

**Original article****Commuting, Transportation Flows and the Labor Market in Almaty****Kenzhekhan Kabdesov<sup>1</sup>****Francis Amagoh<sup>1</sup>**

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**Abstract**

Commuting nowadays is a worldwide trend. Due to urban development, cities become larger, creating agglomerations. It leads to broader human mobility. One of the other key thoughts about commuting is the positive impact of commuting flows on creating new workplaces. First, vast commuting flows can make it easy to find appropriate candidates for job vacancies to be filled. Secondly, there is a demand for different goods and services in receiving areas created by commuters. Therefore, by means of local demand, new workplaces can be produced. The study aims to analyze the relationship between commuting flows and the creation of new workplaces in Kazakhstan. Both qualitative and quantitative methods are used in the paper. Secondary research provides and compares existing models of commuting impact on workplaces. Data on the workplaces created in Kazakhstan is collected via the Bureau of National Statistics of the RK. In this research, transportation flows and their influence on the labor market in Almaty were analyzed. According to the results, there is a positive correlation between transport flows and created job opportunities between 2014 and 2019. This study can contribute to existing studies on commuting, especially to studies on urban development in Almaty, since commuting is closely related to the urban topic. The decisions to conduct commuting might differ amongst the citizens, and that is defined by interior and exterior characteristics, including the income level of people, the labor market features, etc.

**Keywords:** Commuting, Workplace, Labor Market, Transportation Flows, Urban Economy

**SCSTI:** 06.56.31

**JEL Code:** J63, R23, R41

# 1. INTRODUCTION

Commuting is a frequent activity that takes place commonly in larger urban territories and agglomerations. Dwellers residing in the periphery of the agglomeration favor traveling to work that is placed in the central point of agglomerations (Haas & Osland, 2014; Clark et al., 2019).

Migration (i.e., relocation of residence) and commuting illustrate geographically related managing strategies of people altering a contrast in the labor market (Termote, 1980; Fischer et al., 1996; Senega et al., 2014; Zabel, 2012) by overcoming the geographical distance between residence and workplace. Even if both terms are linked theoretically, they range principally in reference to an individual's living place, their regularity, and frequently also the proneness to overcome space. In case the labor market is accessible by commuting, i.e., "a monotonous day-to-day journey from a fix location of the home to a certain location of work" (Johnston et al., 2009), supplies numerous work opportunities, a person is prompt not to relocate. Moreover, it should be noted that commuting includes intraurban and interurban commuting based on whether an employee traverses the hometown boundary on the way to work. For example, if the person's workplace and home are within one city or area borders, and the person does not cross the border, it can be described as intra-urban commuting. While if the person crosses the border, then it is inter-urban commuting (Vontroba, 2020).

Due to the prompt widening of the city areas, the population's disproportionate density clashes with further productivity growth. Spatial opportunities for broadening production are confined, transports are overcrowded, and standards of life worsen due to overpopulation, costly living, pollution, and city noises. Consequently, the city area started to expand intensively – it brought in all new regions and was transfigured into an agglomeration (Carlino & Kerr, 2015; Fang & Yu, 2017).

Another key thought about commuting is the positive impact of commuting flows on creating new workplaces (Russo et al., 2011; Xiao et al., 2021). First, vast commuting flows can make it easy to find appropriate candidates for job vacancies to be filled. Secondly, there is a demand for different goods and services in receiving areas created by commuters. Therefore, by means of local demand, new workplaces can be produced.

Commuting, or specifically the readiness to commute, illustrates a vital component in people's employment and income level, as it straightforwardly influences the geographical dimensions of an individual's labor market. Given this, it introduces additional job offers with a wider wage range (Stigler, 1961) obtainable to a person, but contrary, it offers supplementary expenses associated with commuting. Hence, a person is more seemingly to accept only those job opportunities that hand commuters with sufficient income to defray all financial and non-financial expenses of commuting, which is imaged by the positive correlation between the level of income and commuting (van Ewijk & van Leuvensteijn, 2009; Zabel, 2012).

Therefore, it leads to the research question: What is the impact of commuting on the creation of new workplaces in Kazakhstan? The research hypothesis claims that increased transportation flows leads to a growth in created job opportunities.

