

HIGHER EDUCATION AND LABOR MARKET TRENDS IN THE TRANSPORT AND LOGISTICS SECTOR

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Abstract

Developed transport and storage sector has up-most importance for production capacities in regions, especially in rural areas, ensuring supplies and deliveries, including well-developed and maintained infrastructure, transport vehicles, IT systems and human capital. Till 2040 demand for highly-educated and qualified logistics specialists will increase in Latvia due to growing labor costs, introduction of new technologies and digital solutions. The aim of the study is to identify the recent trends that give valuable findings for education and regional development policy elaboration and implementation in order to achieve balanced regional development promoting also rural development. The findings reveal that the higher the share of population with higher education the higher the wages. The regions with the larger share of population with higher education are mainly urban and pre-dominantly urban regions. However, transport and logistics sector is in all regions as well as demand for logistics specialists. Balanced regional development is crucial for sustainable development in national and the European Union level.

Key words: logistics, demand for logistics specialists, regional development, rural regions, higher education.

Introduction

Higher education has been with growing importance in many sectors for a long period; the more educated and skilled employees and investments in advanced technologies ensure growing productivity and competitiveness in local and global market.

Regional logistics is closely related to the wholesale and retail trade (Feng, 2018), and it interacts with the regional economy as such (Yin & Peng, 2021). Moreover, logistics has a strategic role in optimizing resource allocation, improvement of investment environment, which can improve the competitiveness of the regional economy (Bi *et al.*, 2020; Guo *et al.*, 2021). Policy factors also play a major role in the development of regional logistics (Wang & Li, 2021).

COVID-19 crisis has shown that it is important to establish taskforce teams, enable information digitalization and quickly prepare capacity calculations, which is possible only if logistics management can be described as forward-thinking leadership (Durugbo *et al.*, 2022).

There are several job responsibilities that will be influenced by digitalization resulting in lower demand for such specialists (Bavrin *et al.*, 2021). Moreover, increasing automation can help speed up different logistics processes and reduce staff. However, the lack of appropriate training may hinder such developments (Koshal *et al.*, 2019). As supply chains expand, complexity also increases, thus, demand for well-skilled supply chain professionals also increases (Mageto & Luke, 2020). Another issue is the aging population, which also influences the labor force in logistics (Gruchmann *et al.*, 2021).

Rurality has impact on students' postsecondary institution selection and are clear differences in postsecondary attendance amid rural and urban students (Byun *et al.*, 2015; Koricich *et al.*, 2018).

Supply-chain education at universities has been evaluated by various methods and perspectives, such as in graduate supply chain management courses taught at universities globally (Lutz *et al.*, 2022) and at national level (Jordan & Bak, 2016; Staricco & Vitale Brovarone, 2018).

The study on land-use transport (LUT) education (Staricco & Vitale Brovarone, 2018) reveals that topics covered in programs if not pre-determined depend on instructors and professors' preferences; as a result, some topics are more dominant to the scientific debate than in education. University–industry collaboration accelerates supply chain management learning (Gibson *et al.*, 2016).

The aim of the study is to identify the recent trends that provide valuable findings for education and regional development policy elaboration and implementation in order to achieve balanced regional development promoting also rural development.

Tasks:

1. To analyze theoretical aspects of higher education role in development of logistics sector;
2. To collect and analyze statistical data about labor market trends in transport and logistics sector in different regions;
3. To collect and analyze statistical data about trends in higher education and education in transport and logistics;
4. To develop model of targeted state supported education.

Transport and logistics industry is H industry

according to NACE rev. 2; however, several indicators are published only for aggregated sectors as H-J and G-I, then a note is made.

Materials and Methods

The research is based on many data sources as topical labor market trends has limited coverage in official state or the European Union (EU) level statistical data bases due to time delay in publishing, hence also additional sources were selected as data available from State Employment Agency, two national level online job offer websites – ss.com and cvonline.lv. Also, information on selected logistics higher education programs of Riga Technical University (RTU) are introduced in the research.

Research period is 2020–2022. Databases of Eurostat and National statistical offices are used. Data obtaining (mining) in public sources (ss.com (Vacancies, 2023) and cvmarket (Job offers, 2023)) – Feb 8-Mar 13, 2023.

The research methods applied include graphical and content analysis.

