
Cross-border E-commerce Employment and Workforce Dynamics: A Survey

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Abstract

Cross-border e-commerce (CBEC) is reshaping global trade, employment, and workforce dynamics through the integration of digital platforms and technological advancements. This survey examines the multifaceted impacts of CBEC, highlighting its role in transforming traditional trade frameworks and enhancing economic interconnectivity. The study underscores the significance of logistics innovations, such as advanced tracking and optimization techniques, in reducing delivery times and improving business competitiveness. It also explores the implications of digital labor, emphasizing the need to recognize inconspicuous production and address digital divide challenges to ensure equitable access to CBEC benefits. The findings indicate that firm size is less critical than the quality of digital resources and managerial capabilities in driving digital export strategies. The survey advocates for longitudinal studies to track employment changes and inform policy strategies that mitigate negative impacts, promoting sustainable economic development. It concludes that by leveraging technological advancements and investing in digital infrastructure and skills, stakeholders can harness CBEC's potential to drive growth and innovation. Future research should focus on equitable policy development and workforce transformation in the digital economy.

1 Introduction

1.1 Relevance of Cross-border E-commerce

Cross-border e-commerce (CBEC) has emerged as a pivotal element of the global economy, transforming traditional trade frameworks and enhancing economic interconnectivity. The rise of digital platforms has facilitated seamless international transactions, empowering consumers and businesses to engage in global trade with unprecedented ease [1]. This transformation is particularly relevant within the gig economy, which has introduced innovative employment paradigms and facilitated the exchange of talent and capital through online labor marketplaces, thereby reducing hiring frictions and increasing labor liquidity [2].

The implications of CBEC extend beyond economic transactions to logistics and supply chain management. The rapid growth of e-commerce necessitates innovative logistical solutions to meet evolving consumer demands, particularly in managing uncertainties inherent in cross-border logistics. Companies are increasingly enhancing their supply chain capabilities, shifting focus from product attributes to the efficiency and reliability of delivery systems [3]. This evolution highlights the critical role of logistics in maximizing the economic benefits of CBEC.

CBEC also presents significant economic opportunities by granting access to broader markets and diverse products [1]. However, the distribution of these benefits is uneven, as evidenced by disparities in e-commerce adoption between urban and rural regions, particularly in Africa [4]. Addressing this digital divide is crucial for ensuring equitable access to CBEC advantages.

Moreover, CBEC profoundly influences labor markets and employment patterns. Advanced data collection methods facilitate real-time monitoring of employment status and mobility behavior, un-

