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Transport Infrastructure Impact on Regional Unemployment – Evidence from Vietnam

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ABSTRACT: Forecasts of elements that can lower unemployment are always significant since they demonstrate a country's economic development strategy's efficacy. The difficulties that workers have in finding work has major implications for Vietnam's socioeconomic development. The goal of this study is to look at the influence of transportation infrastructure on unemployment in Vietnam's 63 regions from 2000 to 2020. Improvements in Vietnam's transportation infrastructure have helped cut unemployment throughout the country's 63 provinces and regions, according to the baseline regression results. When the System Generalized Method of Moment estimator was utilized in this investigation, the same results were achieved. The results of the robustness check are comparable to those of the previous tests. The Vietnamese government continues to push the development of high-quality transportation infrastructure in order to assure future socioeconomic development. This is a critical aspect in reducing unemployment and restoring the Vietnamese economy following the COVID-19 period.

KEYWORDS: System Generalized Method of moments; transportation infrastructure; regions' unemployment.

I. INTRODUCTION

In the current economic climate, policymakers and scholars are paying close attention to unemployment. The inability of people to find work has major implications for their quality of life and social security (Andrews & Withey, 2012). Unemployment can lead to more traffic collisions (Yakubu & Muhammed, 2021). According to certain studies, groups of employees who are unemployed have a higher rate of suicide (Law et al., 2012; Men et al., 2022). This emphasizes the significance of reducing unemployment. Transport infrastructure is thought to be one of the elements that effect unemployment. Transport infrastructure is a critical component of the country's social and economic growth. Researchers have always been interested in the relationship between transport systems and employment, especially in recent years (Ahmed et al., 2021; Breidenbach, 2020; Brugnoli et al., 2018; Cigu et al., 2018; Elburz et al., 2017; Leduc & Wilson, 2017; Muvawala et al., 2021; Yu & Luu, 2022). A well-developed transport system can both increase the number of workers and minimize income inequality (Zhang et al., 2017). Transport infrastructure is critical for developing countries because it provides many options for people to access jobs (Hernandez et al., 2020; Laborda & Sotelsek, 2019). As a result, the Vietnamese government has consistently prioritized transport infrastructure construction and upgrades. Every year, the Vietnamese government spends roughly 9 to 10 percent of GDP on infrastructure, electricity, and telecommunications, among other things. Furthermore, Vietnam has made extensive use of both domestic and international resources to create infrastructure, particularly transport infrastructure, which is critical to the economy's survival.[1]

Vietnam has a large population and a young population structure. The proportion of Vietnamese employees over the age of 15 increases by more than 50 percent every year, according to statistics from the Vietnam General Office of Statistics (VNGSO). Vietnam will have more than 54.84 million workers in 2020, accounting for more than 56.34 percent of the total population. This demonstrates that Vietnam has a large young work force, which helps the country attract investment money and build its economy. However, it also places significant pressure on politicians to cut unemployment and provide new jobs for workers (Le, 2019). Because the demand for jobs will increase as the population grows (Vanham, 2018). As a result, Vietnam is constantly monitoring and focusing on measures that can increase worker employment opportunities (Yu & Luu, 2022).

The major goal of this research is to determine the impact of transportation infrastructure on unemployment in Vietnam's 63 provinces and regions from 2010 to 2020. Vietnam, as previously said, is a populated country with a vast workforce. This study contributes to the evaluation of whether recent infrastructure improvements in Vietnam have delivered the intended advantages. The System Generalized Method of Moments (SGMM) estimator is used with data on transport infrastructure and unemployment across

[1] The figures are based on the Vietnamese government's publication on the government's website. https://baochinhphu.vn/

Vietnam's 63 provinces and regions to analyze this effect. Many studies have employed this estimator in recent years (Laborda & Sotelsek, 2019; Onuoha & Agbede, 2019; Tsaurai, 2020; Yakubu & Muhammed, 2021; Yu & Luu, 2022). The findings of the baseline regression ordinary least squares (OLS) and fixed effects (FE) models reveal that this impact exists. The SGMM estimator is then used to evaluate this effect. The findings also demonstrate that improving transportat infrastructure lowers unemployment in 63 provinces and regions. The study employs regional underemployment data instead of unemployment statistics in the robustness check part. The regression coefficients suggest that the findings are in line with earlier findings. Next, we substitute the infrastructure data from provinces and regions with the infrastructure evaluation indicators published annually by the World Economic Forum in its global competitiveness report. The findings reveal that transport system can help reduce unemployment in provinces and regions. This demonstrates how critical it is to upgrade and improve Vietnam's transport network. It serves as a link between provinces and regions. At the same time, it contributes to the expansion of job options for people. To maintain socioeconomic development in the future, the Vietnamese government must continue to invest in high-quality infrastructure, particularly transport infrastructure. This is a critical aspect in reducing unemployment and restoring Vietnam's economy following the pandemic (Nguyen et al., 2021).

