

Tsvyatko Tolev

DR.

UNWE, Sofia, Bulgaria

e-mail: tstolev@unwe.bg

ORCID:

<https://orcid.org/0009-0000-0250-8359>

Published First Online:

19.12.2023

Pages: 329-337

DOI:

<https://doi.org/10.37075/JOMS A.2023.2.15>

THE NEED FOR MODERNISATION OF NATIONAL, REGIONAL AND LOCAL INFRASTRUCTURE IN THE GRAVITY ZONE OF PLOVDIV AND PAZARDZHIC

ABSTRACT

This article is devoted to the effective development of the agglomeration in the direction of Asenovgrad-Plovdiv-Pazardzhik, which requires the need to increase the intensity of regional development. This also requires the building of institutions and partnerships between all levels of government (central, district, regional, municipal), the private sector, donors and civil society. In practice, the region between the two cities has had satisfactory transport links for the last 50 years, but in the new realities it needs to double infrastructure and improve innovative development for high competitiveness. The article uses the results of a survey on the problems of the Plovdiv-Pazardzhik agglomeration area. Some

trends are presented and relevant recommendations are made.

KEYWORDS: development, agglomeration, direction, model, survey, study

JEL: R5, R53, R58, H7

INTRODUCTION

Today, Bulgarian agglomeration areas and their adjacent municipalities are part of a vertical governance structure in which the direction of relationships and interactions is still mainly top-down. Effective development of the agglomeration area in the Asenovgrad-Plovdiv-Pazardzhik direction also requires building institutions and partnerships between the different levels of government (central, planning region, regional, municipal), the private sector, donors and civil society. The regional level of governance (district, region, municipality) in Bulgaria is still highly dependent on decisions taken at the central level. The agglomeration area Pazardzhik - Plovdiv covers the distance between the two cities 37 km and areas of gravity about 15 km outside the two cities. The area between the two towns has for the last 50 years been famous for good transport connections and the presence of an international transport corridor, creating the conditions for economic development, which slowed down after the changes of 1989. Over the last few decades, the not good demographic development in the agglomeration area between Plovdiv and Pazardzhik has had its negative consequences. These are measured by a declining

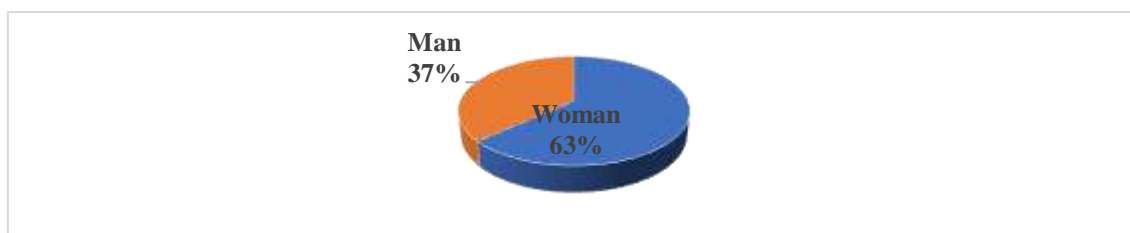
and ageing population, declining birth rates and a persistently high level of overall mortality, negative natural and mechanical growth.

To illustrate the processes in the Plovdiv agglomeration area and the Pazardzhik area, an empirical sociological study was conducted. The study seeks to answer the following hypotheses. On the basis of the identified dependencies and the results of the interviews, recommendations are made for the regional development of the settlements and their general development trends. For the purpose of the study, descriptive methods were used to collect data and analyze the information obtained. The study of consumer attitudes was carried out on the basis of a questionnaire consisting of 22 questions concerning the modeling of the regional development of the Plovdiv and Pazardzhik areas. The survey included closed and scale questions, providing respondents with the opportunity to indicate the level of agreement or disagreement on a symmetrical scale for a series of statements, in order to determine the intensity of consumer views on the development of the mentioned agglomeration areas. The questionnaire was developed using the online platform QUALTRICS, which provides a convenient and clean look in handling and structuring the questions. Due to the nature of the study and the nature of the data extracted from the survey, the use of non-parametric methods for the analysis of the information obtained is required. The data in the study was collected mainly using weak scales, namely nominal and ordinal, which necessitated the use of non-parametric tests. This, in turn, poses risks due to the weaker efficiency compared to parametric tests and due to the greater likelihood of making errors of the second kind, namely accepting false null hypotheses. In this thesis, three different non-parametric methods are used to analyse the extracted information. These are Chi-square analysis, Mann-Whitney U-test and Spearman correlation test. The questionnaire was developed keeping the requirements of accuracy, brevity and clarity of the questions. At the same time, the use of questions that would make it difficult for respondents to recall, make generalizations and calculations or the possibility of misleading was avoided. The results of the survey help to create a profile of the Plovdiv-Pazardzhik agglomeration at its fundamental level.