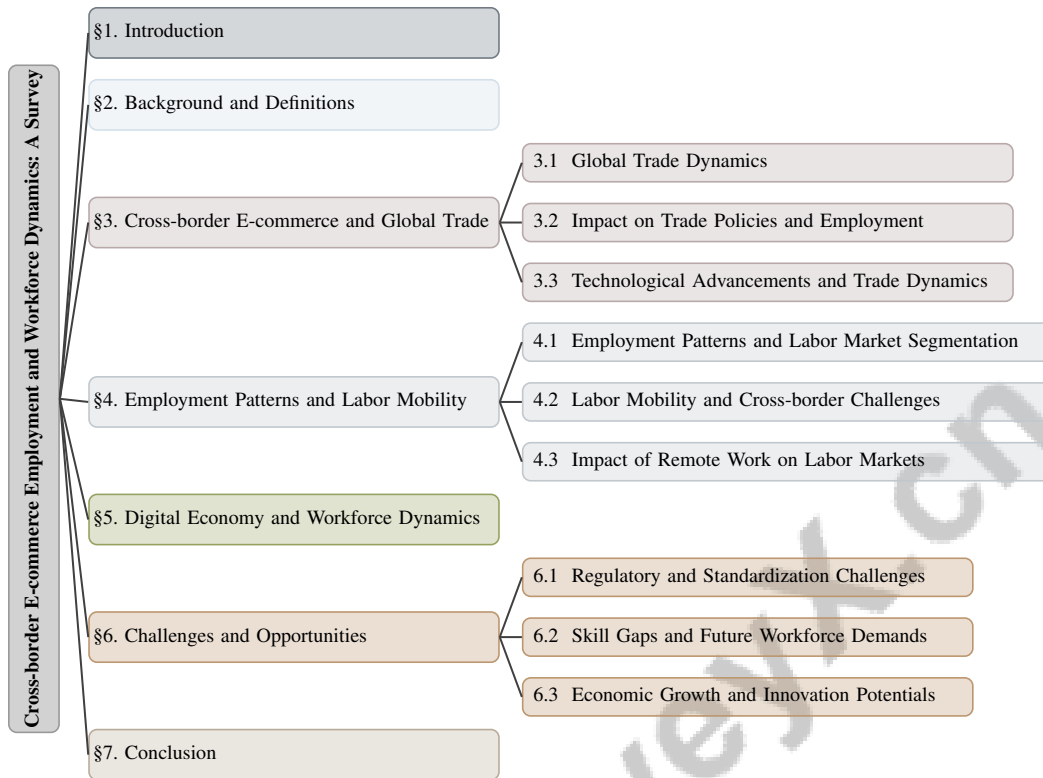


Figure 1: chapter structure

underscoring CBEC's transformative impact on workforce dynamics [5]. The ongoing debate regarding the impact of technological change on employment—whether it destroys or creates jobs—further complicates this landscape [6].

The relevance of CBEC in the global economy is underscored by its potential to drive economic growth, enhance logistical efficiencies, and reshape employment landscapes. Thus, it remains a critical area for study and policy consideration, particularly regarding the complexities surrounding concepts like 'growth dependence' [7].

1.2 Structure of the Survey

This survey comprehensively analyzes the multifaceted relationship between cross-border e-commerce and its impacts on global trade, employment, and workforce dynamics. It begins with an introduction that emphasizes the significance of CBEC in the global economy and its interconnectedness with various sectors, followed by a background section that defines key concepts and provides context for subsequent discussions.

The core of the survey is divided into thematic sections. The first major section investigates the impact of CBEC on global trade, detailing how digital platforms and technological advancements have reshaped trade practices and facilitated international transactions. This includes an analysis of global trade dynamics, the influence of CBEC on trade policies and employment, and the role of technology in transforming trade.

Subsequently, the survey explores CBEC's influence on employment patterns and labor mobility, discussing changes in employment structures and the challenges and opportunities related to labor mobility in cross-border contexts. It highlights how remote work, enabled by digital platforms, connects diverse labor markets globally while contributing to spatial polarization. Although remote work can create job opportunities in rural areas due to lower living costs, it often concentrates employment in urban centers, exacerbating existing inequalities. The polarization of remote work along skill lines indicates that workers with in-demand skills are more likely to secure well-paying jobs, while those with less sought-after skills face intense competition and lower wages. This dynamic

illustrates the complex interplay between technological advancements and labor market structures, emphasizing the need for effective upskilling and reskilling initiatives [8, 9, 10, 6].

The next section focuses on the digital economy and workforce dynamics, analyzing how technological advancements have shifted employment structures and increased demand for new skills. It examines the digital economy's influence, workforce restructuring, and the role of digital platforms in facilitating remote work.

The survey also identifies challenges and opportunities at the intersection of CBEC, employment, and workforce dynamics, discussing regulatory challenges, skill gaps, and the potential for economic growth and innovation.

Finally, the survey concludes by summarizing key findings and reflecting on the implications of CBEC for employment and workforce dynamics. It highlights critical areas for future research and policy considerations, particularly the necessity for ongoing investigation into technological impacts on employment, the integration of digital capabilities in firms, and the effectiveness of reskilling strategies for vulnerable populations. This underscores the importance of developing frameworks that utilize real-time data to monitor labor market shifts and inform timely interventions, ensuring that individuals and organizations can adapt effectively in this rapidly evolving landscape [5, 6, 11, 12, 13]. The following sections are organized as shown in Figure 1.

2 Background and Definitions

2.1 Measuring Cross-border E-commerce in the EU

Accurately measuring cross-border e-commerce (CBEC) within the European Union (EU) is fraught with methodological and regulatory challenges. Traditional methods, such as consumer and business surveys, often underestimate cross-border online consumption due to language biases and sampling limitations [14]. The rapidly changing nature of digital transactions, coupled with a lack of standardized methodologies, further complicates effective tracking.

Integrating digital business ecosystems into existing economic frameworks presents additional hurdles, particularly concerning data quality and model interpretability, which are crucial for precise assessment [15]. The swift advancement of technology demands the development of adaptable methodologies, particularly those addressing information and communication technologies that shape employment patterns and labor market dynamics [6].

The interplay between the digital economy, regional innovation, and employment highlights the necessity for measurement approaches that consider regional disparities and the varied impacts of digital infrastructure [16]. This requires tackling methodological issues like the incidental parameter problem and initial condition problem, which hinder consistent estimation of structural parameters over time.

