance. The study enriches the academic discourse on labor market transformation and gender inequality, offering a foundation for future interdisciplinary research and policy innovation in Kazakhstan and beyond.
3.	Principle of autonomy	Level of autonomy:	The author defined a socially significant research problem and selected appropriate theoretical and methodological approaches. A comprehensive analysis was conducted using quantitative and qualitative methods, ensuring the completeness and reliability of the results. The research methodological framework encompasses statistical, econometric, and sociological tools. This approach allowed for a comprehensive examination of the problem and the attainment of objective conclusions. The dissertation structure is logically organized, reflecting the candidate's ability to develop and implement each stage of the research process—from problem definition and hypothesis formulation to model development, data interpretation, and conclusion synthesis. The use of econometric modeling, scenario analysis, and an institutional approach demonstrates the author's ability to analyze complex socioeconomic phenomena comprehensively. The author
		1) high; 2) medium; 3) low; 4) no independence.	

			demonstrated an ability to conduct independent scientific research, master analytical methods, and a commitment to finding solutions. The results of the work make a significant contribution to the development of scientific understanding of the gender aspects of the labor market and can be used to improve public employment policy and ensure equal opportunity.
4.	Principle of internal unity	4.1 Justification of the relevance of the thesis:	This thesis examines one of the pressing socioeconomic issues facing contemporary Kazakhstan: the influence of gender stereotypes on the formation and development of the labor market. The author analyzes how persistent social attitudes and institutional practices influence the distribution of labor roles and the employment rates of men and women. This study contributes to a deeper understanding of the factors determining gender asymmetry in the economy. The obtained results are relevant for developing measures to ensure equal opportunities in the labor market. The relevance of this thesis is determined by the country's strategic objectives for inclusive economic growth and strengthening the principles of gender equality. The author consistently reveals the role of stereotypes as institutional barriers influencing the employment structure, occupational stratification, and wage levels. The use of a combination of quantitative and qualitative methods, including factor, cluster, and scenario analysis, allowed for a high degree of scientific validity. Its logical completeness and methodological rigor distinguishes the dissertation research.
		<u>1) justified;</u> 2) partially justified; 3) not substantiated.	
		4.2: The content of the dissertation reflects the dissertation topic:	
		<u>1) reflects;</u> 2) partially reflects; 3) do not reflects.	The dissertation's content is fully consistent with the stated topic. The author consistently reveals its theoretical, methodological, analytical, and practical aspects. Each chapter is logically linked to the primary goal of the study, identifying and assessing the influence of gender stereotypes on the formation and development of the labor market in Kazakhstan. The first chapter, "Theoretical and methodological foundations of the formation of gender stereotypes in the labor market", defines the conceptual foundations of the study, clarifies the concept of "gender stereotypes", examines international experience of their influence on the labor market, and substantiates the methodological approaches used in the work. The second chapter, "Analysis of the labor market and organizational and economic possibilities for regulating gender stereotypes in Kazakhstan", assesses the current situation in the