EXHIBITION

Business considers the demographic factor not only in terms of demand (as a determinant of aggregate consumer demand and its territorial differentiation), but also in terms of supply (as a determinant of employment). The availability of highly educated, skilled and unskilled labour resources appears to be an important factor in reducing the finances for preparing and stimulating immigration into a region of labour force. Thus, an opportunity is opened for firms to open new industries in these regions without having to invest in attracting or training personnel (Evrev P., 2018). This makes it necessary in this study to approbate the questionnaire through a specific approach and methodology for empirical research of consumer attitudes towards the assessment of regional development of the Plovdiv-Pazardzhik agglomeration area. Additionally, respondents were asked to distribute the questionnaire to their reference groups. The results are valid only for the surveyed group of persons. They do not claim to be exhaustive, but the 351 respondents surveyed make it representative of the population of the agglomeration area between Plovdiv and Pazardzhik. The main object of demographic policy in the two agglomeration areas is the people, and they in turn are at the centre of a sustainable development (Evrev P., 2018). To the **first** question about the gender of respondents, 63% of respondents answered that their gender is Female. The remaining 37% responded that their gender was Male.

Figure 1. Gender distribution of respondents

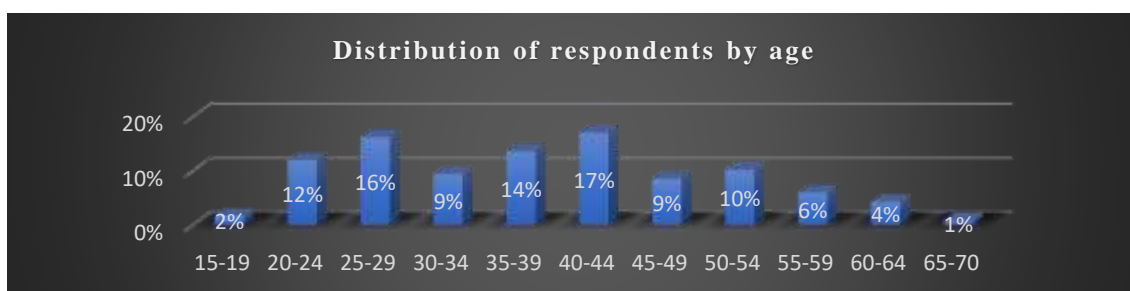


Source: Questionnaire survey

The results should be taken as a borehole in the empirical field, from which guidelines and hypotheses for future nationally representative quantitative or in-depth qualitative research in the problem field around the vision for the development of the agglomeration area between Plovdiv and Pazardzhik can be derived. The results of the online survey allow for the coarsest orientation in regional development patterns.

It must be assumed that demographic factors, number and sex-age structure influence employment, production, income and consumption at the macro level. They also affect the standard of living, differential income and poverty of individual families and their members.

Figure 2. Population by age structure from the survey.