The rest of the research is broken down into four components. The literature review is found in Section 2. The research model and data for this study are presented in Section 3. Section 4 summarizes the findings and examines them. Section 5 contains the conclusions and recommendations.

II. LITERATURE REVIEW

Employment is a topic that draws a lot of attention from researchers all around the world (Fransen et al., 2019; Hernandez, 2018; Hernandez et al., 2020; Le, 2019; Marada & Kvto, 2016). The inability or difficulty of employees to obtain work has major ramifications for their quality of life and social security (Andrews & Withey, 2012). Indeed, data from Yakubu and Muhammed's (2021) demonstrates a link between unemployment and traffic accidents in Nigeria. Furthermore, unemployment puts a lot of strain on people, making them feel isolated from society and despondent over time. Workers who are in risk of losing their jobs are more likely to commit suicide (Law et al., 2012; Men et al., 2022). Transport infrastructure is thought to be one of the elements that effect unemployment. Workers may lose their jobs due to a lack of transport infrastructure. (Tsaurai, 2020).

Studies always assess and evaluate the economic benefits of transport infrastructure (Ahmed et al., 2021; Breidenbach, 2020; Brugnoli et al., 2018; Cigu et al., 2018; Elburz et al., 2017; Leduc & Wilson, 2017; Muvawala et al., 2021; Yu & Luu, 2022). In terms of the relationship between transport infrastructure and employment, it is a critical component in establishing regional connections. It facilitates mobility and enhances the likelihood that people will be able to find work in a variety of locations (Bastiaanssen et al., 2020; Chakrabarti, 2018; Langella & Manning, 2022; Marada & Kvto, 2016). Indeed, Matas and Asensio's (2021) research on the accessibility of transport infrastructure. The authors demonstrate that transport infrastructure promotes accessibility, and that the availability of public transport and automobiles improves employees' access to jobs. Marada and Kvto (2016) used census data on automobile ownership and commuting to examine the connection between car use and unemployment in 206 Czech micro-districts from 2001 to 2011. According to research, those who possess a car have better access to career prospects than those who do not since their mobility is increased. Yu and Luu (2022) also show that improving transport infrastructure promotes economic sector employment. Advanced transport infrastructure promotes people's mobility and investment, resulting in a large number of job prospects. The effect of commuting comfort on employment accessibility, on the other hand, is dependent on the features of each region. According to Fertrova and Temelova (2011), employment concerns are not considered an effective solution to unemployment in small communities if the labor force's education level does not match the needs of available positions..

Fixed effects or random effects are frequently used in panel data studies using traditional methods. However, numerous research in recent years have virtually exclusively used Arellano and Bond, (1991) SGMM estimator to tackle the endogeneity problem in estimate. Laborda and Sotelsek (2019) explore the influence of road infrastructure on employment, productivity, and growth at the national level using the SGMM technique. The findings suggest that upgrading paved roads boosts total output in low- and middle-income nations while having a minor impact on employment.

This estimator is also used by Onuoha and Agbede, (2019) to analyze the influence of public spending on unemployment in African nations from 2000 to 2017. The results of the estimator suggest that spending on transport and educational infrastructure lowers unemployment. However, research also demonstrates that spending on health and defense has a detrimental impact on unemployment in African countries.

Yakubu and Muhammed (2021) explore the impact of unemployment on road traffic accidents in bad economic situations using the SGMM approach. This study demonstrates that in Nigerian states with high unemployment rates, unemployment has the effect of increasing road accidents. It is clear that the rise in unemployment in Nigeria is contributing to the increase in traffic accidents. Tsaurai (2020) investigates the causes of unemployment in Africa from 2001 to 2015. The results of the SGMM estimator demonstrate that economic lag, a lack of foreign direct investment, and the interaction of information and communication technologies are all factors contributing to the growth in unemployment in these nations. At the same time, trade openness and population expansion are having a favorable impact on unemployment rates in these countries.