			labor market from a gender perspective, develops an economic and mathematical model for analyzing gender stereotypes, and examines the possibilities of their institutional regulation. The third chapter, "Main directions and scenarios for the development of the labor market in Kazakhstan", outlines strategic directions and scenarios to reduce the influence of gender stereotypes, along with practical recommendations and a roadmap for achieving gender equality in employment. The dissertation's structure is logical and consistent, ensuring a transition from theoretical justification to empirical analysis and practical recommendations. All sections are interconnected, reflect the topic, and are aimed at achieving the study's stated goals and objectives.
		4.3. The purpose and objectives are consistent with the thesis topic:	The work aims to provide theoretical and methodological substantiation of the influence of gender stereotypes on the formation of the labor market in Kazakhstan, as well as to develop directions and scenarios for its development in the context of ensuring equal employment opportunities. The objectives logically follow from the goal and ensure its step-by-step implementation. The work consistently addresses the primary scientific objectives: an assessment of the state of the labor market in Kazakhstan was carried out taking into account gender factors; an economic and mathematical model for the analysis of gender stereotypes was developed; institutional mechanisms for their formation and regulation were studied; directions of the influence of stereotypes on the labor market were identified; scenarios for their change and practical measures to reduce their negative impact were proposed. Each stage of the study is consistent with the overall goal and reflects its content, ensuring the scientific integrity and internal logic of the dissertation. Thus, the goals and objectives are fully consistent with the topic of the dissertation and contribute to the creation of a scientifically based and practically significant approach to reducing gender inequality in the labor market of Kazakhstan.
		1) correspond to; 2) partially correspond; 3) do not correspond.	
		4.4 All sections and statements of the thesis are logically interrelated:	
		1) fully interrelated; 2) partially interrelated; 3) do not interrelated.	All sections and provisions of the dissertation are completely interconnected and are characterised by the unity and interdependence of the problem, goal, objectives, methods of theoretical and practical research, and the results obtained.

		4.5 The new solutions (principles, methods) proposed by the author are argued and evaluated in comparison with known solutions: <u>1) there is critical analysis</u> 2) the analysis is partial; 3) the analysis does not represent personal opinions, but rather quotes from other authors; 4) no analysis.	The solutions proposed by Kenzheali Y.A. are substantiated and evaluated on the basis of a critical analysis of the conducted research and a review of scientific articles in the relevant field.
5.	Principle of scientific novelty	5.1 Are the scientific results and provisions new? <u>1) completely new;</u> 2) partially new (25-75% are new); 3) not new (less than 25% are new).	The results of this dissertation are scientifically novel and represent a significant contribution to the development of the theory and practice of labor market regulation and gender policy in Kazakhstan. This novelty is expressed in the following: - the concept of “gender stereotypes” in the socioeconomic context has been clarified, and the author's definition has been proposed as a set of attitudes, goals, and behavior patterns formed under the influence of cultural and institutional norms and influencing economic activity and employment; - a methodology for analyzing and quantifying the impact of gender stereotypes on the labor market has been developed, based on the use of modern econometric tools, including correlation and regression analysis, data standardization (Z-score), and cluster and factor analysis (PCA); - an economic and mathematical model of the impact of gender stereotypes on labor market indicators has been constructed, revealing the relationship between female employment, wages, occupational segregation structure, and macroeconomic indicators (GDP, labor productivity); - A multi-level approach to the study of gender stereotypes was proposed, integrating macro-, meso-, micro-, and intrapsychic levels of analysis, allowing us to identify the mechanisms of their reproduction, from institutional practices to individual attitudes; - An institutional model, “gendered pathways”, adapted to the socioeconomic conditions of Kazakhstan was developed and substantiated, explaining the mechanisms for the formation and

			overcoming of gender-based limitations in employment and professional growth; - Scenario models for regulating gender stereotypes (basic, reformist, and transformational) were developed, reflecting possible trajectories of labor market development depending on the degree of implementation of gender-sensitive policies; - Organizational and economic measures and tools for practical implementation were proposed, including the introduction of a gender pay gap index, gender audits, the development of job evaluation systems, and a roadmap for reducing the influence of stereotypes in the Kazakhstan labor market. Thus, the dissertation expands the theoretical and methodological foundations of the study of gender differences in labor economics and makes a significant contribution to the development of the domestic scientific school in the field of gender economics and state social policy.
		5.2 The conclusions of the thesis are new?	This dissertation presents new scientific findings concerning the systemic factors and mechanisms of gender stereotype formation and their impact on the structure and dynamics of the Kazakhstan labor market. The author developed a comprehensive theoretical and methodological model that reflects the interrelationships among economic, institutional, and cultural factors underlying gender inequality. The work substantiates strategic approaches to reducing gender asymmetry and increasing women's participation in innovative and digital sectors of the economy. The study's novelty is confirmed by its practical applicability.
		1) completely new; 2) partially new (25-75% are new); 3) not new (less than 25% are new).	
		5.3 Technical, technological, economic or management decisions are new and reasonable: 1) completely new; 2) partially new (25-75% are new); 3) not new (less than 25% are new).	
6.	Validity of the main conclusions	All major conclusions are based /not based on scientifically rigorous evidence or are reasonably well supported (for qualitative	The dissertation's conclusions are substantiated and supported by extensive empirical data and analytical methods. The work utilized statistical analysis, econometric modeling, and sociological research,