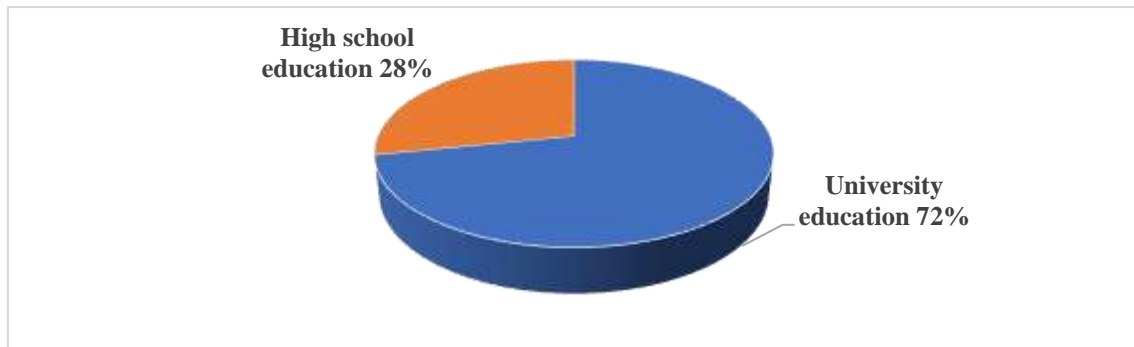


Source: Questionnaire survey

When asked about the age structure of the population, only 2% of the respondents were in the 15 to 19 age range, 12% of the respondents were in the 20 to 24 age range, 16% of the respondents were in the 25 to 29 age range, 9% of the respondents were in the 30 to 34 age range, 14% of the respondents were in the 35 to 39 age range, 17% of respondents were in the 40 to 40 age range, 9% of respondents were in the 45 to 49 age range, 10% of respondents were in the 50 to 54 age range, 6% of respondents were in the 55 to 59 age range, 4% of respondents were in the 60 to 64 age range and 1% of respondents were in the 65 to 70 age range.

The research also involves collecting data on the positions and educational level of the respondents. In practice, in the Plovdiv-Pazardzhik agglomeration area, it is good to highlight the possible factors that influence the occupational and socio-demographic characteristics; what are their attitudes towards practicing professions and the level of education of the population (Tsonkov N., 2016). The majority of the respondents had higher education, but nearly one third had secondary education. This is necessary due to the peculiarities of employment in the agglomeration area, allowing, on the one hand, the identification of the status and needs of the surveyed sites, and on the other - the comparability of data with those for other agglomeration areas in the country.

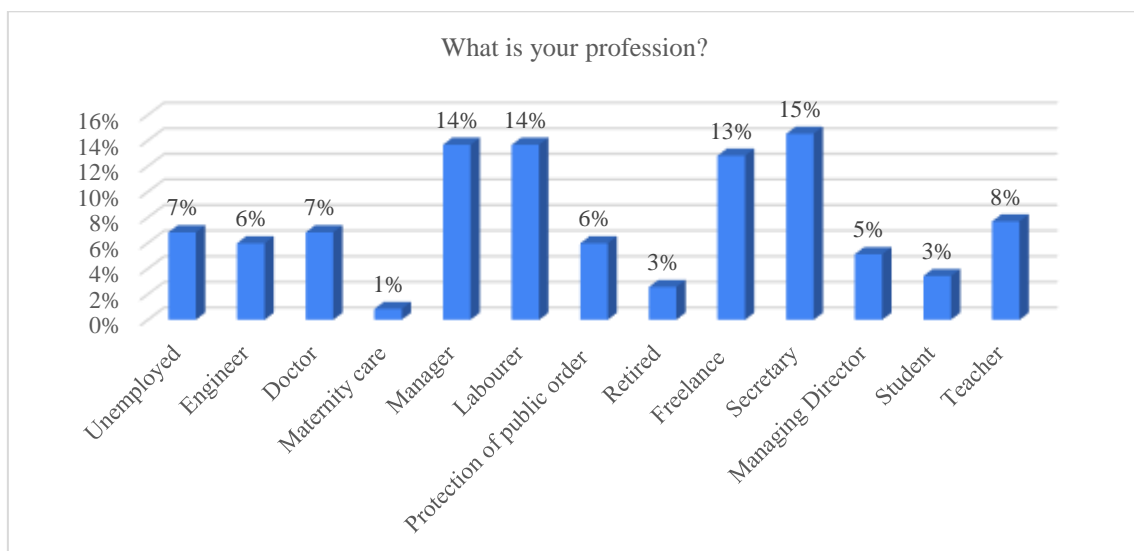
Figure 3. Percentage of respondents by education



Source: Questionnaire survey

Thus answering the question regarding education, it is evident that 72% of the respondents answered that their education was "High school education". The remaining 28% responded that their education was "University education". There are no people in the survey who are with primary education.