The digital divide, characterized by disparities in internet access and digital literacy, particularly in rural areas, exacerbates the challenges in measuring CBEC activities [4]. Comprehensive data collection strategies that integrate digital export strategies across sectors are crucial for enhancing the accuracy of economic measurements within the EU [11]. By overcoming these methodological challenges, policymakers and researchers can better understand the economic potential of CBEC in the EU.

In recent years, the landscape of global trade has been significantly reshaped by the emergence of cross-border e-commerce (CBEC). This transformation is not merely a shift in consumer behavior but represents a complex interplay of various factors that influence trade dynamics, policy frameworks, and technological advancements. Figure 2 illustrates the hierarchical structure of CBEC's influence on global trade, highlighting key dynamics, policy impacts, and technological advancements. The figure categorizes the challenges, strategies, and transformations in trade and employment that have arisen due to CBEC, thereby emphasizing the critical role of technology and the necessity for policy adaptation in this evolving market. By examining these elements, we gain a deeper understanding of the multifaceted impacts of CBEC on the global economy and the imperative for stakeholders to adapt to these changes.

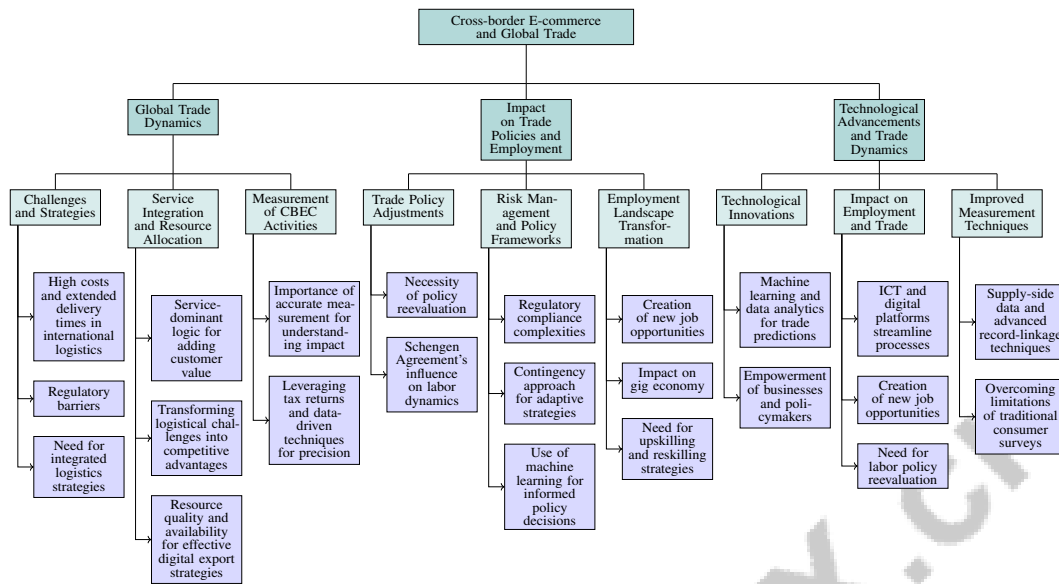


Figure 2: This figure illustrates the hierarchical structure of cross-border e-commerce's influence on global trade, highlighting key dynamics, policy impacts, and technological advancements. It categorizes the challenges, strategies, and transformations in trade and employment due to CBEC, emphasizing the role of technology and policy adaptation.

3 Cross-border E-commerce and Global Trade

3.1 Global Trade Dynamics

Cross-border e-commerce (CBEC) has significantly altered global trade by restructuring traditional trade patterns and enhancing economic interconnectivity through digital platforms. Despite these advancements, CBEC faces challenges in international logistics, including high costs, extended delivery times, and regulatory barriers [17]. An integrated approach to logistics within e-commerce strategies is crucial, as highlighted by Giuffrida et al. [18], who emphasize the need for research linking logistics to e-commerce frameworks to address CBEC's multifaceted challenges and enhance trade efficiency.

Service-dominant logic underscores the importance of service integration in adding customer value during cross-border transactions. Wang et al. [3] illustrate how integrating services can transform logistical challenges into competitive advantages, thereby improving operational efficiency and customer satisfaction. The effectiveness of digital export strategies is contingent on resource quality and availability, as noted by Elia et al. [11], who stress that adequate resource allocation is critical for navigating CBEC complexities.

Accurate measurement of cross-border internet purchases is essential for understanding CBEC's impact on global trade dynamics. Meertens et al. [14] propose leveraging tax returns and data-driven techniques to provide more precise estimates of CBEC activities, addressing methodological shortcomings and clarifying CBEC's economic potential.

