

# Social-Geographic Bases of Agricultural Profile Formation in Suburban Zones of Big Cities within Ukrainian Agro-Industrial Regions (Through the Example of the City of Ivano-Frankivsk)

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**ABSTRACT:** Urbanization in present-day Ukraine takes place against the background of depopulation along with economic recession. Said factors have influenced both urban areas and rural territories. This is why the absolute number of urban population in Ukraine decreases, though some cities still show growth. Demographic crisis in rural communities along with hard economic situation makes young employable population in its reproductive age leave to cities. This adds to further increase of the share of urban citizens and the absolute quantity of citizens in some cities, particularly the largest and those within agrarian poorly urbanized regions. The profile of agricultural industry is tightly bound to its allocation. These are forms of social division of labor and represent continuous interrelation and interdependence. Allocation characterizes quantitative aspects of social division of labor and indicates types of products, their extent and the areas they are produced on within this or that territory (zone, region, district, micro-zone, single industrial unit). It is now many years that world agriculture tends to deepening a profile agricultural industry on all levels of its organization. Fewer and fewer enterprises and regions rely on previously dominant self-sufficiency.

**Key words:** suburban area; suburbanization; urbanization; agricultural profile of suburban area; demographic impact field tension; Ivano-Frankivsk; Ukraine.

## INTRODUCTION

At the turn of the XXI century social and economic processes in Ukraine showed accelerated growth of cities and urban territories. City growth and growth effects represent an important social-geographic process, particularly in the context of rural/urban relations. Having accumulated specific functions in territorial division, cities appeared to be social-economic poles of the territory development that form their own field of influence upon the environment. City growth leads to changes in the structure of suburban zones economy. Average size and big cities form infrastructural maintenance, azonate agricultural profile, develop operating industrial enterprises (power plants, building material plants, etc.), organize recreation zone, raise the mobility of suburban zone population, and increase the share of "rural inhabitants – urban employees". That is, urbanization processes take place.

The problem of urban territories optimization is of special relevance in present-day conditions of explosive development of residential and industrial construction and total urbanization. The early XXI century is the evidence of the dynamics of urbanized space in Ivano-Frankivsk, from historically formed to newly organized, conditioned by natural climatic and social-economic factors. Urbanization entered into a new phase of suburbanization where suburbs develop at the expense of core city with intense migration from center city to suburban areas and reorientation thereto of industrial and other functions. Suburban zone is a territory that has been formed or is forming under the influence of the city with characteristic combination of both rural and urban lifestyle. Ivano-Frankivsk suburban zone is marked by numerous links with other inhabited localities (labor, cultural/household, industrial /economic, administrative/managerial, recreational links) that intensifies integration of suburban settlements into a system of intercommunion with big city.

The present study aims at social -geographic analysis of suburbanized zones of big cities through the example of Ivano-Frankivsk City, Ukraine), namely, the reasons for their appearance and particularities of their agricultural profile formation.

## REFERENCES REVIEW

Theoretical bases of urbanization and suburbanization were studied by numerous Ukrainian and foreign scientists, and the works by Alayev Ye., Bilokon Yu., Dzhaman V., Forrester J., Ibatulin Sh., Ishchuk S., Krugman P., Kakhnych P., Lappo G., Mezentsev K., Nudelman V., Pertsyk Ye., Posatsky B., Topchiyev O., etc seem to be most significant.

In the last decades in Ukraine, in the forefront of "total denationalization" economic and organization leverage over spatial development was lost with the process becoming almost uncontrollable and chaotic. The state-monopolist was changed in the process of urbanization into a great number of private investors protecting in the first place their own interests. Wishing to quickly gain profit from real estate and having at the same time none town-planning culture at a time when state regulation of urbanization processes was weakened they caused chaotic housing in the city and the country that led to loss of cultural heritage and aggravation of ecology, etc [1, p.99-100]. That is, suburbanization factors typical for the West were formed in Ukraine. The problem was discussed in present-day studies by Nudelman W., Kolosov V., Mezentsev K., Savchuk I., Paleh Yu. The issues of formation of suburban agricultural profile were highlighted in the works by Thunen J., Pistun M.D., Gladkyy O.V, etc. In particular, Thunen studied the effect of three factors upon allocation of agricultural industry, namely: 1) production costs, 2) soil fertility, and 3) carriage costs in comparison to market prices. Proceeding from this analysis and having taken as a basis the impact of a single centre upon the agricultural production he substantiated regularities in allocation of agricultural production. According to Thunen, each farm crop should be located at a most optimal distance from the market. The study resulted in suggestion of six concentric zones of agricultural profile [2, p. 102-103; 3].