III. DATA AND METHODOLOGY

A. Estimation Strategy

The impact of transport infrastructure on unemployment in Vietnam is explained as follows:

$$UEMP_{it} = \beta_0 + \beta_1 INF_{it} + \beta_2 EDU_{it} + \beta_3 TO_{it} + \beta_4 BUD_{it} + \beta_5 GRDP_{it} + \delta_i + \delta_t + \varepsilon_{it} \quad (1)$$

Where *i* is a Vietnamese province or region *i* = 1,..., 63), and *t* denotes the year (*t* = 2010, ... , 2020). Because the data for this study period is the most complete and they were being chosen. The variable $UEMP_{it}$ refers to the quantity of unemployment in the region *i* at a given time *t*. The variable INF_{it} represents the region's transport infrastructure at the current time. The number of people and the volume of commodities moved by region are both included in this variable. The variable EDU_{it} is defined as the number of pupils who graduated from junior high school in the region *i* during the time period *t*. The openness of the transaction is represented by the variable *TO*. The variable *BUD* represents the Vietnamese government's budget spending. The *GRDP* variable stands for gross regional domestic product. δ_i and δ_t Represent fixed area and time effects, respectively, and is the equation's standard error. Table 1 lists these variables in detail.

Table 1. Variables details

Variable	Variable details
UEMP	Number of unemployment in Vietnam's provinces
INF	The number of passengers and volume of freight traffic by road by province
EDU	The number of students who graduated from junior high school in the province
TO	Trade openness= (export+import)/GDP
BUD	Government budget expenditure
GRDP	The gross regional domestic product

Source: All data are extracted from VNGSO

The control variables included in this estimation model are *EDU, TO, BUD*, and *GRDP*, which are based on current studies. As a starting point, the *EDU* variable will be adjusted for. Workers' access to job prospects is said to be aided by education (Horner et al., 2018). Because educated persons are more likely to obtain suitable employment, this is considered a factor in lowering the unemployment rate (OECD, 2012). In theory, trade liberalization has a considerable impact on unemployment (Ali et al., 2021; Nessa et al., 2021). When looking at factors that effect unemployment, several research use the control variables *EDU* and *TO* (Fageda & Gonzalez-Aregall, 2017; Ndubuisi et al., 2021; Sobieralski, 2021; Wang et al., 2020; Yu & Luu, 2022). The third control variable is government budget expenditure. Infrastructure investments by governments frequently have a big impact on employment (Sobieralski, 2021). Government investment in socioeconomic development frequently aids in increasing economic efficiency and worker employment options. The effect of government involvement on regional unemployment can be avoided by controlling this variable. The *GRDP* variable is the final control variable. Controlling for this variable, according to available research, is an effective way to control the effect of regional economic development levels (Brugnoli et al., 2018; Churchill et al., 2021; Yu & Luu, 2022; Zhang et al., 2017).

B. Data Collection

The dataset for this study was collected from VNGSO. The study sample includes all 63 provinces and regions of Vietnam, with data collected from 2010 to 2020. Because VNGSO only offered data from 2010 to 2020, and the data for other variables is also pretty complete during this time period, this timeframe was chosen. Data on unemployment, transport infrastructure, education, trade openness, government budget expenditure, and gross regional domestic product were used in this analysis.

The transport infrastructure variable is the major variable of interest. The number of passengers and freight traffic by road by province are included in the data for this variable. The number of passengers transported is defined as the number of passengers transported divided by the distance traveled. By calculating the number of passengers transported by the distance traveled, the method is calculated. The weight of the transported items is multiplied by the distance traveled to compute the volume of freight traffic.

The annual number of unemployed in Vietnam's 63 provinces and regions released the unemployment data. The number of people graduating from junior high school each year during the time is the education indicator. (exports + imports) / gross domestic product is used to calculate trade openness (GDP). Government spending on infrastructure and social development is referred to as government budget spending. The GRDP is a key comprehensive evaluation indicator that reflects a region's final output outcomes for a given year. GDP is a macroeconomic statistic that is used to create social and economic indicators, as we all know. It is used to create socioeconomic indicators, which are then used to conduct economic analysis and strategic planning, as well as national socioeconomic development plans. This is a good indicator for the entire economy, not just for a province or an area. The GDP and

GRDP metrics use the same calculation process, but the calculation scope is different. The factors employed in this investigation are statistically described in Table 2.