3.2 Impact on Trade Policies and Employment

CBEC significantly impacts trade policies and employment, reshaping labor markets and prompting policy reevaluation. Digital platforms necessitate trade policy adjustments to address CBEC's unique challenges. For instance, the Schengen Agreement has facilitated cross-border employment, influencing labor dynamics and requiring policy adaptations [19].

The complexities of CBEC, such as regulatory compliance and risk management, call for innovative policy responses. Giuffrida et al. [20] propose a contingency approach linking uncertainty types to risk management strategies, offering a framework for policymakers to develop adaptive strategies in

response to CBEC uncertainties. Advanced analytical tools, including machine learning, are vital for informed policy decisions and trade forecasts. Batareseh et al. [21] demonstrate how machine learning models can enhance trade prediction accuracy, aiding policymakers in supporting CBEC growth.

CBEC also transforms the employment landscape by creating new job opportunities and altering traditional patterns. Digital platforms expand labor markets, necessitating a reevaluation of labor policies to address the complexities of the evolving work environment. Emerging technologies displace roles while creating new opportunities, particularly in the gig economy, highlighting the need for effective upskilling and reskilling strategies. Recognizing inconspicuous labor contributions, such as data annotation and content creation, is crucial for developing social support systems that acknowledge hidden productivity driving economic growth. Labor policies must adapt to technology, market conditions, and worker needs to foster a resilient workforce in an increasingly automated landscape [9, 2, 6].

3.3 Technological Advancements and Trade Dynamics

Technological advancements are crucial in transforming trade dynamics through digital platforms that facilitate CBEC. The adoption of technologies like machine learning and data analytics significantly enhances trade pattern predictions. Batareseh et al. [21] highlight how boosting algorithms and machine learning models improve prediction quality, providing a data-driven approach for analyzing international trade dynamics. These technologies empower businesses and policymakers to anticipate market trends and optimize trade strategies.

The impact of technology on employment and trade encompasses areas such as Information and Communication Technology (ICT), robotics, and innovation. Htte et al. [6] examine these areas' effects on employment, noting that ICT and digital platforms streamline trade processes while creating new job opportunities. This necessitates a reevaluation of labor policies to meet the digital economy's evolving demands.

Technological innovations have also improved cross-border e-commerce activity measurement. Meertens et al. [14] propose utilizing supply-side data and advanced record-linkage techniques to identify webshops, overcoming traditional consumer survey limitations. This approach provides a more accurate assessment of CBEC activities, enhancing understanding of their impact on global trade dynamics.

4 Employment Patterns and Labor Mobility

4.1 Employment Patterns and Labor Market Segmentation

Cross-border e-commerce (CBEC) has significantly transformed employment patterns, leading to labor market segmentation by integrating digital platforms that alter traditional employment structures. This transformation is marked by the rise of digital labor, often undervalued and obscured as casual activities lacking recognition and fair compensation [9]. The invisibility of such labor complicates the assessment of CBEC's impact on employment, necessitating innovative measurement approaches.

Inefficient customs clearance and inadequate infrastructure further influence employment patterns within CBEC systems [3]. However, advancements in logistics, using technologies like optimization algorithms such as the ant colony algorithm, promise to enhance distribution routes, thereby improving logistical efficiency and creating new job opportunities in the logistics sector [17].

Worker motivations in CBEC vary significantly by country, reflecting diverse economic conditions and labor market contexts. For instance, workers in lower-income nations exhibit different motivational profiles compared to their counterparts in the U.S., emphasizing the need for tailored strategies to address unique employment challenges and opportunities in various regions [22]. This variation underscores the importance of understanding regional labor market dynamics to effectively leverage CBEC's potential.

Gender segmentation complicates the employment landscape, impacting the responsiveness of female labor supply to economic shocks [23]. Addressing this segmentation is vital for ensuring equitable access to employment opportunities and fostering inclusive growth within the CBEC framework.

Digital capabilities significantly enhance digital export propensity, with e-commerce managers driving employment growth in CBEC [11]. Nonetheless, empirical studies indicate a decline in employment elasticity within ICT-using sectors, highlighting the necessity for continuous adaptation and reskilling to meet the digital economy's evolving demands [8].

4.2 Labor Mobility and Cross-border Challenges

Labor mobility in the CBEC context presents both challenges and opportunities, influenced by digital platform integration and the global economy's dynamic nature. The Freedom of Movement within regions like the European Union has increased cross-border employment probabilities, showcasing the potential for enhanced labor mobility and the challenges of managing this influx of workers [19]. However, this mobility is impeded by various obstacles.