Results and Discussion

Labour demand is determined by sectoral, regional, social and other trends that impact selection of technologies, investments, cost structure, austerity measures in industry and selection of study program, starting or postponing university level studies at individual level, etc.

Sectoral structure and development has been recently heavily impacted by costs increase that leads to changes in demand for labor.

Regional location of transport and storage is the result of many factors. Several regional disaggregation approaches are applied, as NUTS 3 level, urban-rural typology, local or national level taxonomy, etc.

In predominantly rural regions close to the city Wholesale and retail trade, transport, accommodation and food service activities (NACE G-I) accounted for 4.9% of gross value added at basic prices of (according to Eurostat (Eurostat, 2022) applied other typologies), and remote predominantly rural regions – 4.5%; in total, 9.5% of Wholesale and retail trade, transport, accommodation and food service activities were generated in predominantly rural regions in 2019. In turn, predominantly urban regions accounted for 57.0% and intermediate regions – 33.6% (21.1% in close to city intermediate regions; 12.6% in remote intermediate regions). On average, 14.3% of total economic activity was generated in predominantly rural regions indicating that other economic activities (not only farming and supplement services) are located more in rural areas than trade and transport.

Transportation, storage, information and communication (including NACE H-J industries) sector employed 11.6% in 2021; however, the share varies significantly – in Vidzeme, only 6.4% are employed in the sector, meanwhile in Riga region – 15.6% (Table 1).

Table 1
Share of employed in transportation, storage, information and communication, administrative territories, in 2021, % (Official Statistics Portal of Latvia, 2023a)

Region	Share, %
Total	11.6
Riga region	15.6
Pierīga region	11.0
Vidzeme region	6.4
Kurzeme region	10.3
Zemgale region	8.9
Latgale region	9.7

Until COVID-19, transport and storage sector has been having relatively minor producer price changes (low increase and some sub-sectors as NACE H5224 Cargo handling had a decline) since 2015 (Figure 1). Unquestionably, COVID-19 changed the demand side as well the costs (due to lock-downs, restrictions, unavailability, delayed deliveries, shortages or certain products and services, etc.).

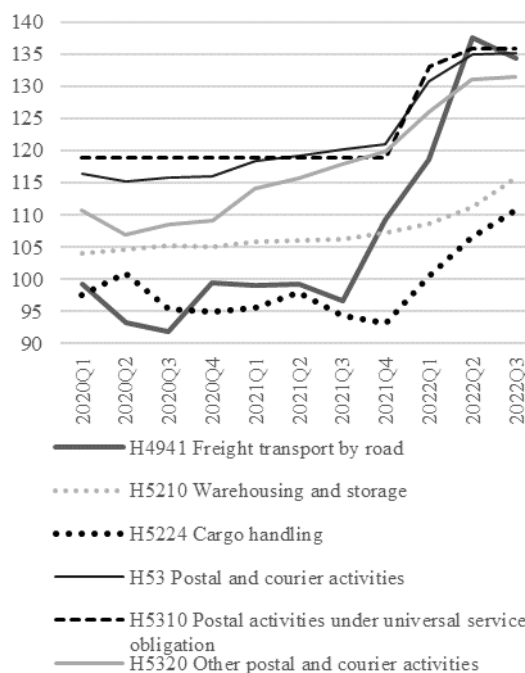


Figure 1. Producer price indices in service sectors (2015=100) (NACE Rev.2) in 2020Q1–2022Q3.

Transport and storage sector experienced huge and rapid producer price increase in recent periods (in 2022 Q2 and Q3 increase was higher than 35% over the corresponding period of previous year (Figure 2)) due to growing fuel prices, labor costs. The highest producer price increase in 2022Q3 compared to 2015 was in H5310 Postal activities under universal service obligation (135.9; 2015=100) and H4941 Freight transport by road (134.3).