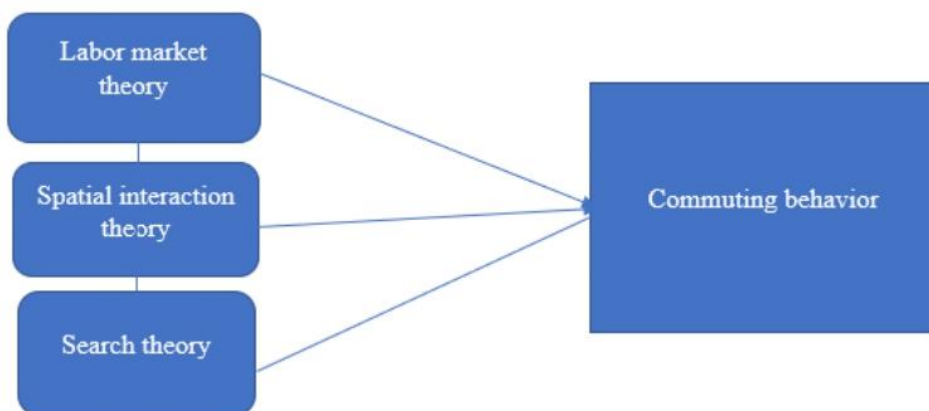
The research objective is to analyze the commuting flows and their impact on workplaces.

## 2. LITERATURE REVIEW

Mainly the theoretical background of this research is the work of Russo et al. (2011) about the positive correlation between commuting flows and creating jobs in receiving areas. Basically, the authors claim that commuters can contribute to the search for potential candidates by employers. Moreover, while conducting commuting, commuters need several services and goods to travel, therefore new workplaces might be created.

Factors, namely, income, labor market, apartment prices, a distance of commuting, etc., have an influence on the choice to conduct commuting and migrate (Reggiani & Nijkamp, 2009; Haas & Osland, 2014). Accordingly, commuters pay particular attention to the costs of commuting. Several academics believe that higher income levels and lower dwelling prices would pay back high commuting costs, justifying it by the perfect market theory (Roback, 1982; Rouwendal & Mulalic, 2021). Contrariwise, other scholars assume that commuting costs cannot be minimized due to the house and labor market imperfections, such as uncertainty, lack of information, and transportation costs (Deschacht & de Bruyne, 2020; Bwire & Zengo, 2020). Accordingly, it is essential to consider the “excess commuting” concept presented by Hamilton and Röell (1982). It refers to the supplementary travel to work expressed by the contrast between the average concrete commute and the minimum achievable average commute, given the territorial configuration of the place of work and household sites (Ma and Banister, 2006; Zhou et al., 2020; Zhang et al., 2021). In other words, the dissimilarity between the real average commute and the abstract commute is specified by a moment when each commuter has a job at the closest feasible place relative to home (Haas & Osland, 2014; Liu et al., 2016).

The core theories of the research are labor market theory (Coombes & Openshaw, 1982; Casado-D’iaz, 2000; van der Laan & Schalke, 2001); spatial interaction theory (Pooler, 1993; Fischer, 2001; Mossay, 2011); search theory (van Ommeren, 2005; Sanjurjo, 2017). These theories are used in different fields of economy, especially in the urban economy, therefore they can be applied in order to understand commuting patterns and commuting behavior. They are interconnected and interrelated but have their own features and differences (Figure 1).



**FIGURE 1.** Theoretical framework

Source: Compiled by the author based on the literature review

In this case, commuting behavior is a core concept of the research since it is impacted by housing prices, commuting distance, commuting time, etc. (Clark et al., 2003; Sandow, 2010; Beecham et al., 2014). Therefore, the outlined theories explain what factors alter commuting behavior, why, and how it is influenced. Mainly, these theories were developed in the XX century, and recent publications rely on previous theories.

Previously there was research conducted (Kabdesov & Maldynova, 2021) on socio-demographic characteristics of commuting flows in the Almaty region. Within this research, a preliminary pilot survey was conducted. According to the study, commuters mainly experience problems associated with air pollution, city noises, traffic congestion, and fatigue during their travel to work and back home. Moreover, among the issues of moving closer to the place of work or city center, commuters indicated high prices for housing (Seitz, 2021). Noteworthy, lower salaries compared to the salaries of people living downtown, impede renting an apartment or purchasing housing closer to work. Furthermore, the lack of job opportunities in the peripheries necessitates finding jobs in the city center.