Table 2. Description of variables in the estimate

Variable	Obs	Mean	Std. Dev.	Min	Max
UEMP	693	5.2759	0.4344	4.3175	5.9789
INF	693	7.4854	1.1738	3.7542	11.1224
EDU	693	10.9308	0.9174	6.0822	13.8080
TO	693	1.9793	0.4447	1.1663	2.5767
BUD	693	13.9804	0.2943	13.3963	14.3966
GRDP	693	10.5797	1.1545	8.0609	13.5216

IV. RESULTS AND DISCUSSIONS

The findings of the estimation models described above are presented and discussed in this section. The results are presented in Tables 3 and 4, with Table 3 displaying the baseline regression results and Table 4 displaying the SGMM estimator results. Tables 5 and 6 present the results of the model robustness test.

First, we look at the baseline regression findings. The OLS regression and the FE model results are presented in Table 3. Columns (1)–(5) show the results of OLS regression, while columns (6)–(10) show the FE model results. To decide whether to utilize random effects or FE models, we use the Hausman test. We find that the FE model is acceptable for $p < 0.05$. The coefficients are positive and statistically significant at the 1% level, according to the OLS regression results. This demonstrates that improved transportation infrastructure in Vietnam has aided in the reduction of regional unemployment. When the *EDU* variable is controlled, we find that every 1% improvement in infrastructure reduces unemployment by 0.0898%. When the *TO* and *BUD* variables are controlled independently in the model, the unemployment rate in the region decreases by 0.0896%. When the GRDP variable was controlled for separately from the other four variables, the results were comparable. Columns (6) – (10) have positive coefficients that are statistically significant. Specifically, while controlling for the *EDU* variable, every 1% improvement in transport infrastructure reduces unemployment by 0.0898%. When *TO* and *BUD* are controlled, the reduction is 0.0896%, 0.0832% when GRDP is controlled, and 0.0834% when all four variables are controlled concurrently. In summary, the results in Table 3 show that infrastructure improvements from 2010 to 2020 provide many options for people to access work in various regions.

Table 3. Baseline regression

Variable	OLS					FE				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
INF	-0.0898***	-0.0896***	-0.0896***	-0.0832***	-0.0834***	-0.0898***	-0.0896***	-0.0896***	-0.0832***	-0.0834***
	(0.0320)	(0.0320)	(0.0320)	(0.0320)	(0.0321)	(0.0242)	(0.0242)	(0.0242)	(0.0243)	(0.0243)
EDU	0.000701				0.00109	0.000701				0.00109
	(0.00227)				(0.00232)	(0.00328)				(0.00327)
TO		-0.309***			2.180***		-0.309***			2.180***
		(0.0201)			(0.762)		(0.0125)			(0.700)
BUD			-0.436***		-3.532***			-0.436***		-3.532***
			(0.0284)		(1.085)			(0.0176)		(0.992)
GDP				0.0181**	0.0182**				0.0181**	0.0182**
				(0.00755)	(0.00758)				(0.00737)	(0.00739)
Constant	6.586***	6.954***	12.44***	6.364***	51.12***	6.181***	6.549***	12.03***	5.959***	50.72***
	(0.259)	(0.241)	(0.235)	(0.279)	(13.59)	(0.176)	(0.162)	(0.154)	(0.196)	(12.47)
FE Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE region	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	693	693	693	693	693	693	693	693	693	693
Number of region	63	63	63	63	63	63	63	63	63	63
R-square	0.982	0.982	0.982	0.982	0.982	0.859	0.859	0.859	0.860	0.860

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

The SGMM estimator's results are presented in Table 4. The coefficients indicate that improvements in Vietnam's infrastructure from 2010 to 2020 had a positive influence. When the model controlled the *EDU* variable, we discovered that *INF* had a favorable influence. The results in column (1) demonstrate that this effect lowers the unemployment rate by 0.0226% across areas. The results are likewise favorable and statistically significant when the model accounts for the *TO* and *BUD* variables separately. This indicates that improvements in transport infrastructure have resulted in a large reduction in unemployment. The results were ambiguous when the model was adjusted for the GRDP variable. The coefficient is not statistically significant when these four factors are controlled for in the model. The sign of the coefficients is often (-), indicating that improving infrastructure will cut unemployment in Vietnam's 63 provinces and regions between 2010 and 2020. Simultaneously, this demonstrates the critical importance of improving transportation infrastructure. It is a crucial material foundation in the socioeconomic growth of Vietnam.