A major challenge lies in integrating diverse data sources to accurately forecast skills demand and address labor market needs. Current forecasting methods, such as ARIMA, often overlook nonlinear relationships between skills and demands, limiting predictive accuracy and hindering effective labor market planning [12]. Additionally, integrating conventional survey data with real-time behavioral data from mobile devices remains unresolved, complicating the understanding of labor market dynamics [5].

Geographical frictions and biases in participation due to skill and infrastructure disparities exacerbate labor mobility challenges in CBEC. These issues often lead to urban areas dominating remote job attraction, limiting opportunities for workers in less developed regions [10]. This urban-rural divide underscores the need for targeted strategies to enhance digital infrastructure and skill development in underserved areas.

The extraction of skills from unstructured text and the integration of diverse data sources present additional challenges that current methodologies struggle to address effectively [24]. These challenges hinder businesses and policymakers from identifying and responding to emerging skill demands in the CBEC landscape.

Despite these challenges, CBEC offers significant opportunities for labor mobility. The digital economy facilitates adaptable work arrangements and expands access to diverse employment opportunities, enhancing economic inclusivity by connecting labor markets across geographical boundaries. However, this transformation also underscores disparities, as remote work tends to concentrate in urban areas, favoring skilled workers while disadvantaging rural regions and low-skill workers. The rise of digital platforms has led to inconspicuous labor, where essential contributions, such as data annotation and content creation, often go unrecognized and undercompensated. Thus, while the digital economy has the potential to promote inclusivity, it simultaneously necessitates targeted policies for reskilling and social support to address marginalized workers' challenges [8, 9, 10, 6]. To capitalize on these opportunities, developing innovative data integration techniques and forecasting models that accurately capture labor market complexities is essential.

4.3 Impact of Remote Work on Labor Markets

The rise of remote work, driven by digital platforms, has profoundly reshaped labor markets and employment patterns, offering new connectivity and flexibility while also introducing challenges like spatial polarization and intensified competition among workers. This shift enables individuals, particularly those with in-demand skills in metropolitan areas, to access lucrative jobs, while others, especially in rural regions and with lower skill levels, face increased competition and stagnant wages. The integration of technology into the workforce has led to the displacement of certain job types and the emergence of new roles, necessitating effective upskilling and reskilling strategies to meet labor market demands [8, 9, 10, 6]. Remote work allows individuals to engage in CBEC activities without geographical constraints, contributing to a more dynamic labor market with broader employment opportunities.

However, this transition has not been without challenges. Disparities in digital infrastructure and technology access have created a digital divide, disproportionately affecting certain demographic groups and resulting in unequal access to remote work opportunities. Findings by Centellegher et al. [5] reveal significant behavioral differences between employed and unemployed individuals, with prolonged unemployment leading to reduced mobility and increased disparities across demographic

groups. These disparities highlight the urgency for timely interventions to ensure equitable access to remote work opportunities and to address challenges posed by the digital divide.

The acceleration of remote work during the Covid-19 pandemic has significantly reshaped labor market segmentation, indicating that some sectors and job roles are more conducive to remote arrangements than others. This has resulted in global polarization, with North American, European, and South Asian workers dominating the remote labor market, while many from the Global South remain largely excluded. Additionally, remote job opportunities tend to cluster in metropolitan areas, exacerbating disparities with rural regions lacking necessary resources to support such work. The heightened demand for in-demand skills has intensified competition, leading to higher wages for skilled workers and lower earnings for those without qualifications. This dynamic illustrates how remote work geography is influenced by the unequal distribution of skills and opportunities, ultimately reinforcing existing labor market inequalities [6, 10]. Such segmentation impacts employment patterns, as workers in remote-friendly industries may experience greater job security and flexibility, while those in less conducive sectors face increased job insecurity and diminished prospects.

The impact of remote work extends to the nature of work itself, with digital platforms enabling new employment and collaboration forms. The gig economy, characterized by short-term, flexible work arrangements, has gained prominence, allowing individuals to engage in diverse opportunities. This transition toward a digital economy transforms work nature and raises significant concerns regarding job stability and the adequacy of traditional employment benefits. This situation underscores the urgent need for a comprehensive reevaluation of labor policies to effectively address challenges posed by technological advancements, such as the rise of gig work and the inconspicuous nature of digital labor, while promoting effective upskilling and support for those adversely affected by automation and shifting market dynamics [8, 9, 25, 6, 2].