According to Pistun M.D., territorial structure of agriculture represents correlation between different forms of agro-territorial combinations within specific territory formed in the process of its organization. He suggests singling out agricultural regions, sub-regions, natural areas of industrial-territorial enterprise types, their separate and production units [4, p.93]. The scientist points to the fact that suburban complexes identified in typology by their major profile (vegetable-milk-grocery farming), the level of plant concentration and the intensity of agricultural economy take important place in general classification of regional agro-industrial territorial complexes [5, p.155-158].

Studying the Kyiv economic agglomeration and analyzing ways of agricultural complex specialization, Ishchuk S.I and Gladkyy O.V. point to formation of suburban agricultural complex that appeared on the basis of high quality and intense production of vegetables, fruit, potatoes, dairy, meat products, eggs, flowers, etc. In this case they single out three zone of specialization [6 , p. 129-133].

## SOURCES AND METHODS OF STUDY

Outlining the limits of Ivano-Frankivsk suburban zone we used such important sources of information as cartographic data (Ivano-Frankivsk Region, a politico-administrative map 1:250000) and the data available with Head Department for Statistics in Ivano-Frankivsk Region.

To reach the goals of study of Ivano-Frankivsk suburban zone, systemic/structural, behavioral and synergetic approaches were used. The principal methods of study are mathematic/cartographic modeling (where suburban zones were specified on the basis of cartographic data), comparative geographical method (identification of the marks of similarity and difference in geospatial organization of suburban zone), the method of industrial-territorial typification (study of agricultural specialization of suburban territories), the method of idealization (used when suggestions of rational agricultural specialization in the suburban zone are developed), etc.

Mathematic-cartographic modeling with calculation of demographic impact field tension lying in its basis was applied to substantiate the limits of suburbanized zones. The index of said tension characterizes the power of the city influence that depends upon the city size and is calculated by the formula as follows [7; 8, p.184]:

$$EB = HA / R^2AB$$

where  $E_B$  – is the tension effected by centre A in the point of location of settlement B; HA - human occupancy of city A; RAB – distance between centre A and settlement B. A motorway distance from the centre (Ivano-Frankivsk) to other settlements was taken into account while calculating the tension of demographic impact field of Ivano-Frankivsk.

## STUDY RESULTS

Formation of agglomerative links involves not only individual closely located and related settlements. The links also join the space between them, thus transforming into a local settlement system. The core is always

represented by a multifunctional city (several cities) that attracts surrounding territories and settlements, creating much more preferable conditions for life, agriculture, development of culture and innovations.

The extent and directions of commutation enable to establish the tightness of links between the settlements of suburban zone and the core city, and therefore, the significance of their integration into Ivano-Frankivsk agglomeration. The majority of population of all subzones are employed beyond their native settlement, but this number reaches its maximum in a 10-km subzone (82,1% out of employed population). A comparatively less amount of employees in a 5-km subzone is explained by the increase of influence of Ivano-Frankivsk on neighboring villages (Yamnytsia, Hryplyn, Mykytyntsi, Zagvizdia) and by a greater number of vacancies within these settlements respectively.

By-branch allotment of employed population [9] was reduced to three major fields of industry: rural (agriculture including subsidiary, forest and fish commercial economies), industrial (mining and processing industries, electricity production, building) and service industry (trade, hotel and catering business, transport services, financial activity, real estate operations, state management, education, health care and public services).

It has been established that:

rural trend of employment (93% of the totality of villages) dominates in most rural settlements;

the majority of population is employed in two fields – industrial and service – only in six villages of Ivano-Frankivsk suburban zone.

none village shows equal apportionment into three directions of production.