		research and arts and humanities training areas).	ensuring the reliability and validity of the results. The use of various methods allowed us to compare quantitative data with social observations and obtain a comprehensive assessment of the processes under study. This approach increased the reliability of the findings and confirmed their practical applicability. The data sources include official statistics from the Bureau of National Statistics (BNS) of the Republic of Kazakhstan and primary survey data collected from university students, providing a solid empirical foundation. The theoretical interpretations are supported by relevant scientific literature and are adapted to Kazakhstan's socioeconomic conditions. The consistent application of quantitative and qualitative methods guarantees the objectivity and reliability of the results. Overall, the dissertation demonstrates a high level of scientific validity and convincing conclusions.
7.	The main provisions submitted for defense	The following questions need to be answered for each position separately:	Proposition 1. In the dissertation work, a definition of “gender stereotypes” as a system of perceptions, attitudes, and behaviour patterns shaped by cultural and institutional norms was proposed. Unlike traditional approaches, stereotypes are viewed as a dynamic category influencing economic activity and the distribution of labor roles. This clarification deepens our understanding of the role of gender factors in the economy and strengthens the research methodological framework. Proposition 2. In the dissertation work, a proprietary tool was developed for comparative analysis of international experience in overcoming gender stereotypes. The resulting analytical matrices are built on a combination of quantitative and institutional indicators reflecting cultural and economic characteristics. This data presentation format allows for consideration of both statistical differences and institutional conditions influencing the labor market. This enables a comprehensive analysis of the factors determining the level of gender asymmetry in employment and wages. This approach helps establish the link between the results of gender policy and the
		7.1 Is the position proven?	
		1) proven; 2) most likely proven; 3) most likely not proven; 4) not proven; 5) in its current formulation, it is impossible to verify the validity of the proposition.	
		7.2 Is it trivial?	
		1) yes; 2) no; 3) In the current formulation, it is impossible to verify the triviality of the position.	
		7.3 Is it new?	

		1) yes; 2) no; 3) In the current formulation, it is impossible to verify the triviality of the position.	effectiveness of equal opportunity programs, making the methodology practical for monitoring. Provision 3. A multi-level approach is proposed, encompassing macro-, meso-, micro-, and intrapersonal levels of analysis. It provides a comprehensive understanding of the factors influencing the formation and reproduction of stereotypes, from institutional norms to individual attitudes. The developed approach can be applied to create employment policies that ensure gender balance and equal access to employment opportunities. Provision 4. A “gendered pathways” model adapted to Kazakhstan's socioeconomic conditions has been developed. It integrates international theoretical concepts and reveals the mechanisms by which gender-based behavioral constraints in the workplace are formed. The model was used to assess the effectiveness of gender policy and improve human resource management practices. Provision 5. The thesis presents a practical “Roadmap” for the implementation of measures aimed at reducing gender gaps in the labor market. The document includes scenario approaches, assessment indicators, and monitoring tools, such as a gender gap index and a job evaluation system. The proposed recommendations can be used by educational organizations and businesses in the development and implementation of equal opportunity policies.
		7.4 Level of application:	
		1) narrow; 2) medium; 3) wide; 4) in the current formulation, it is impossible to verify the level of validity of the provision.	
		7.5 Is it proven in the article?	
		1) yes; 2) no; 3) In the current formulation, it is impossible to verify the triviality of the position.	
8.	Principle of reliability.	8.1 Choice of methodology – is the methodology justified or the methodology is described in sufficient detail:	The dissertation's methodological framework is well-founded, consistent, and clearly presented. The author employs a comprehensive approach to the study, combining theoretical generalization, comparative analysis, and econometric modeling. The chosen methodology fully aligns with the study's goals and objectives, allowing for a detailed analysis of gender stereotypes, labor market structure, and socioeconomic dynamics. The dissertation work utilized quantitative and computational tools, including correlation-regression analysis, principal component analysis (PCA), cluster analysis, and scenario modeling. Data processing was conducted using statistical software such as Jamovi and STATA, ensuring the accuracy, validity, and reproducibility of the results. The
	Reliability of sources and information provided	1) yes; 2) no.	
		8.2 The results of the dissertation work were obtained using modern methods of scientific research and techniques of data processing and interpretation with the use of computer technologies:	