5 Digital Economy and Workforce Dynamics

5.1 Digital Economy and Technological Advancements

The digital economy, characterized by the integration of digital technologies into economic activities, is reshaping workforce dynamics by altering employment structures and skill requirements. Advanced technologies, such as real-time data analytics, facilitate efficient economic activity measurement, offering greater sample sizes and finer resolution than traditional methods [26]. This data-driven approach is crucial for understanding workforce dynamics in cross-border e-commerce (CBEC).

The evolution of the digital economy is driven by the interconnections among information, logistics, and financial flows, enhancing operational efficiency and customer value [3]. This integration fosters new business models and employment opportunities, particularly in sectors utilizing digital platforms for service optimization. Innovations like the ant colony algorithm revolutionize logistics planning, improving route selection and reducing delivery times, thus supporting CBEC's rapid growth and creating new roles in logistics and supply chain management [17].

Accurate causal inference within workforce dynamics is essential for adapting to the digital economy's changes. Matrix completion techniques provide a robust framework for discerning the impact of technological advancements on employment patterns [19]. This methodological innovation aids policymakers and businesses in navigating workforce complexities in a rapidly evolving digital landscape. Structured frameworks defining growth dependence across socio-economic contexts enhance understanding of how technological advancements drive economic development and workforce transformation, clarifying growth components and evaluating digital technologies' implications on employment and skill requirements [7].

5.2 Technological Advancements and Workforce Dynamics

Technological advancements are fundamentally reshaping workforce structures and skill demands, driven by the integration of digital platforms and data-driven methodologies. Advanced technologies, such as recurrent neural networks (RNNs), enable predictive analysis of future skill demands by examining historical job advertisement data, ensuring workforce capabilities align with evolving market needs [12]. The digital economy's reliance on geo-positioning and location search data enhances economic activity measurement, allowing real-time monitoring of workforce dynamics and

regional employment patterns [26]. This precision is critical for addressing regional skill disparities and developing targeted strategies.

DataOps pipelines that integrate big data analytics and machine learning streamline the extraction of skills from job vacancies and resumes, matching them against established ontologies. This process identifies skill gaps and improves workforce planning efficiency by aligning recruitment efforts with the digital economy's specific needs [24]. Leveraging these technological tools fosters a more agile and adaptable workforce.

5.3 Digital Platforms and Remote Work

Digital platforms are pivotal in enabling remote work, transforming workforce dynamics by facilitating flexible arrangements and expanding access to global employment opportunities. The integration of digital technologies allows seamless task execution across geographical boundaries, enhancing labor market fluidity and dynamic human resource allocation [5]. This shift towards remote work has been accelerated by advancements in communication technologies and digital infrastructure.

However, the adoption of remote work varies by sector and region, as disparities in digital literacy and infrastructure impede certain demographic groups from fully participating in the digital economy [10]. Addressing these challenges necessitates targeted interventions to improve digital literacy and infrastructure, ensuring equitable access to remote work opportunities. Remote work also introduces dynamics in labor market segmentation, with certain job roles and industries more amenable to remote arrangements. This segmentation can lead to variations in job security and employment prospects, with workers in remote-friendly sectors enjoying greater flexibility and stability, while those in less conducive sectors face increased job insecurity. The gig economy exemplifies the potential of digital platforms to create diverse employment opportunities, albeit with challenges regarding job stability and traditional employment benefits [9].

The capacity of digital platforms to facilitate remote work significantly influences organizational structures and management practices, reshaping labor dynamics and necessitating strategic alignment between technological resources and human skills. This transformation can heighten spatial polarization, affecting labor market connectivity and competition, while organizations must adapt their managerial processes to leverage digital technologies effectively. Recognizing and integrating the contributions of digital labor into organizational strategies is crucial for enhancing productivity and innovation [11, 9, 15, 10]. Businesses must navigate the complexities of managing a distributed workforce, ensuring effective communication, maintaining productivity, and fostering community among remote employees. The success of remote work arrangements hinges on robust digital strategies that support collaboration and innovation, enabling organizations to thrive in a rapidly changing economic landscape.

6 Challenges and Opportunities

The cross-border e-commerce (CBEC) landscape presents a complex mix of challenges and opportunities that influence business operations and employment dynamics. A significant concern involves regulatory and standardization challenges, requiring stakeholders to navigate compliance complexities in a swiftly changing market. The following subsection delves into these regulatory and standardization challenges, highlighting their impact on business effectiveness and workforce dynamics.