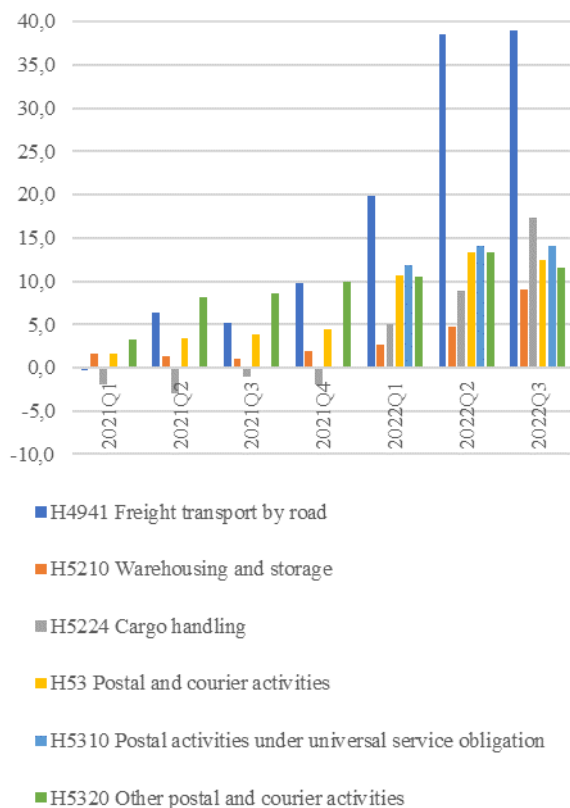


Figure 2. Producer price indices in transport sub-sectors (% over the corresponding period of previous year) in 2021Q1-2022Q3 (Official Statistics Portal of Latvia, 2023b).

General trends in demand for specialists in transport and logistics in Latvia in 2020–2022, using quarterly data and representing registered vacant job offers (SEA registered vacancies) outline fluctuations caused also by seasonality (Figure 3).

Dynamics of registered vacancies in transport and storage (H industry) in regions in 2022 highlight the growing share of vacancies in Riga regions (from 72% to 84%), significantly minor share are vacancies in other regions (Figure 4).

Higher education significantly correlates with productivity and wage in result. The analysis of wage

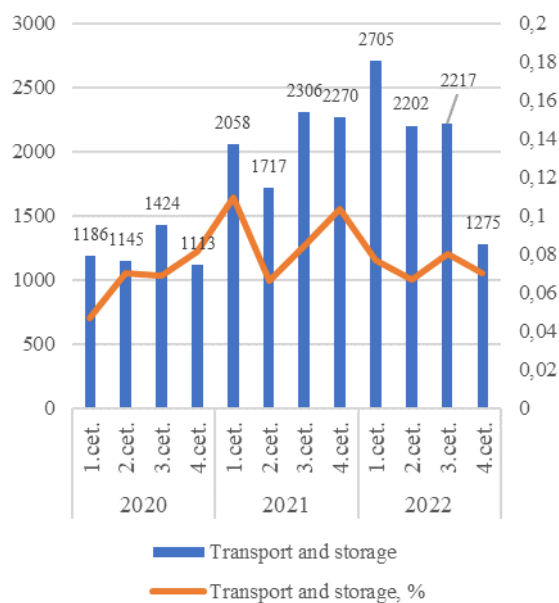


Figure 3. Registered vacancies in transport and storage (H industry) 2020Q1-2022Q4 (State Employment Agency, 2023).

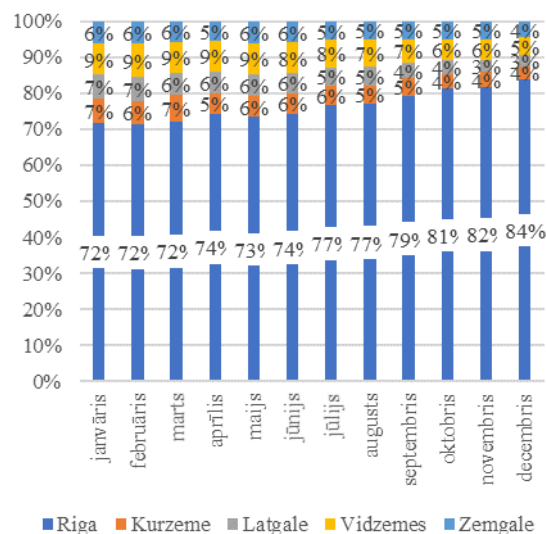


Figure 4. Registered vacancies in transport and storage (H industry) in regions in 2022 (%) (State Employment Agency, 2023).

levels in regions and share of persons with university level education (bachelor or higher) argues on a noticeably positive correlation – the more employees proportionally have higher education, the higher the wages in the region (maps in Figure 5 and Figure 6). The regions that are dominated more by rural areas and are less populated, also have limited access to education, including the transport sector.