The network of urban settlements in Ivano-Frankivsk Region (the same is true for other agricultural regions) is represented by a single large city (regional centre) and a dense network of smaller towns. Nevertheless, urbanization refers to not only urban settlements but also involves rural territories, thus causing there a transformation of demographic and social-economic processes. Rural inhabitants do not majorly look to development of their subsidiary economies that guarantee modest though stable income, but to employment with official or black economies which promise acceptable level of income. Such situation led in the first turn to decrease of livestock number in individual subsidiary economies. Besides, the role of cattle breeding decreased due to following factors: 1) intense imports by meat producers of cheap raw stuff from Poland; 2) development of powerful cattle breeding complexes such as agricultural companies "Danosha", "Rosana", "Avangard", and processing enterprises within the territory of the region; 3) extensive spreading of branched network of dairy and meat products by agricultural companies in Lviv ("Galychyna", "Rodynna Kovbaska"), Ternopil ("Molokiiia", "Miasovita"), and Khmelnytskyi Regions ("Tulchyn"), etc.; 4) monopolization of dairy and meat raw products procurement by factoring companies who purposely lower purchase prices to provide themselves with excess profit; 5) discrepancy between state donations to cattle breeding and its real needs; 6) unavailability of small and large village own processing industries and their dependence upon few buyers; 7) market monopolization by resellers and farmers' smaller chances to trade off their own goods without intermediation.

Due to population growth in some suburban villages as well as to land transfers in favour of cottage and multi-storey building, the index of provision with agricultural lands decreases and proves the growth of urbanized territories.

Shortage of land provision (especially tilled fields, pastures and hayfields) is most vivid from the periphery of the settlement system towards its centre. It's quite an expected regularity since the higher density of settlements and growing areas of built-up territories in the immediate vicinity of Ivano-Frankivsk explain less land area designated for agricultural needs.

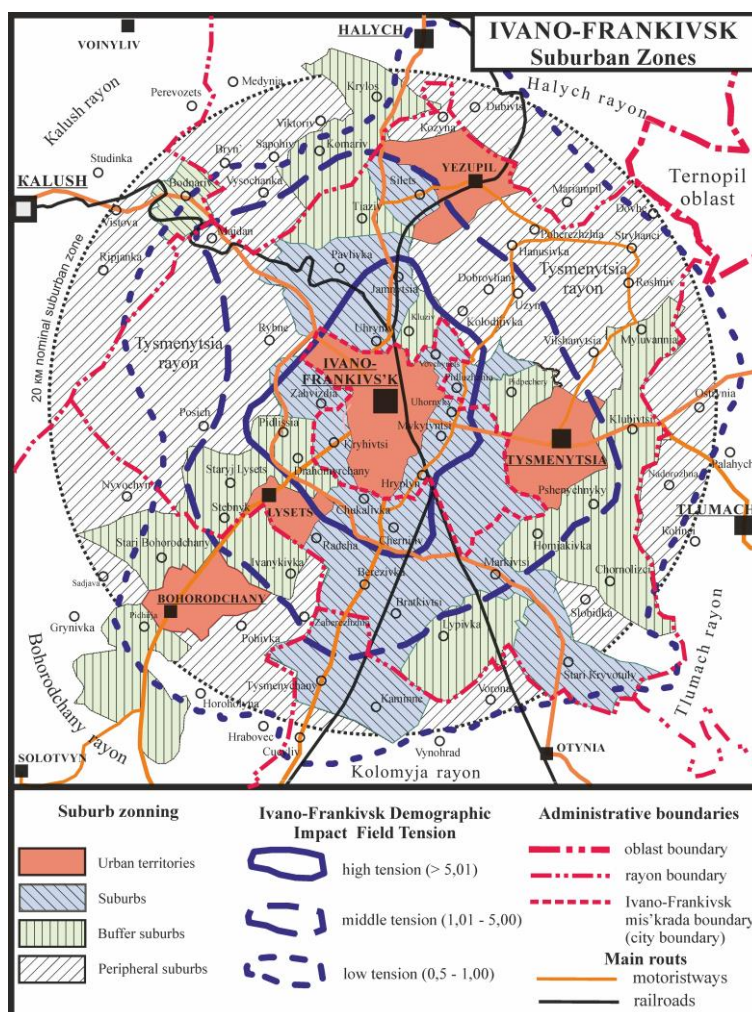
These processes may testify to intensification of processes of land inclusion to settled territories (spreading of settlement landscapes) up to a limit of 15 km in radius from Ivano-Frankivsk. That is, suburbanization processes are the most intense here.

Enlargement of land areas for commodity production in 15-km and 20-km subzones marks approximate limits of suburbanization processes in terms of agricultural production. Instead, commodity production on lands that are most close to Ivano-Frankivsk within 5-km and 10-km subzones is kept to a minimum. Moreover, it is oriented on agricultural manufacturing which is highly demanded on local markets.