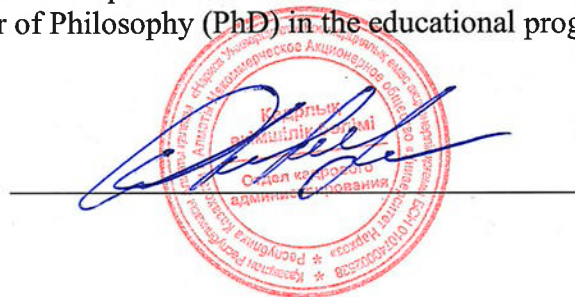
		<u>1) yes;</u> 2) no.	use of programming tools increased the analytical depth and empirical reliability of the study.
		8.3 Theoretical conclusions, models, revealed interrelations and regularities are proven and confirmed by experimental research (for the directions of training in pedagogical sciences the results are proved on the basis of a pedagogical experiment):	The study's theoretical propositions are supported by empirical data from national statistics and the author's sociological survey of university students. This combination of sources ensured the verification of the hypotheses and increased the reliability of the conclusions. The empirical base allowed us to compare theoretical assumptions with actual data and identify consistent patterns in the labor market. The dissertation established consistent links between gender stereotypes, institutional mechanisms, and measurable labor market indicators, confirming the reliability and validity of the findings. As a result, the identified relationships and patterns are statistically and logically valid, demonstrating the appropriateness of the chosen methods and the reliability of the obtained results.
		<u>1) yes;</u> 2) no.	
		8.4 Important assertions are <u>supported</u>/partially supported/not supported by references to relevant and reliable scientific literature.	References to relevant and reliable sources support most key assertions. The doctoral candidate consistently draws on the results of modern empirical research and theoretical concepts, ensuring the reliability and validity of their conclusions. In some instances, where the author's interpretations are presented, logical justifications and comparisons with existing approaches are provided, making the argumentation convincing and scientifically sound. References to authoritative sources and empirical data reinforce the doctoral candidate's arguments, demonstrating deep immersion in global scientific discourse.
9	Principle of practical value	8.5 The literature sources used are <u>sufficient</u>/not sufficient for a literature review.	The literature review is comprehensive and clearly structured, including approximately 150 scientific and analytical sources. The dissertation draws on both classical and contemporary research by international and domestic authors on issues of gender analysis and the labor market. This comprehensive coverage provides a solid theoretical foundation and enables comparison of various approaches to the problem under study. The diversity and quality of the sources used confirm the high level of research and its methodological soundness.
		9.1 The thesis has theoretical significance: <u>1) yes;</u> 2) no.	This dissertation represents a significant theoretical contribution to the field of labor economics and gender studies. The study demonstrates that gender stereotypes are an important factor in analyzing the structure of the labor market, exerting a significant influence on the socioeconomic behavior of various population groups. The doctoral student proposes a