6.1 Regulatory and Standardization Challenges

CBEC faces considerable challenges due to regulatory and standardization issues affecting operational efficiency and employment. Compliance with diverse and frequently updated regulatory frameworks introduces uncertainty for CBEC sellers, necessitating adaptive strategies to manage regulatory risks [20]. Regional development disparities further complicate this landscape, as uneven enforcement of standards hinders digital economy growth [16]. Measurement challenges, such as those caused by language barriers and reporting burdens, introduce biases that complicate the accurate assessment of CBEC activities, essential for informed regulatory decisions [14]. Innovative methodologies for monitoring employment impacts are crucial for timely insights into workforce adaptability amid

economic changes [5]. Methodological flexibility is also necessary, as some analytical methods may not suit complex regulatory models [27].

6.2 Skill Gaps and Future Workforce Demands

The rapid growth of CBEC has shifted workforce demands, emphasizing the need to bridge skill gaps to match the evolving market. The integration of digital platforms in global trade has heightened the demand for skills in logistics, data analytics, and digital marketing, posing challenges for maintaining competitiveness [6]. Predictive models can play a crucial role in forecasting future workforce demands, influencing policy-making by anticipating skill needs and aligning educational efforts [21]. Despite advancements, research often lacks depth in addressing the complexities of logistics and interconnected uncertainties [18]. The Motivations of Crowdworkers Multidimensional Scale (MCMS) offers insights into the motivational dynamics of the digital workforce, essential for addressing skill gaps effectively [28]. Spatial inequalities exacerbated by remote work further complicate the skill gap landscape, concentrating lucrative jobs in metropolitan areas and necessitating targeted interventions [10]. Additionally, the lack of recognition for digital labor contributions complicates skill gap assessments, underscoring the need for policies that value digital labor appropriately [9].

6.3 Economic Growth and Innovation Potentials

CBEC is a key driver of economic growth and innovation, leveraging digital platforms and advanced technologies to transform traditional business models. The integration of digital business ecosystems offers growth opportunities but requires careful regulatory consideration for sustainable development [15]. Disparities in digital infrastructure and economic development, particularly in the Hangzhou Metropolitan Circle, necessitate targeted policy interventions to promote coordinated development [16]. Economic growth through CBEC is closely linked to expanding digital infrastructure, such as broadband and high-speed internet, critical for e-commerce activities and fostering development in urban and rural areas [7]. Innovation in logistics and supply chain management can further stimulate economic growth by optimizing logistics networks and integrating advanced technologies, enhancing operational efficiency and competitiveness [18, 17, 3, 20, 11]. Advanced predictive analytics, including machine learning models like ARIMA, GBoosting, XGBoosting, and LightGBM, enhance trade predictions and economic forecasting by analyzing international trade flows and labor market dynamics, providing policymakers with data-driven insights for informed decision-making [12, 21].

7 Conclusion

This survey highlights the profound impact of cross-border e-commerce (CBEC) on global trade and workforce dynamics, driven by the integration of digital platforms and technological advancements. The enhancement of logistics through advanced tracking and optimization is crucial for improving delivery efficiency and maintaining competitiveness in the sector, necessitating continuous innovation in supply chain management. The transformation of employment patterns through digital labor platforms prompts a critical reassessment of labor policies to ensure equitable access to CBEC benefits, addressing challenges such as the digital divide. The findings underscore the importance of investing in digital infrastructure and skill development to strengthen digital export strategies and stimulate growth in the digital economy. Additionally, there is a call for longitudinal research to track employment changes and evaluate policy roles in mitigating negative impacts, providing valuable insights for developing adaptive strategies that support sustainable economic development in the context of CBEC.