Despite a high demand for logistic specialists,

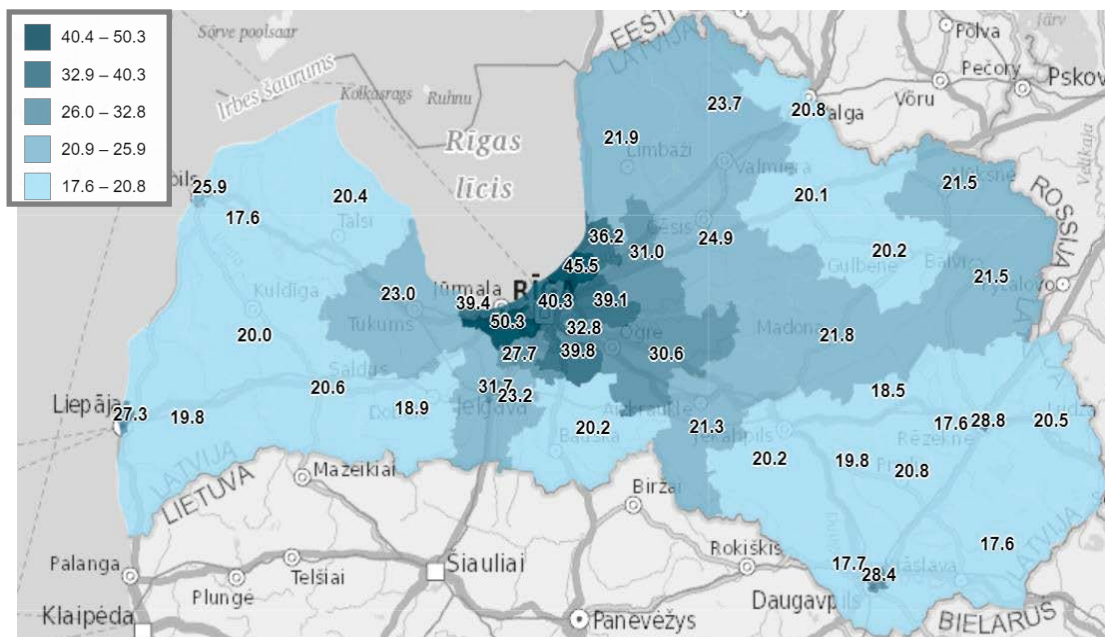


Figure 5. Share of population that has a higher education or doctorate degree by actual place of residence, administrative territories, in 2021, % (Official Statistics Portal of Latvia, 2023a).

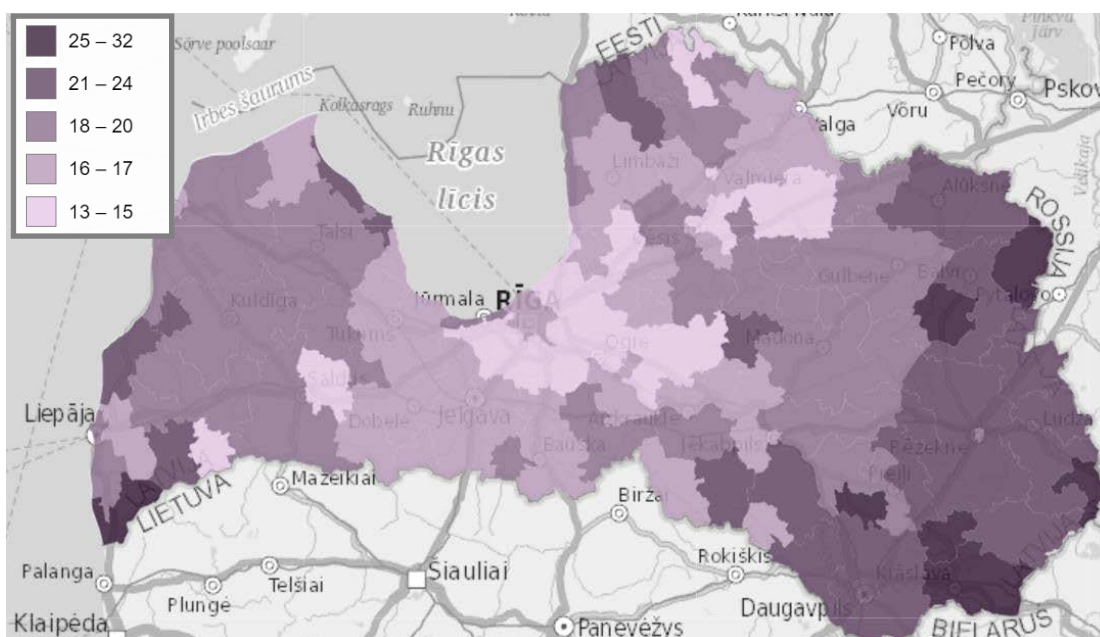


Figure 6. Share of employees with a minimum wage or less by declared place of residence, Administrative territories, in 2021M07 (Official Statistics Portal of Latvia, 2023a).