			model that describes how gender trajectories, the professional and social development paths of men and women develop and change. The dissertation analyzes three levels: institutional (the influence of laws, norms, and policies), behavioral (personal attitudes and choices), and macroeconomic (general trends in the labor market and economy). This approach provides a deeper understanding of how gender differences are formed and manifested in the economy and creates a foundation for future research that combines economic, sociological, and behavioral approaches.
		9.2 The dissertation is of practical significance and there is a high probability that the obtained results will be applied in practice:	The practical significance of this dissertation lies in the potential use of the proposed models, methodological approaches, and recommendations in the development and implementation of public policy aimed at increasing employment and achieving gender equality. The author proposes tools, including a gender pay gap index, job evaluation systems, and a “Roadmap” for reducing the impact of gender stereotypes, targeted at businesses and educational institutions. The research findings can be used to develop the strategic programs “Gender Policy - 2030” and “Kazakhstan - 2050,” as well as to implement the country's international commitments to achieve the Sustainable Development Goals (SDG 5 and SDG 8). The proposed measures are aimed at improving the efficiency of labor force utilization and expanding women's participation in the digital and innovative economy.
		<u>1) yes;</u> 2) no.	
		9.3 Are the practice offering new:	This dissertation presents proposals that complement existing strategic and regulatory documents. It proposes a comprehensive mechanism that takes into account gender factors in labor, education, and economic development. This approach is based on the integration of gender analysis into economic policy and includes a system of measurable indicators for monitoring, internal assessment tools, and practical recommendations for implementing equal opportunity principles in personnel, educational, and economic practices. This approach allows for the consideration of the impact of gender differences on economic activity, employment, and human capital, ensuring more balanced and sustainable development. Overall, the recommendations are comprehensive, cross-sectoral, and highly applicable to both public administration and the corporate sector.
		<u>1) completely new;</u> 2) partially new (25-75% are new); 3) not new (less than 25% are new).	

10.	Quality of writing and design	Quality of academic writing is 1) high; 2) average; 3) below average; 4) low.	The dissertation work fully complies with academic writing standards, demonstrating a clear structure, logical argumentation, and coherent presentation of ideas. The material is presented systematically, with precise terminology and consistent analytical justification. The author's scholarly style is distinguished by professionalism and conciseness, making complex theoretical and empirical conclusions accessible and convincing. The clarity of presentation, precise use of scientific language, and clear organization demonstrate the candidate's high level of scientific competence and research culture.
11.	Comments on the dissertation	Minor editorial revisions may be made to improve stylistic consistency, but the overall quality, structure, and presentation of the dissertation remain excellent. The study demonstrates a solid theoretical foundation, methodological rigor, and compelling integration of empirical data. The originality, practical significance, and academic depth of the research fully meet the standards of a doctoral dissertation.	
12.	Scientific level of the doctoral student's articles on the research topic (in case of thesis defense in the form of a series of articles, official reviewers comment on the scientific level of each article of the doctoral student's article on the research topic)	The main results of the dissertation were published in nine (9) scientific articles, one (1) of which was published in journals included in Scopus databases with a percentile above 85, six (6) in journals recommended by the Committee on Quality Assurance of Higher Education, and two (2) in the proceedings of international scientific and practical conferences. The content of the publications generally aligns with the dissertation's topic and objectives, clearly outlining its goals and main results.	
13.	Decision of the official reviewer (in accordance with paragraph 28 of the Standard Provisions)	To award the academic degree of Doctor of Philosophy (PhD) in the educational program 8D04101 – Economics.	

The dissertation work of Kenzheali Yerkezhan Altaykyzy entitled “The impact of gender stereotypes on the formation of the labor market in kazakhstan: theory, assessment, and development scenarios” meets the requirements for dissertations submitted for the degree of Doctor of Philosophy (PhD), and its author deserves to be awarded the degree of Doctor of Philosophy (PhD) in the educational program 8D04101 – “Economics”.

Official Reviewer,
PhD, Associate Professor of Narxoz University



Sagidolda N.