Based on the fact that there is a necessity to find a job in the city center, here the gravity model can be applied. This model is used in urban geography based on Newton's law of gravity. Generally, it is used to predict migration flows and the degree of migration interactions within two places, and it is based on the idea that as the significance of one or both places increases, there will also be an increase in movement between them (Rodrigue et al., 2009; Erin et al., 2012).

### **3. METHODOLOGY**

The mixed method is used in the research. However, quantitative analysis is one of the main methods and plays an essential role. Several scholars characterize the research methodology as the comprehensive steps a researcher applies in commencing research work (Leedy & Ormrod 2001; Williams, 2011).

Descriptive statistics are used for providing diagrams, tables, pie charts, and graphs on the socio-demographic characteristics of commuting processes in the Almaty region. Correlation analysis is used for testing hypotheses that are proposed in this research.

To analyze the impact of commuting on creating new workplaces, data from the Bureau National of Statistics is used. The analysis is conducted based on the Almaty city case. The data is about the number of employed people in the Almaty region and the number of registered entities. Moreover, information from Kazakhstan's Electronic Labor Exchange database is used for the analysis.

Since there is a lack of information on the official number of commuter flow in the country, there is an analysis of the employed people in the Almaty region and published vacancies in the Electronic Labor Exchange database.

### **4. FINDINGS AND DISCUSSION**

Whereas the work of Russo et al. (2011) is based on the unique dataset covering commuter flows following the long timespan from 1996 to 2005, in Kazakhstan there are no official statistics on commuting flows. Therefore, the dataset on transportation flows

is used as an indirect indicator of commuter flows. Moreover, the dataset on the registered entities and vacancies in Almaty is also used.

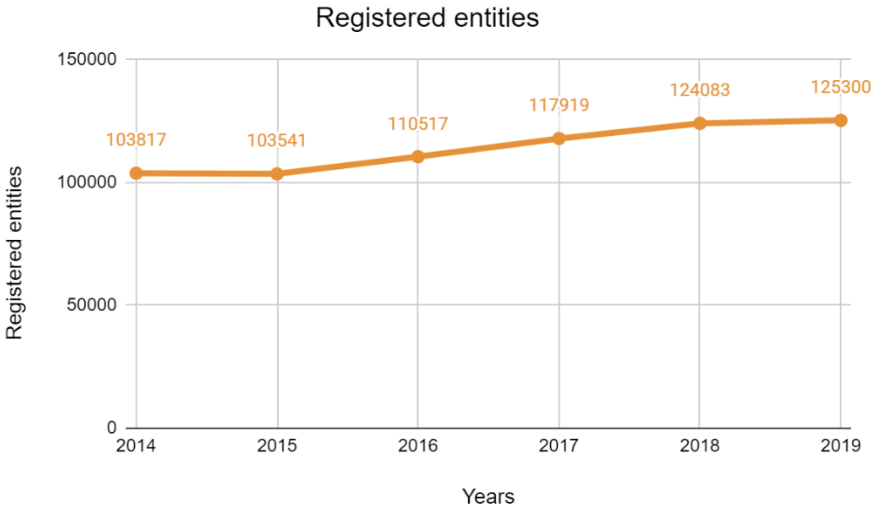
In this research it is assumed that an increase in transportation flows within Almaty city has a correlation with the registered entities, therefore correlation analysis of these two variables was conducted. Therefore, the following hypotheses can be formulated:

*Hypothesis 0:* there is no correlation between transportation flows and registered entities.

*Hypothesis 1:* transportation flows positively correlate with registered entities.

As it was mentioned, commuters need services and goods during travel to work, especially transportation. Hence, the increase in commuting flows can create the need in increasing public and private transport usage.

