Social and economic urbanization processes in communes in a metropolitan area

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Abstract. The article discusses selected social and economic changes taking place in the communes of a metropolitan area following a political transformation period in Poland, Central and Eastern Europe. Dynamic urbanization of communes of Polish metropolitan areas was one of the numerous results of socio-economic transformation of the country after 1989. The process played an important part in shaping both functional-spatial systems and awareness of self-governamental authorities and local communities in terms of the values of development of integrated systems of the technical infrastructure. Rapid changes taking place during the first years of the social and economic transformation caused a few negative functional-spatial phenomena in the communes bordering the central city. The analysis covered processes taking place in the communes that constitute a considerable part of the Poznań Metropolitan Area. Monitoring processes which promote increased electricity demand (of both social and economic nature, including migration and increase in the number of economic operators in years 2000-2018) taking place in areas of the communes within the impact area of the central city may enable selfgovernments to implement sustainable development rules and facilitate both controlled urbanization of communes of Polish metropolitan areas and correct sustainable development of the technical infrastructure. The example of the analysed selected economic and social issues concerning transformations of communes within the impact zone of the central city shows that the transformation process in the metropolitan areas in Poland after the political change occurs at different levels and to varying degrees. As a result, the new situation rendered it necessary to connect developing economic functions, urban in character, with the traditional functions of agricultural production space. However, expansion of the central city caused a lot of rural communes to lose their primary agricultural character. Combination of housing and economic functions along with traces of agricultural functions, development of technical infrastructure, and transportation network for cars and passengers caused qualitative and quantitative changes in areas of communes adjacent to the central city. The functional-spatial changes and socio-economic transformation in Poland began a dynamic urbanization process of areas of rural communes bordering the central city. All the processes facilitated synergy in the transformation of communes. A variable pace and scale of the ongoing ecological, economic and social phenomena require constant monitoring both by architects and urban planners, both in practice and theory to examine synergistic processes occurring in contemporary urbanization in the rural areas. Self-governments and local communities, who share responsibility for functional-spatial planning and management of the communes in a metropolitan area, should modify tendencies of sustainable functional-spatial and socio-economic development. The need to design and realize new buildings with the diverse functions in rural communes activates their further development. Finally, this need stimulates synergistic processes occurring in functional-spatial and socio-economic development in communes of a metropolitan area.
1. Introduction

Functional-spatial transformation of metropolitan areas in Central and Eastern European countries intensified after socio-economic changes commenced in Poland after 1989. Poland's accession to the European Union on 1 May 2004 had a considerable impact on socio-economic development of cities. The processes were also heavily influenced by socio-demographic and economic changes, both of internal and external nature, which were taking place in CEE countries after political transformations. The scale and pace of the changes varied, and they were particularly dynamic in areas of communes adjacent to big cities. Suburbanization causes many of such areas to undergo a complete functional-spatial and socio-economic transformation. Primary agricultural functions in rural communes give way to the development of areas where housing and business activation functions start to prevail. Agricultural land is designated for single- and multi-family housing as well as for business activation areas. The designation processes start as early as at the stage of spatial planning drafts resulting from the current Polish legal environment. The developing economic zone generates new attractive job opportunities, which are an alternative to people employed in the agricultural sector. The processes have changed economic conditions of local communities, improved living conditions of the residents, and changed the natural environment of rural communes. Development and expansion of technical infrastructure and transportation network for cars and passengers have also strengthened the development of municipal structures in rural communes situated in the impact zone of the central city.

The article discusses selected issues of transformation of 17 Poznań county communes bordering the central city, which together form the Poznań Metropolitan Area (Polish: POM), and describes changes caused by, among others, social and economic processes in years 2010-2017.