the number of students studying without tuition fee (budgeted students) are constant. In recent 3 study years (2020/2021; 2021/2022; 2022/23), there have been only 28 students in the corresponding program. Majority of students are paying tuition fees (80%) (Figure 3).

Monitored actual regional demand for employees in transport and logistics (February 8-March 13) outlines the technical problems in data collection, differences how companies specify the region,

the job offer, the industry and responsibilities. The obtained data claims that there is a stable demand with significant regional bias towards predominately-urban areas (Riga and Pierīga (if specified separately), or Vidzeme (if Riga and Pierīga included) (Figures 8; 9).

If in data selection only vacancies for ‘logistics specialists’ selected very limited number of actual job offers are represented due to input information in job offers (Figure 9).

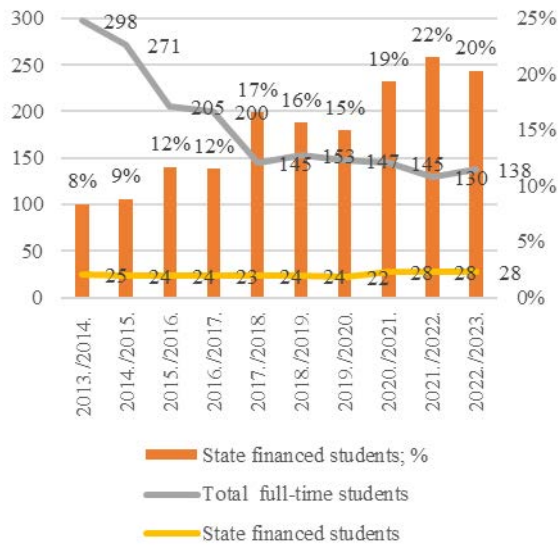


Figure 7. Number of full-time students in RTU logistics program (full-time state financed students and tuition fee-paying students).

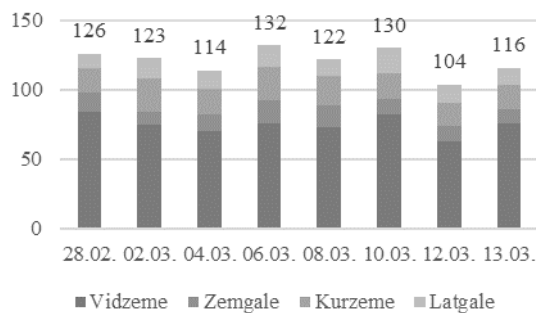


Figure 8. Job offers in logistics by regions (Vacancies, 2023).

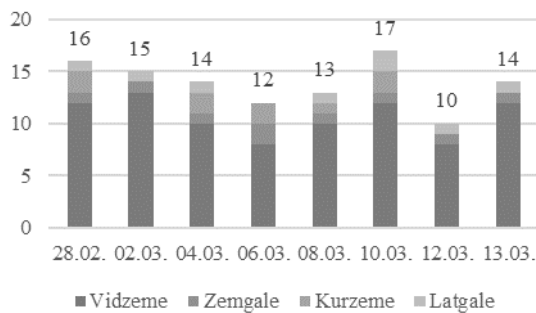


Figure 9. Logistics specialists' job offers by regions (Vacancies, 2023).

Monitoring of demand for employees in CVmarket database reveals that the companies note that vacancies are in warehouses and technical jobs in logistics (Figure 10).