Figure 4. Percentage distribution of respondents by occupation



Source: Questionnaire survey

In the survey, the largest participation were people in the profession "Secretary" (15%) "Manager"(14%), "Labourer" (14%) and "Freelance" (13%). People engaged in social activities were "Teachers" 8%, "Doctors" 7%, "Protection of public order " 6%. "Unemployed" have 7%. "Retired" and "Student" are 3% and those who are currently on maternity leave only 1%. People who defined themselves as "Engineer" are 6%, 5% of the respondents answered that their profession is "Managing Director".

The wide range of participants in the survey enables us to approach the problems of the Plovdiv-Pazardzhik agglomeration area in a more targeted way. Moreover, besides the different professions, some of the respondents have a vision and an assessment of the development potential. In this direction, an important place according to the survey is occupied by the vision in the South-Central planning area the possibility of "support for the young and new employees"

(30.00 %), followed by "meeting other social and cultural needs" and "cards for fitness and other sports activities" each with (25.00 %). It is interesting to note that employers pay a lot of attention to "facilities for long and short-term recreation and tourism" and "facilities for physical culture, sports and tourism", which probably means that there are such facilities built on the premises of the enterprises themselves. On the one hand, these results show that those who filled in the questionnaire are interested, but on the other hand, it is obvious that the problems of regional development have taken a back seat to the social problems of the population in the last two years (Petrov K. 2021). Here it can be confirmed that Plovdiv and Pazardzhik in the period 2021-2022 are in a complex process of socio-economic development. This seems to be a key period to determine the growth of the economic and human potential of the country, the solution of its socio-economic problems is impossible without defining regional policy as the main priority for the future development of the region and the country as a whole.

In this situation within the national territory, the territories around Plovdiv and Pazardzhik managed to transform and gradually form a new regional economic profile. This process of highlighting the strengths of the settlements around the Plovdiv-Pazardzhik axis is fading due to emerging problems with the quality of regional connectivity and infrastructure provision. Thus, according to the NSI indicators of 2022 for the territory in the direction Plovdiv - Pazardzhik, there is no change in the length of highways, roads of different classes, as well as railway lines. There is insufficient investment in energy, communications and water and sewerage infrastructure, which raises many questions regarding the capacity for development of the agglomeration area between Plovdiv and Pazardzhik. In this direction, the formed common mega-area between Plovdiv and Pazardzhik needs the formulation of specific objectives and activities to achieve strategic superiority in national and regional terms. This should include building business networks, stimulating the development of various forms of tourism, improving the quality of life and the connectivity of the region nationally and internationally, improving access to educational, health, social, cultural services and sports, etc. (Yovcheva, M. 2012).

In line with these possible policies, one should not ignore the fact that Plovdiv and Pazardzhik have a very good and favorable geographical location (Yovkova. Y 2021). In the national space, the routes Plovdiv-Pazardzhik-Razlog-GotseDelchev-Drama-Kavala, Sofia-Koprivshchitsa-Panagyurishte-Pazardzhik-Peshtera-Dospat, Plovdiv-Pazardzhik-Ikhtiman-Samokov-Dupnitsa-Kyustendil, Plovdiv-Karlovo-Troyan-Lovech-Oryakhovo, Plovdiv-Haskovo-Svilengrad, Plovdiv-Smolyan-Rudozem-Kavala, as well as other directions of the regional character of: Pazardzhik-Stamboliiski-Plovdiv, Asenovgrad-Plovdiv-Krichim-Peshtera and others. It is essential how the agglomeration area is embedded in the local, regional and national space. In this direction, a fundamental element for the present and future development of the forming agglomeration is the assessment of the available road infrastructure that serves the settlements (Yovcheva, M. 2012). The road network should also be correlated to the national network, where the South Central Region includes some of the main road routes of the TEN-T network, whose length represents 18.4% of the total length of the road network in the country. These roads ensure the integration of the country's road network with that of neighbouring countries and are important for the integration of the territory both nationally and in European terms.