![Figure 1. Capitals of European countries, European Pentagon, Poznań Metropolitan Area [3]](image-url)
Table 1. Population in 12 Polish central cities in metropolitan areas in years 2000-2017

| No | Central cities in metropolitan areas | Population in 2010, expressed in thousands | Population in 2017, expressed in thousands | Balance 2010-2017, expressed in thousands | % |
|----|-------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|----|
| 1. | Bydgoszcz                           | 357,6                                       | 352,3                                       | 5,3                                         | -1.5|
| 2. | Białystok                           | 294,7                                       | 297,3                                       | 2,6                                         | 0.9 |
| 3. | Gdańsk                               | 456,6                                       | 464,3                                       | 7,7                                         | 1.7 |
| 4. | Katowice                             | 308,5                                       | 296,3                                       | 12,2                                        | -3.9|
| 5. | Kraków                               | 755,0                                       | 767,3                                       | 12,3                                        | 1.6 |
| 6. | Lublin                               | 349,4                                       | 339,9                                       | 9,5                                         | -2.7|
| 7. | Opole                                | 125,8                                       | 128,1                                       | 2,3                                         | 1.8 |
| 8. | Poznań                               | 554,2                                       | 538,6                                       | 15,6                                        | -2.8|
| 9. | Rzeszów                              | 177,5                                       | 189,7                                       | 12,2                                        | 6.9 |
| 10.| Szczecin                             | 406,3                                       | 403,9                                       | 2,4                                         | -0.6|
| 11.| Warszawa – capital city             | 1714,4                                     | 1764,6                                     | 50,2                                        | 2.9 |
| 12.| Wrocław                              | 632,1                                       | 638,6                                       | 6,5                                         | 1.0 |

Human migration in Polish metropolitan areas in years 2010-2017 does not evince such a considerable scale and pace as during the first stage of socio-economic transformations of the country. In only 5 out of 12 central cities of metropolitan areas, citizens became fewer in number, while in the remaining 7, the number grew. The increase, however modest, shows a reversal of previous tendencies. In years 2000-2010, 26,640 (4.5%) dwellers moved out of the city of Poznań [1], while in the investigated years 2010-2017, 15,600 (2.8%) dwellers moved out, which proves that the suburbanization tendency of the given area remains at an equal level. The increase in the number of residents in Rzeszów...
by 12,200 (6.9%) does not result from demographic processes but from the expansion of administrative borders of the city.

2. Suburbanization of communes in a metropolitan area

The case study involves 17 communes of the Poznań county (area: 1,900 km²) adjacent to the central city, which together constitute the Poznań Metropolitan Area (POM). Situated in the middle part of the Wielkopolskie Province, it is its biggest centre. From the east to the west, POM is intersected by A-2 motorway, while the Warta River lies on the north-south axis. The city of Poznań and 17 communes of the Poznań County are characterized by intensive metropolitan processes. The urbanization rate of the Poznań county communes in 2017 was 38.4% [GUS]. As a strong urban centre, Poznań holds a considerable part of the region's potential in terms of major services. Besides, it is a transportation hub for the province, region and country, and A-2 motorway connects the east of Europe with its western part.

Population growth in the communes adjacent to the central city gave rise, among others, to their both functional and economic development, and it directly influenced their transformation, change of lifestyle and quality of life of rural residents. The interaction of many various internal and external factors, whose joint impact is greater than the sum of individual effects, can be classified as synergy in functional-spatial development of rural communes.

Transformation of communes in a metropolitan area shows that, among others, the population growth, as well as the growing number of business entities, influence many other aspects in the ecological, economic and social context. In effect, living standards and the need for specified services, culture, sports and recreational services increase. POM offers, among other things, very attractive forms of spending free time in sports and recreation facilities such as sports and recreation centre “Malta” – Poznań Centre of Sports and Recreation, “Poznań” racing track – Automobilklub Wielkopolska, and the Municipal Stadium in Poznań, where the 2012 UEFA European Championship took place.