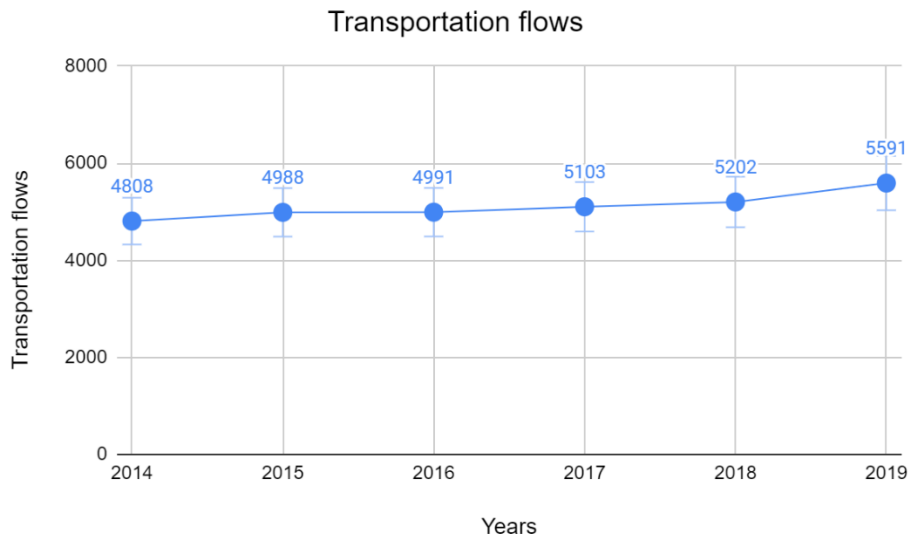
In order to analyze the correlation, there is a visual representation of transport flows (Figure 2) and registered entities (Figure 2).



**FIGURE 2.** Official registered entities

*Source:* Compiled by the author based on the data from the Bureau of National Statistics (2022)

The data is taken from the Bureau National of Statistics. Due to the Covid-19 pandemic and lockdowns influence, data before the pandemic is used. After the beginning of Covid-19, there was a decrease in transportation flow. As it was on the above-depicted figure, a slight stable increase in the registered entities can be seen. Nevertheless, overall transportation flows are presented in Figure 3.



**FIGURE 3.** Overall transportation flows

*Source:* Compiled by the author based on the Bureau of National Statistics (2022)

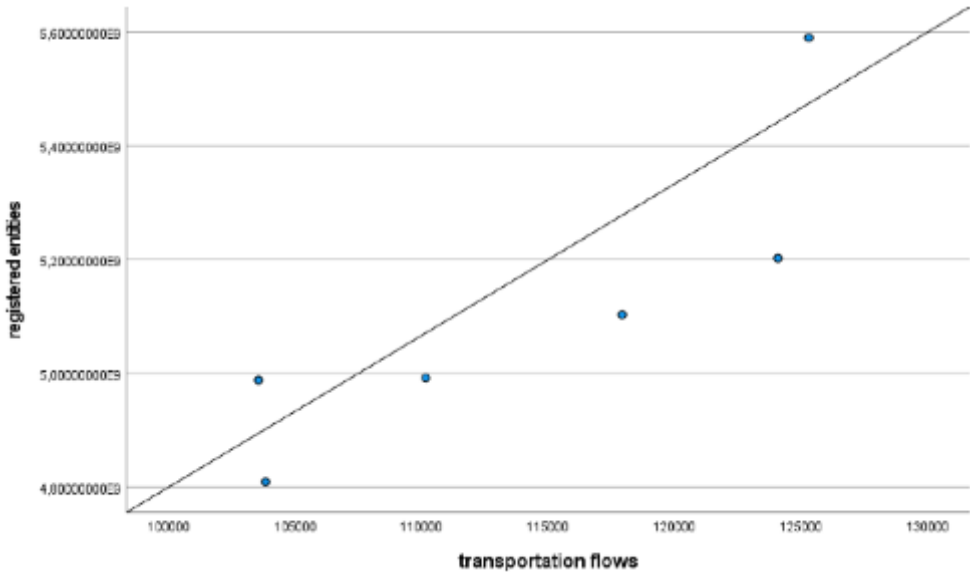
In order to check the research hypotheses, correlation analysis using SPSS software is used. Due to the fact that the sample is small, it is assumed that the results are significant at 0.05 (see Table 1).

**TABLE 1.** Correlation of the registered entities and transportation flows

Correlations			
		Registered entities	Transportation flows
Registered entities	Pearson Correlation	1	0,855*
	Sig. (2-tailed)		0,030
	Sum of Squares and Cross-products	358546893339333310,000	11123481984666,666
	Covariance	71709378667866664,000	2224696396933,333
	N	6	6
Transportation flows	Pearson Correlation	0,855*	1
	Sig. (2-tailed)	0,030	
	Sum of Squares and Cross-products	11123481984666,666	472457020,833
	Covariance	2224696396933,333	94491404,167
	N	6	6
*. Correlation is significant at the 0.05 level (2-tailed).			
Note – Compiled by the author with SPSS software			