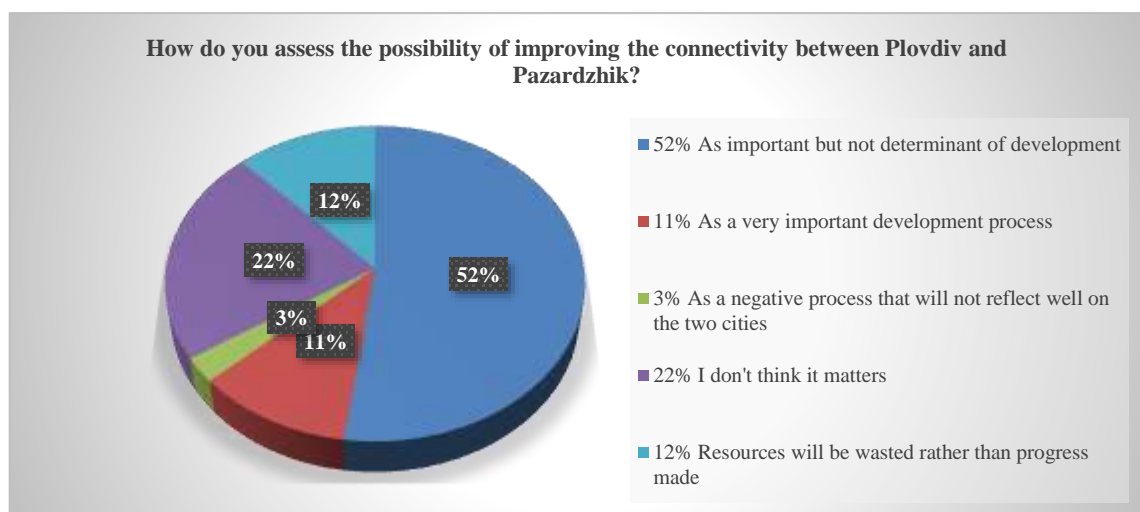
Table1. The road network in the South Central Region in relation to the districts of Plovdiv and Pazardzhik

Statistical zones, regions and districts	Roads - Total	Highway	First Class	Second Class	Third-class and road connections at junctions and interchanges
South Central Region	4105	192	416	785	2712
Pazardzhik	753	51	59	203	440
Plovdiv	1020	50	129	240	601

Source: Questionnaire survey

It is evident that the agglomeration between Plovdiv and Pazardzhik has a high road density. This brings to the forefront the assessment that the agglomeration network has a satisfactory degree of development, but it is necessary to relate it not only to the regional development, but also to its national and international importance and density of regional and intra-regional roads, given their different functions in serving the territory of the Plovdiv - Pazardzhik agglomeration. Here is the main deficit of the satellite settlements around the agglomeration, because they do not have wider transport accessibility (Yovkova, Y 2021). Less than half of the municipalities in Plovdiv and Pazardzhik districts are served by roads of international and national importance, providing them with better positions for transport communications on a larger scale and greater opportunities for socio-economic development.

Figure 5. Assessment of the possibility to improve the connectivity of Plovdiv and Pazardzhik



Source: Questionnaire survey

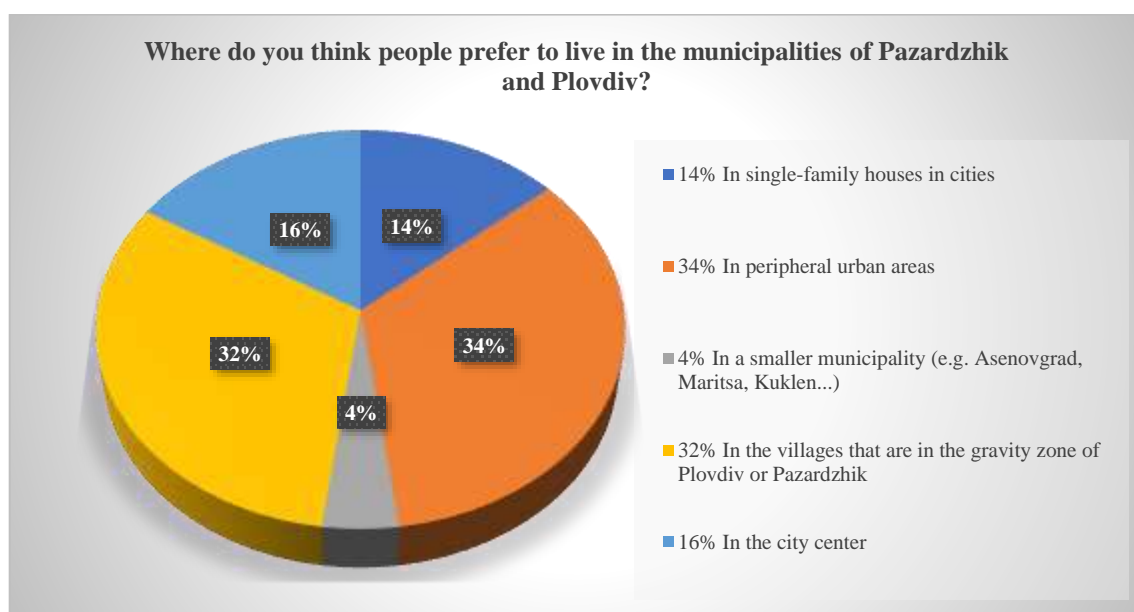
On the other hand, municipalities are not flexible and do not have development alternatives, this is because nearly 60% of municipalities have more limited development opportunities due to the inability to bring out their strengths and form their own regional economic profile. The worst situation is faced by municipalities served by third-class roads, former fourth-class roads reclassified in 2002, whose parameters and condition are traditionally poor. The area of influence of their centres is most often limited to the municipality. An example of such a