According to the labour market forecasts of Ministry of Economics of Latvia, till 2040 demand for highly-educated and qualified logistics specialists

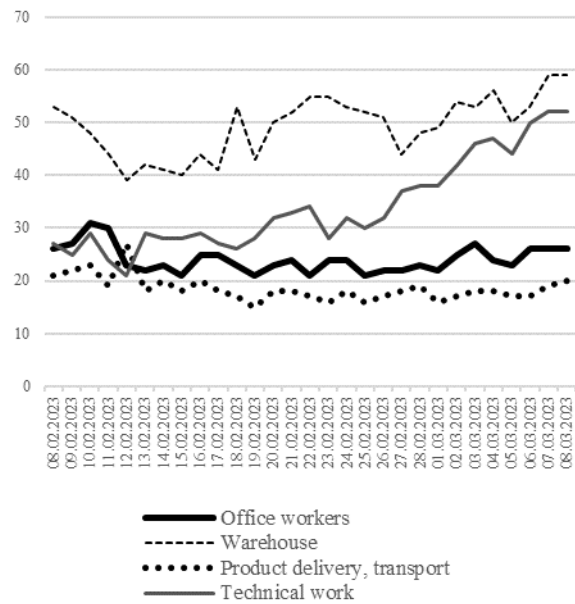


Figure 10. Job offers in logistics by positions, Feb 8-March 8, 2023 (Job offers, 2023).

will increase in Latvia due to growing labor costs, introduction of new technologies and digital solutions (Ministry of Economics, 2023). Universities have a significant role in educating new and existing professionals in all higher education levels.

Targeted policy and resources allocated to improve the access to qualitative education that is industry-university interaction leads to regional and national level gains for many stakeholders as transport and logistics companies, employees, local business and international companies allocated in regions, local communities, etc. (Figure 11). The increased number of highly-educated and qualified specialists in transport and logistics can be through increased number of state financed students and as the income level in rural regions limits options to have access to tuition fee-paying studies.

Conclusions

1. Despite recent producer price increase in the economy, including transport and storage sector, the demand for specialists has not diminished significantly.
2. Demand for highly-educated and skilled specialists in logistics depend on availability of higher education. Low income level in rural areas limits access to education and higher labour productivity in companies and higher wages for employees.
3. Universities have direct impact on economic development in regions. Statistical data shows that in regions with more higher education holders develop faster because of higher wages of potential employees.

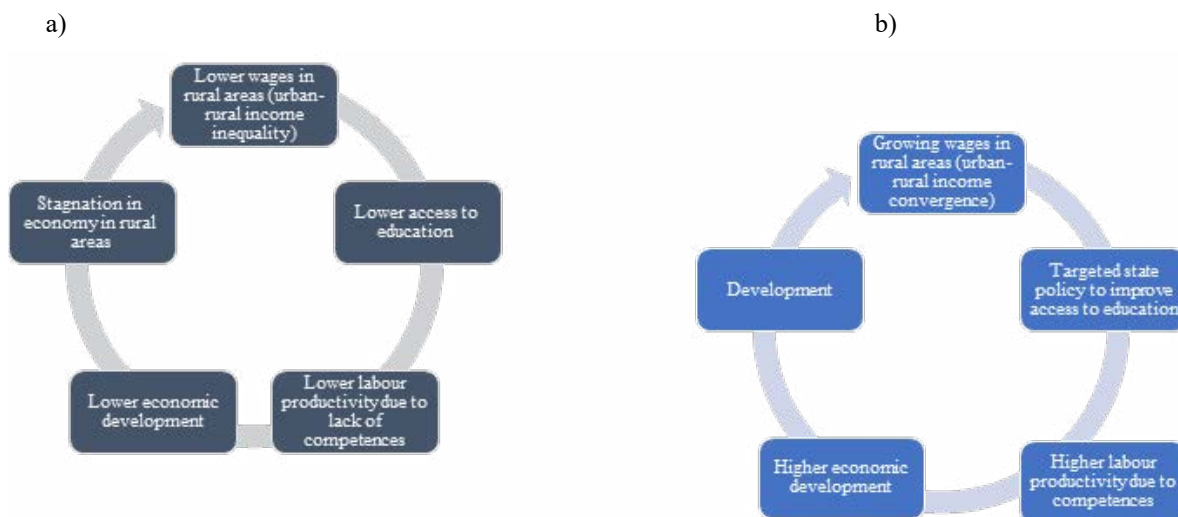


Figure 11. Schematic model of impact on rural development of negative spiral effects and (a) and proposed targeted state supported higher education (positive spiral effects) (b)).

4. Despite the necessity of highly-educated and skilled specialists in logistics, the total number of full-time students in transport and logistics study programs is steadily decreasing.
5. Companies have limited options to invest in new technologies in conditions due to lack of highly-educated and skilled specialists in logistics.

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