According to the results of the correlation analysis,  $r$  is 0.855 indicating a strong positive correlation. Moreover, the significance level is 0,03, meaning that the null hypothesis is rejected, and the alternative hypothesis is accepted. The scatter plot of the correlation is presented in Figure 4. Since the number of observations is small, it is

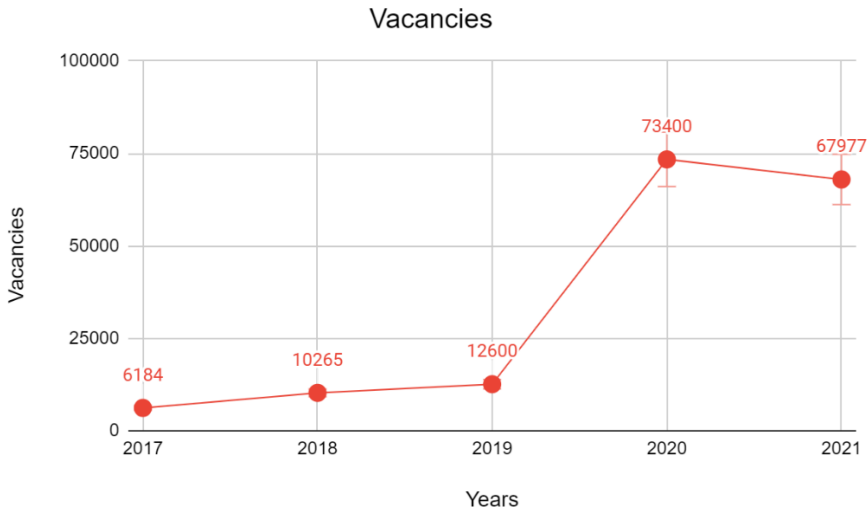
complicated to generalize the results, however, the result provides additional useful information for future analysis (see Figure 4).



**FIGURE 4.** The number of vacancies in Almaty

Source: Compiled by the author with SPSS software

However, attention should also be paid to labor market vacancies. However, the number of vacancies decreased from 2020 to 2021. According to Kazakhstan’s Electronic Labor Exchange database, there is a vast increase in created vacancies in Almaty from 2017 to 2020 (see Figure 5).



**FIGURE 5.** Scatter plot of the correlation.

Source: Compiled by the author based on Kazakhstan’s Electronic Labor Exchange database data

## 5. CONCLUSIONS

This research analyzed transportation flows and their influence on the labor market. According to the results, there is a positive correlation between transport flows and registered entities between 2014 and 2019. This period was taken due to the Covid-19 pandemic's influence. Descriptive statistics of created vacancies in Almaty are also presented. However, due to the lack of official data on commuting flow and information on the created vacancies for previous years, it is complicated to broadly analyze the influence of commuting on the creation of workplaces. In October 2021 new census was conducted in Kazakhstan (How Population Census Will Be Conducted in 2021, 2021). Therefore this relevant information can be useful for future research. Statistical data on commuting is necessary when compiling the balance of labor resources of a city or region, when determining the resource and distribution parts of the reporting and planned territorial balance of labor resources. Information about the pendulum migration is also important when planning and assessing the actual load on the territorial infrastructure when determining the demand for transport services to the population.

According to the Strategy of Kazakhstan-2050 and Interregional Action Plan for the Development of the Almaty Agglomeration until 2030, it is crucial to ensure human development, create single transport and logistic complex, and ensure environmental sustainability, as well as to provide sustainable urbanization. Even if there is some mention of the word “commuting” in the Action Plan, there are no exact regulation methods of commuting. Moreover, that problem is worsening because it is unclear which organ would control commuting: Almaty city administration or Almaty region administration. Hence, if the government is willing to ensure human, transport, and logistic development and maintain a sustainable urbanization rate, appropriate public policy measures should be implemented. Therefore, studying commuting from academic and public policy perspectives is crucial. Furthermore, since the commuting patterns are most often traced in the Almaty region, with the largest population and more developed infrastructure among other cities, it was chosen to study commuting in this region.

This paper contributes to the present studies about commuting and the labor market. Moreover, it might assist researchers in future studies. Especially considering the fact that Almaty agglomeration has been enlarging and including new territories, new changes in the labor market and commuting patterns might appear.

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