**Table 2. Area of Poznań county communes, 2017**

| No | Commune               | Type of commune | Area in km² |
|----|-----------------------|-----------------|-------------|
| 1  | City of Poznań        | U               | 262         |
| 2  | Suchy Las             | R               | 117         |
| 3  | Czerwonak             | U               | 82          |
| 4  | Swarzędz              | U-R             | 102         |
| 5  | Kleszczewo            | R               | 74          |
| 6  | Kórnik                | U-R             | 186         |
| 7  | Kostrzyn              | U-R             | 155         |
| 8  | Puszczykowo           | U               | 16          |
| 9  | Luboń                 | U               | 14          |
| 10 | Mosina                | U-R             | 172         |
| 11 | Stęszew               | U-R             | 175         |
| 12 | Komorniki             | R               | 66          |
| 13 | Dopiewo               | R               | 108         |
| 14 | Buk                   | U-R             | 91          |
| 15 | Tarnowo Podgórne      | R               | 102         |
| 16 | Rokitnica             | R               | 79          |
The area of Poznań county communes is one of the elements taken into account during the analysis of ongoing functional-spatial processes. The number of housing areas and areas of business activation that communes offer depends on, among others, their size and environmental-geographical conditions. Communes with areas of national parks, protected landscape, and agricultural land with high quality soils do not have a great number of housing and business activation areas.

**Table 3.** Population in 17 communes of the county Poznań in years 2010-2017

Urban communes (2) - U, urban-rural communes (8) - U-R, rural communes (7) - R

| No. | Commune         | Type of commune | 2010   | 2017   | Balance | %    |
|-----|-----------------|-----------------|--------|--------|---------|------|
| 1.  | Poznań          | U               | 555 614| 538 633| -16 981 | -3.1 |
|     | **POZNAŃ COUNTY** |                |        |        |         |      |
| 2.  | Suchy Las       | R               | 14 822 | 17 100 | 2 278   | 15.4 |
| 3.  | Czerwonak       | R               | 25 995 | 27 450 | 1 455   | 5.7  |
| 4.  | Swarzędz        | U-R             | 44 521 | 47 727 | 3 206   | 7.2  |
| 5.  | Kleszczewo      | R               | 6 166  | 7 998  | 1 832   | 29.7 |
| 6.  | Kórnik          | U-R             | 20 973 | 26 901 | 5 928   | 28.3 |
| 7.  | Kostrzyn        | U-R             | 17 067 | 18 095 | 1 028   | 6    |
| 8.  | Puszczykowo     | U               | 9 734  | 9 693  | -41     | -0.4 |
| 9.  | Luboń           | U               | 29 762 | 31 653 | 1 891   | 6.4  |
| 10. | Mosina          | U-R             | 27 778 | 32 350 | 4 572   | 16.5 |
| 11. | Stęszew         | U-R             | 14 453 | 15 013 | 560     | 3.9  |
| 12. | Komorniki       | R               | 19 732 | 28 149 | 8 417   | 42.7 |
| 13. | Dopiewo         | R               | 18 290 | 25 692 | 7 402   | 40.5 |
| 14. | Buk             | U-R             | 12 215 | 12 495 | 280     | 2.3  |
| 15. | Tarnowo Podgórne| R               | 21 677 | 26 178 | 4 501   | 20.8 |
| 16. | Rokietnica      | R               | 12 528 | 13 833 | 3 375   | 34.9 |
| 17. | Murowana Goślinka| U-R             | 16 417 | 16 820 | 403     | 2.5  |
| 18. | Pobiedziska     | U-R             | 18 115 | 19 411 | 1 296   | 7.2  |
|     | **Poznań county** |                | 330 245| 379 630| 49 383  | 15   |
|     | **Total**       |                 | 885 859| 918 263| 32 404  | 3.6  |

Population growth in Poznań county communes within 7 years (2010-2017) was 49 383 (15%) (Table 3). Communes of Kleszczewo, Kórnik, Komorniki, Dopiewo, Rokietnica show a considerable increase in the number of inhabitants. At the same time, 16 981 (3.1%) dwellers left the central city, which suggests further development of communes adjacent to the central city, not only for the Poznań dwellers but for people from other parts of the province and country. The scale of the above-mentioned processes varies. In years 2000-2010, the dynamics of migration was as follows: 26 640 (-4.6%) dwellers moved out of Poznań, while Poznań county communes gained 69 727 (26.8%) [1] residents. In years 2010-2015, 13 266 (-2.4%) dwellers moved out of Poznań, while population of adjacent communes grew by 40 179 (12.3%) [2]. The rate of the migration decreased, but the area under analysis is still undergoing suburbanization processes. It should be highlighted that not all people moving out of the central city decide to settle in the adjacent communes. Many chose to live and work in other places,
while a number of them decided to emigrate. Still, it should be noted that a number of people are currently coming back to live in the central city to work or study. Investigations into the above-mentioned processes render it possible to determine trends of ongoing ecological, economic and social processes, and to diagnose their influence on the economic development of the communes. Information on the number and structure of commune residents are one of the key issues that influence the development of investments as an economic category, influence the sphere of tangible property, stimulate modernization, expansion and construction of particular assets, and facilitate updates of urban planning documents, which are crucial to the development and business activation. These socio-demographic factors, both of external and internal nature, result from, among others, expansion of the central city, and they have a crucial impact on ecological processes.