Table 4. Transport infrastructure effect on regional unemployment

Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
UEMP (-1)	0.978*** (0.0120)	1.014*** (0.00269)	1.012*** (0.00256)	0.972*** (0.00624)	1.060*** (0.0336)
INF	-0.0226* (0.0131)	-0.00301*** (0.00115)	-0.00224** (0.00110)	-0.00106 (0.00666)	-0.000401 (0.0186)
EDU	0.0918*** (0.0335)				0.103*** (0.0348)
TO		0.0778*** (0.00972)			0.471*** (0.176)
BUD			0.113*** (0.0145)		-0.568** (0.271)
GDP				0.0193** (0.00852)	-0.111*** (0.0301)
Constant	-0.763** (0.316)	-0.259*** (0.0252)	-1.679*** (0.206)	-0.0999*** (0.0382)	6.692* (3.417)
Number of region	63	63	63	63	63
AR(2)	1.20	-1.52	0.23	-2.18	-0.68
AR(2) p-value	0.231	0.127	0.819	0.029	0.499
Hansen Stat	1.88	4.93	5.81	7.95	0.85
Hansen p-value	0.598	0.177	0.121	0.047	0.655

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

We examine the robustness of this estimator from two perspectives. To begin, we substitute underemployment statistics for unemployment data. The VNGSO compiles this information annually by province and region. These numbers came from the Vietnam Statistical Yearbook. This information was gathered from 2010 until 2020. Table 5 shows the outcomes of this calculation. Then, instead of transportation infrastructure data, we use infrastructure evaluation metrics from the World Economic Forum's annual Global Competitiveness Report. The infrastructure index is calculated as the average of three indicators: the quality of commerce and transportation-related infrastructure, the quality of port infrastructure, and logistics performance. Table 6 summarizes the findings. The robustness checks are likewise presented in 5 columns, much like Tables 3 and 4. The results of Table 5 demonstrate that this effect reduces underemployment in the region by 0.0225% at the 10% level. When the model is adjusted for the TO variable, it also reveals that every 1% increase in transportation infrastructure reduces unemployment by 0.00315%. When we adjusted for four factors in the model, the results were not statistically significant, as they were in Table 4. However, it can be observed from the sign of the transport infrastructure coefficients that its impact can reduce underemployment and unemployment. The results are identical to those in Table 4 when the infrastructure data is replaced by the other three indicators. In particular, the results in columns (2), (3), and (5) demonstrate that improving infrastructure can reduce unemployment rates by 0.0406%, 0.0146%, and 0.0389%, respectively. Tables 5 and 6 indicate the overall benefits of investing in modernizing Vietnam's transport infrastructure. It contributes to the province's and region's connectivity. Because it is easier to migrate, people have a better chance of finding or accessing jobs in a variety of fields (Bastiaanssen et al., 2020; Chakrabarti, 2018; Langella & Manning, 2022; Marada & Kvto, 2016). This study's conclusions are similar to those of numerous earlier research (Ndubuisi et al., 2021; Sobieralski, 2021; Tsaurai, 2020; Yu & Luu, 2022).

Table 5. Transport infrastructure effect on regional underemployment

Variable	(1)	(2)	(3)	(4)	(5)
UD (-1)	0.978*** (0.0120)	1.014*** (0.00278)	1.012*** (0.00265)	0.972*** (0.00626)	1.059*** (0.0336)
INF	-0.0225* (0.0131)	-0.00315*** (0.00118)	-0.00237** (0.00114)	-0.00107 (0.00667)	-0.00192 (0.0188)
EDU	0.0916*** (0.0334)				0.106*** (0.0359)
TO		0.0772*** (0.00993)			0.455*** (0.176)
BUD			0.112*** (0.0148)		-0.544** (0.270)
GDP				0.0193** (0.00855)	-0.109*** (0.0304)
Constant	-0.774** (0.310)	-0.251*** (0.0248)	-1.659*** (0.210)	-0.115*** (0.0390)	6.386* (3.409)
Number of region	63	63	63	63	63
AR(2)	1.20	-1.52	0.21	-2.18	-0.58
AR(2) p-value	0.231	0.127	0.832	0.029	0.559
Hansen Stat	1.86	6.18	7.16	8.04	1.27
Hansen p-value	0.603	0.103	0.067	0.045	0.531