References

- [1] Wenlong Zhu, Jian Mou, and Morad Benyoucef. Exploring purchase intention in cross-border e-commerce: A three stage model. *Journal of Retailing and Consumer Services*, 51:320–330, 2019.
- [2] Kevin Hu and Feng Fu. Evolutionary dynamics of gig economy labor strategies under technology, policy and market influence, 2021.
- [3] Ying Wang, Fu Jia, Tobias Schoenherr, Yu Gong, and Lujie Chen. Cross-border e-commerce firms as supply chain integrators: The management of three flows. *Industrial Marketing Management*, 89:72–88, 2020.
- [4] Jaelyn S. Liang, Rehaan S. Mundy, and Shriya Jagwayan. E-commerce in africa: Divergent impacts on rural and urban economies, 2024.
- [5] Simone Centellegher, Marco De Nadai, Marco Tonin, Bruno Lepri, and Lorenzo Lucchini. Job loss disrupts individuals’ mobility and their exploratory patterns, 2024.
- [6] Kerstin Hötte, Meline Somers, and Angelos Theodorakopoulos. Technology and jobs: A systematic literature review, 2022.
- [7] Anja Janischewski, Katharina Bohnenberger, Matthias Kranke, Tobias Vogel, Riwan Driouich, Tobias Froese, Stefanie Gerold, Raphael Kaufmann, Lorenz Keyßer, Jannis Niethammer, Christopher Olk, Matthias Schmelzer, Asli Yürük, and Steffen Lange. It depends: Varieties of defining growth dependence, 2024.
- [8] Dr. Pawan Kumar. Ict and employment in india: A sectoral level analysis, 2017.
- [9] Antonio A. Casilli. Digital labor and the inconspicuous production of artificial intelligence, 2024.
- [10] Fabian Braesemann, Fabian Stephany, Ole Teutloff, Otto Kässi, Mark Graham, and Vili Lehdonvirta. The global polarisation of remote work, 2022.
- [11] Stefano Elia, Maria Giuffrida, Marcello M Mariani, and Stefano Bresciani. Resources and digital export: An rbv perspective on the role of digital technologies and capabilities in cross-border e-commerce. *Journal of Business Research*, 132:158–169, 2021.
- [12] Maysa M. Garcia de Macedo, Wyatt Clarke, Eli Lucherini, Tyler Baldwin, Dilermando Queiroz Neto, Rogerio de Paula, and Subhro Das. Practical skills demand forecasting via representation learning of temporal dynamics, 2022.
- [13] David Roodman. The arrival of fast internet and employment in africa: Comment, 2024.
- [14] Q. A. Meertens, C. G. H. Diks, H. J. van den Herik, and F. W. Takes. A data-driven supply-side approach for measuring cross-border internet purchases, 2018.
- [15] Jo Stanley and Gerard Briscoe. The abc of digital business ecosystems, 2010.
- [16] Luyi Qiu. Coupling coordinated development among digital economy, regional innovation and talent employment a case study of hangzhou metropolitan circle, china, 2023.
- [17] Lynn Huang. Evolving e-commerce logistics planning- integrating embedded technology and ant colony algorithm for enhanced efficiency, 2024.
- [18] Maria Giuffrida, Riccardo Mangiaracina, Alessandro Perego, and Angela Tumino. Cross-border b2c e-commerce to greater china and the role of logistics: a literature review. *International Journal of Physical Distribution & Logistics Management*, 47(9):772–795, 2017.
- [19] Jason Poulos, Andrea Albanese, Andrea Mercatanti, and Fan Li. Retrospective causal inference via matrix completion, with an evaluation of the effect of european integration on cross-border employment, 2021.

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- [20] Maria Giuffrida, Hai Jiang, and Riccardo Mangiaracina. Investigating the relationships between uncertainty types and risk management strategies in cross-border e-commerce logistics. *The International Journal of Logistics Management*, 32(4):1406–1433, 2021.
- [21] Feras Batarseh, Munisamy Gopinath, Ganesh Nalluru, and Jayson Beckman. Application of machine learning in forecasting international trade trends, 2019.
- [22] Lisa Posch, Arnim Bleier, Fabian Flöck, and Markus Strohmaier. A cross-country comparison of crowdworker motivations, 2017.
- [23] Carlos Góes, Gladys Lopez-Acevedo, and Raymond Robertson. Gender-segmented labor markets and foreign demand shocks, 2023.
- [24] Damian Andrew Tamburri, Willem-Jan Van den Heuvel, and Martin Garriga. Dataops for societal intelligence: a data pipeline for labor market skills extraction and matching, 2021.
- [25] Hiroya Taniguchi and Ken Yamada. The race between technology and woman: Changes in relative wages and labor shares in oecd countries, 2024.
- [26] Lei Dong, Sicong Chen, Yunsheng Cheng, Zhengwei Wu, Chao Li, and Haishan Wu. Measuring economic activities of china with mobile big data, 2016.
- [27] Christopher Dobronyi, Jiaying Gu, Kyoo il Kim, and Thomas M. Russell. Identification of dynamic panel logit models with fixed effects, 2024.
- [28] Lisa Posch, Arnim Bleier, Clemens Lechner, Daniel Danner, Fabian Flöck, and Markus Strohmaier. Measuring motivations of crowdworkers: The multidimensional crowdworker motivation scale, 2019.

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