Approximate size of Ivano-Frankivsk suburban zone is limited to a 20-km radius. This distance theoretically corresponds to the limits of manifestation of agglomeration effect assumed for big cities [10, p. 285]. The marked-out suburban zone included 2 cities (Ivano-Frankivsk, Tysmenytsia), 3 township councils (Bogorodchany, Lysets, Yezupil) and 77 settlement councils. In order to finally define the limits of Ivano-Frankivsk suburban zone we've used the method of numerical score of different criteria (16 indexes), which, to our opinion, define the level of urbanization (expansion of urban lifestyle forms) of any rural settlement influenced by the city. These criteria are grouped into demographic, transportation-geographic, social-geographic, housing development dynamics, and agricultural lands provision. Proceeding from the indices of demographic impact field tension estimated for each settlement influenced by Ivano-Frankivsk, three zones of different tension were singled out (see Map scheme).

Agricultural manufacturers located in suburban zone and oriented to commodity economy, influenced by growing demand from numerous city consumers, direct their fabrication to meet this demand and thus form the zone of suburban agricultural profile. Thunen held that "soft garden crops" – cabbage, lettuce, berries, potatoes, etc should be cultivated in the first concentric belt, while suburban economies require considerable investments, including those for greenhouses, garden frames, etc. Cattle breeding economies should be oriented to production of cattle and poultry [2; 3].

Two belts of agricultural specialization can be singled out in Ivano-Frankivsk suburban zone at a stage of its formation. The first belt (territorially identical to the zone of maximal tension of demographic impact field) is formed by agricultural enterprises and individual economies, specialized in production of vegetables, potatoes and poultry. The second belt is more distant from Ivano-Frankivsk (territorially coincides with mid-tension zone of demographic impact field) and its fundamental agricultural specialization lies in growing vegetables including potatoes, gardening, dairy and meat cattle breeding, poultry breeding, pork-and-lard swine breeding together with cereal farming.



No growing distance from the core (Ivano-Frankivsk) prevents dairy and meat cattle breeding with advanced poultry farming, swine breeding, potato growing, gardening and vegeculture laced with fodder cropping, sugar beet growing and sheep rearing to be dominant.

**Debatable issues**

**The following items require additional substantiation**

choice of criteria to help identify suburbanization zones with consideration of national and regional specificities (industrial and agrarian regions);

three approaches were applied in the course of determining the limits of suburban zone: 1) formal 20-km suburban zone surrounding the city core; 2) tension of demographic impact field of the city; 3) numerical evaluation of city lifestyle in suburban settlements. However, the latter rests on available statistic indexes and

does not take into account rural inhabitants' subjective assessment of their own lifestyle. It seems that quantitative sociological methods, in particular, questionnaires, might be of use; approaches to defining agricultural profile in suburban zones and substantiation of recommendations for balanced agricultural development of large cities and their suburban zones.

## CONCLUSIONS

suburban zone of Ivano-Frankivsk was delimited proceeding from calculations of the values of tension of demographic impact field and numerical evaluation based on 16 criteria;

from physic-geographic point of view, Ivano-Frankivsk and its suburban zone are located on a rather homogenous plain territory, and the change of land use structure in different concentric zones reflects therefore the changes in agricultural specialization. The farther is the regional centre the less is the share of tilled soil, gardens and other perennial plantings in the structure of land-use and the more is the share of pastures and laylands. Thus, Thunen's model "works" in specific case of suburban zone of Ivano-Frankivsk and rather properly explains spatial differentiation of land-use and agricultural specialization.

territorial differences in agricultural specialization of Ivano-Frankivsk suburban zone have been analyzed; this allowed for determining two belts of agricultural specialization. The first specialization belt is formed by agricultural enterprises and individual economies involved in vegetable, potato growing and poultry breeding. The second bases on vegetable, potato growing, gardening, dairy and meat cattle breeding, poultry, pork-and-lard swine breeding together with cereal farming.

agricultural producers of suburban zones of big cities within agricultural regions of Ukraine have addressed the conditions of the market by manufacturing solely maximally profitable product that requires minimal costs. As to individual subsidiary and farming economies, they are predominantly engaged in crop raising.

it is obvious that with no precise and coordinated program of interregional social-economic development (of Ivano-Frankivsk City Council and neighboring town councils) there will be little possibility for provision of balanced development of agglomeration formations.

development of small agrarian enterprises and farming economies in suburban zones will facilitate the formation of market relations and enhance relations between the cities and their suburban zones.

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