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 6. Infrastructure effect on regional underemployment

Variable	(1)	(2)	(3)	(4)	(5)
UEMP (-1)	0.951*** (0.0179)	0.537** (0.253)	0.939*** (0.222)	0.975*** (0.113)	1.080*** (0.0757)
INF index	-0.00731 (0.00789)	-0.0406*** (0.00712)	-0.0146** (0.00682)	-0.00152 (0.0456)	-0.0389* (0.0236)
EDUTHCS	0.0746** (0.0364)				-0.140 (0.104)
TO		-0.480*** (0.0842)			-0.733** (0.285)
BUD			0.0797 (0.0699)		1.347*** (0.459)
GDP				0.00258 (0.0131)	-0.0289 (0.0532)
Constant	-0.594* (0.340)	9.195*** (1.513)	-0.818 (2.089)	0.0555 (0.823)	-15.97*** (5.222)
Number of region	63	63	63	63	63
AR(2)	0.81	-0.75	-2.12	-0.61	1.85
AR(2) p-value	0.417	0.454	0.034	0.542	0.064
Hansen Stat	3.55	7.12	45.85	51.32	2.36
Hansen p-value	0.315	0.624	0.713	0.501	0.307

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Forecasts of things that can lower unemployment are always significant since they demonstrate the efficacy of a country's economic development strategy. Although the results demonstrate the economic benefits of Vietnam's transportation infrastructure, the country's transportation infrastructure is mostly small in scale, out of synchrony, and has yet to create continuous connectivity, limiting its ability to meet traffic needs and ensure traffic safety (Nguyen, 2020). The Vietnamese government continues to push the development of high-quality infrastructure, particularly transportation infrastructure, in order to maintain socioeconomic development in the future. This is critical in reducing unemployment and restoring the Vietnamese economy following the COVID-19 pandemic (Nguyen et al., 2021). Trade facilitation includes improving transport infrastructure. The construction and updating of transport infrastructure not only improves the business environment in Vietnam, but also helps employees save money on travel and

find jobs more quickly. This upgrading and development also helps to reduce shipping and trade costs. As a result, Vietnam's trade flows have increased.

V. CONCLUSION AND RECOMMENDATIONS

Transport infrastructure is particularly crucial for socioeconomic development because it fosters close regional links and collaboration while also connecting regional and interregional markets to domestic and worldwide markets. Advanced transport infrastructure increases not only labor distribution and economic inequality, but also quality of life and social protection. As a result, Vietnamese officials have been concerned about determining the economic effectiveness of transport infrastructure. The economic advantages of transport infrastructure are assessed using unemployment statistics from Vietnam's 63 provinces and regions from 2010 to 2010. The SGMM estimator's findings demonstrate that improving Vietnam's transport infrastructure during this time period helped to reduce unemployment. This study uses data on unemployment and transport infrastructure to complete the robustness assessment. The findings also point to the potential benefits of better infrastructure. The findings of this study are in line with earlier research. This contributes to the importance of upgrading and improving Vietnam's transport infrastructure.

The development of investment and foreign collaboration is both a demand and an opportunity for Vietnamese workers, given the progressive saturation of employment in the home market and the increasing integration and deep integration of Vietnam into the international economy. However, language obstacles and the ability to absorb technology have long made it difficult for Vietnamese employees to obtain jobs that demand advanced technology and knowledge (Nguyen et al., 2021). Furthermore, workers' educational attainment has a significant impact on their unemployment situation, particularly among young workers (Nguyen et al., 2020). As a result, reducing barriers such as enhancing workers' language skills and qualifications is critical, and Vietnamese officials must pay close attention.

In Vietnam's socioeconomic development, transport infrastructure is very crucial. Modern synchronous transport infrastructure not only serves the needs of commodities circulation and resource allocation, but it also helps to close the wealth gap. Although the results demonstrate that Vietnam's transport infrastructure helped reducing unemployment from 2010 to 2020, the country's transport infrastructure in general still needs to enhance quality and scale. However, investment and upgrade plans must prioritize practical benefits, such as matching transport infrastructure changes to people's travel needs and local conditions. This can be considered a precondition for economic growth, since it allows Vietnam to make significant progress in the synchronization of infrastructure projects.

AUTHOR STATEMENT

The authors have no relevant financial or non-financial interests to disclose. The authors have no conflicts of interest to declare that are relevant to the content of this article.

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