3. Economic and service functions
In compliance with Polish regulations, business entities are economic entities set up by self-employed individuals who sell a product or service to make a profit. The dynamic increase in the number of business entities was primarily caused by the transformations of the political system after 1989. However, further economic progress results from, among others, external economic conditions and Poland's accession to the European Union, and internal economic conditions. Activities of local communities and self-governments that create conditions favourable to development are one of the vital factors in the economic progress.

**Table 4. National business entities in the National Business Registry (Polish: REGON) of the Poznań county in years 2000-2017**

| No | Commune               | Type of commune | 2010  | 2017  | Balance | %   |
|----|-----------------------|-----------------|-------|-------|---------|-----|
| 1  | Poznań                | U               | 98 092| 112 548| 14 456  | 14.7|
| 2  | Suchy Las             | R               | 2 932 | 3 887 | 955     | 32.6|
| 3  | Czerwonak             | R               | 3 143 | 3 422 | 279     | 8.9 |
| 4  | Swarzędz              | U-R             | 6 684 | 7 594 | 910     | 13.6|
| 5  | Kleszczewo            | R               | 611   | 973   | 362     | 59.2|
| 6  | Kórnik                | U-R             | 3 019 | 4 091 | 1 072   | 35.5|
| 7  | Kostrzyn              | U-R             | 1 755 | 2 122 | 367     | 20.9|
| 8  | Puszczykowo           | U               | 1 825 | 1 985 | 160     | 8.9 |
| 9  | Luboń                 | U               | 4 229 | 4 881 | 652     | 15.4|
| 10 | Mosina                | U-R             | 3 561 | 4 349 | 788     | 22.1|
| 11 | Stęszew               | U-R             | 1 630 | 1 870 | 240     | 14.7|
| 12 | Komorniki             | R               | 3 090 | 4 823 | 1 733   | 56.1|
| 13 | Dopiewo               | R               | 2 586 | 4 244 | 1 658   | 64.1|
| 14 | Buk                   | U-R             | 1 630 | 1 782 | 152     | 9.3 |
| 15 | Tarnowo Podgórze     | R               | 4 172 | 5 603 | 1 431   | 34.3|
| 16 | Rokietnica            | R               | 1 698 | 2 638 | 940     | 55.4|
| 17 | Murowana Goślinia    | U-R             | 2 314 | 2 280 | -34     | -1.5|
| 18 | Pobiedziska           | U-R             | 2 251 | 2 586 | 335     | 14.9|
|    | Poznań county         |                 | 47 130| 59 130| 12 000  | 25.5|
|    | Total                 |                 | 145 222| 171 678| 26 456  | 18.2|
The increase in the number of business entities is illustrated by a comparison of statistical data from years 2010-2017 (Table 4). People who settle in the areas of communes adjacent to the central city also create a new economic quality, and through their impact on the natural environment, an ecological one as well. A certain type of feedback occurs: when new housing estates are developed, their new users transfer their workplace, companies and workshops near their place of residence. Workers employed in the areas of business activation look for flats or houses near their workplace. In effect, the increase in the number of residents boosts further economic development. The processes generate further development of the business activation sphere, both in terms of primary and secondary services. In 7 years, i.e. between 2010-2017, Poznań county communes gained 12 000 (25.5%) new business entities registered in the National Business Registry, and Poznań county communes gained 12 000 (25.5%). Despite the fact that the number of Poznań dwellers has been dwindling, the city is a strong economic centre, and along with the county, it creates a dynamically developing economy with a local, regional, national and international effect.