municipality is Peruschitsa. In this direction, based on the results of the survey conducted, it is evident that this issue is still facing public management. When asked "How do you assess the possibility of improving Plovdiv-Pazardzhik connectivity?", 52% of respondents answered that their assessment of the possibility of improving Plovdiv-Pazardzhik connectivity should be understood as a set of policies. The high percentage indicates that there is a public opinion created in the region about the need to build better and more efficient connections between the settlements (Yovkova. J. 2021). It is evident that only 3% of the respondents answered that their assessment of the possibility of improving connectivity between Plovdiv-Pazardzhik is "I do not think it makes any difference". A part of the public, which includes nearly 22% of respondents, expressed doubt that it is possible for the infrastructure to change the image. This pessimism indicates that the public sector is not sufficiently justifying the importance and role of infrastructure in the changed regional economic environment and change in the means of production and movement of the population. Higher class roads situate the designated municipality at a higher territorial level, determining the possibilities for spatial organization of economic, social and administrative policies at a larger scale, respectively with more other municipalities and centers of higher rank (Kolev, B 2008). Conversely, servicing a lower class road network 'shrinks' communications to a smaller perimeter of the territory and limits development opportunities. Here it is worth emphasizing that for the development of the agglomeration area between Plovdiv and Pazardzhik it is necessary to develop regional road connections. Roads and infrastructure that will ensure regional connectivity should guarantee the links between the major administrative and economic centres in the regions, as well as between the regions themselves, contributing to their integration (Kolev, B 2008). At the same time, they have the task of bringing traffic to motorways and Class I roads and serve as redistribution points for traffic on national and internationally important roadways. Class II and III roads provide good transport services and transport accessibility to small and medium towns and villages, but the region needs further development of high class roads. Additional issues are already beginning to arise here related to daily labour migration and the preferences of the population as to where they wish to build their homes. The formation of Plovdiv and Pazardzhik as regional economic centres in the country and their peripheries should be seen as a first step towards shaping successful investment destinations. The positioning of Plovdiv as the main and Pazardzhik as a complementary economic centre for investment destination sets a wide spatial area for present and future geo-economic development forming a natural economic area around the centre of Plovdiv and Pazardzhik. It should be noted here that in the Bulgarian context wages are the main factor regulating the daily labour migrations of the workforce in a gravitational march of 40 to 70 kilometres. This is explained by three circumstances. First, the absence of close production linkages with the economies of individual municipalities, and hence different labour costs. Second, in most of the country, wages, measured as a share of the EU average, are negatively correlated with emigration and positively correlated with immigration (Shishmanova, M. 1996). Thirdly, objections to the rapid increase in wages and minimum wages come as a rule from Bulgarian business. They are related to two main theses. Firstly, that wage increases are limited by labour productivity and secondly, that increases in minimum wages lead to a blurring of the boundaries between high and low incomes. This implies that a policy of accelerated wage increases may limit labour leakage and accelerate the flow of workers to developing regions of the country, but on the other hand it is not clear how it will be accepted by Bulgarian business. Our study allows for a correction of these views. In practice, with wages in the country being extremely low in comparative terms, a wage increase is an incentive to increase labour productivity in line with the concept of the effective wage. Moreover, the slowdown in wage increases leads to an acceleration of labour brain drain, which in turn leads to even greater labour shortages and upward pressure on wages. It is another matter that infrastructure provision in the agglomeration area between Plovdiv and Pazardzhik can create a somewhat balanced wage and employment system, but it goes through a targeted

regional infrastructure development policy. Whatever policy is deemed best, it should be aimed at regulating and controlling migration processes and be based on reliable information about the factors that limit daily labour migration and the consequences of the measures implemented (Shishmanova, M. 1995).

On the other hand, a shrinking labour force also leads to a labour shortage. Increasingly, the lack of sufficient skilled labour is hampering investment. This in effect becomes a brake on economic development, reason enough to develop a targeted policy to address this problem in the long term. Moreover, generating real demand for highly skilled professionals presupposes an efficient high-tech sector. The existence of high-tech potential depends, in turn, on the supply of adequate financing (venture capital, investment banks, developed capital market, state funds, access to EU structural funds, use of resources under the EIB, EIF and Operational Programmes. The agglomeration area between Plovdiv and Pazardzhik is structured by the need for state policy in the field of education, science and research, the existence of clusters uniting business, universities and the financial sector, the creation of free industrial zones, business incubators, the state of the justice system, the efficiency of public administration and quality housing policy.

Figure 6. Preferences for place of residence of people from Plovdiv and Pazardzhik municipalities



Source: Questionnaire survey

Within the survey conducted in the agglomeration area in response to the question "In your opinion, where do people prefer to live in the municipalities of Pazardzhik and Plovdiv?", 34% of the respondents answered that in their opinion people in the municipalities of Pazardzhik and Plovdiv prefer to live "In the peripheral zones of the cities", 32% of the respondents answered that in their opinion people in the municipalities of Pazardzhik and Plovdiv prefer to live "In the villages that are in the gravity zone of the city of Plovdiv or Pazardzhik", 16% of the respondents answered, that in their opinion people in the municipalities of Pazardzhik and Plovdiv prefer to live "In the city center", 14% of the respondents answered that in their opinion people in the municipalities of Pazardzhik and Plovdiv prefer to live "In single-family houses in the cities" and 4% of the respondents answered that in their opinion people in the municipalities of Pazardzhik and Plovdiv prefer to live "In a smaller municipality (e.g.

Asenovgrad, Maritsa, Kuklen...)" . In the answer to this question it is evident that the population in the Plovdiv-Pazardzhik agglomeration area prefers to live in houses, which implies in the long run the settlement of the peripheral territories in the agglomeration area. This means that in addition to industrial production, services also need to be developed in the region. This can be done by encouraging and promoting the practice of the already existing legislation on flexible working hours and teleworking.

CONCLUSION

It is recommended to legislate to expand the range of social services, such as the creation of vouchers for home support and the development of a culture linked to the increase of service consumption. A wide, stable and guaranteed range of social services that allows concentration on professional activity in the Plovdiv-Pazardzhik area will lead to peace of mind in terms of home and family, which is one of the main attractions for young families to settle in the agglomeration area. Thus, the views of the people and their ideas for development are brought out in the agglomeration area between Plovdiv and Pazardzhik. The fundamental question is about adapting the Plovdiv-Pazardzhik agglomeration, more rationally to the new things in governance, when they are the product of the innovative development of local government. The more innovations are introduced in a region, it is assumed that it has great potential for socio-economic development. An important aspect of improving living standards combined with economic innovation is better transport connectivity.

REFERENCES

- Evrev P., The City Planning of Lovech, e-book, 2018
- Yovkova.J. (2021) Real Property. Innovative Urban Planning, Smart City, Real Estate & Business - Volume V (1)
- Yovcheva, Mirjana. (2012) The reality of "shrinking cities, International Jubilee Scientific and Applied Conference UASG, 2012. http://uacg.bg/filebank/att_6874.pdf
- Kolev 2008: The National Geographic Space of the Republic of Bulgaria. Sofia.
- Petrov, K. (2021) Geo-urbanization systems and urban development. IC at UNWE
- Tsonkov, N. (2016) Developing regions and markets. Ed. Economy
- Shishmanova, M., N. Yankova et al. Trends and Problems in the Structure and Development of the Settlement Network in the Republic of Bulgaria, NCTR, 1995