Personnel employed in business entities situated in the area of Poznań county communes influences economic, social and ecological transformations. Self-governments, in an attempt to accommodate citizens with social needs, take actions to create and direct the ongoing changes in the sphere of sustainable development. They implement functional-spatial changes through, among others, the introduction of provisions in planning documents, which facilitates the conversion of agricultural land into housing areas or areas of business activation. Yet, the scale of the transformation does not always come up to the actual needs. In the analysed strategic documents of Poznań county communes, planning provisions often exceed the need for investment areas. Despite a negative balance of population growth in the central city, a dynamic increase in the number of business areas, which took place both in the central city and in Poznań county communes, means that local communities are economically active.

4. Housing stock. Culture, tourism and sport.
One of the basic goals of many individuals who value good relations between humans and the natural environment is to live in a healthy and friendly habitat. Safety and comfort are not the only factors that influence people's choices of where to live. People expect additional advantages linked to the good habitat. [4-6] Development of both technical infrastructure and a transportation network for cars and passengers improves living standards, but it also impacts the natural environment. Many rural areas lost their primary agricultural character. Farmland was converted into housing areas, areas of business activation, and technical infrastructure. The increase in the housing stock in communes means, among other things, that the investigated metropolitan area has been undergoing suburbanization (Table 5). Human migration into rural areas situated in environmentally attractive places, near lakes and forests, means that people tend to change their pastime habits. Growing pro-ecological awareness, which consists in responsibility, is a criterion for respect for nature, which in turn renders it possible to understand the impact of housing functions on the state of fauna and flora, and human welfare.

Caring for tangible and intangible heritage as well as timeless local, regional and national values is a vital part of sustainable development policy for communes of a metropolitan area. Maintenance of historic rural systems and revitalization and modernization of architectural facilities translate into attention to the need to care about historical heritage. Support and promotion of local folklore, song and dance ensembles and local craft stimulate the development of local culture in areas of communes. New kindergartens, schools and outpatient clinics are realized, the trade and services sector expands, new sports clubs are opened etc. Investments like new cycling lanes, beaches, sports fields and spa resorts are crucial to the development of sustainable tourism; they also generate new jobs, but they, first of all, improve quality of life. Among others, the development of the above-mentioned elements of land use can be defined as synergy in socio-economic and functional-spatial transformation in areas of rural communes of metropolitan areas.
Table 5. The housing stock in Poznań county communes in years 2010-2017
Urban communes (2) - U, urban-rural communes (8) - U-R, rural communes (7) - R

| No | Commune       | Type of commune | 2010  | 2017  | Balance | %    |
|----|---------------|-----------------|-------|-------|---------|------|
| 1  | Poznań        | U               | 237 586 | 258 015 | 20 429 | 8.6  |
| 2  | Suchy Las     | R               | 4 906  | 5 985  | 1 079  | 21.9 |
| 3  | Czerwonak     | R               | 8 152  | 8 622  | 470    | 5.8  |
| 4  | Swarzędz      | U-R             | 14 263 | 17 773 | 3 510  | 24.6 |
| 5  | Kleszczewo    | R               | 1 833  | 2 782  | 949    | 51.8 |
| 6  | Kórnik        | U-R             | 6 309  | 9 573  | 3 264  | 51.7 |
| 7  | Kostrzyn      | U-R             | 4 696  | 5 302  | 606    | 12.9 |
| 8  | Puszczykowo   | U               | 2 994  | 3 244  | 250    | 8.4  |
| 9  | Luboń         | U-R             | 10 611 | 11 883 | 1 272  | 11.9 |
| 10 | Mosina        | U-R             | 7 656  | 10 250 | 2 594  | 33.9 |
| 11 | Stęszew       | U-R             | 4 055  | 4 742  | 687    | 16.9 |
| 12 | Komorniki     | R               | 6 484  | 10 411 | 3 927  | 60.6 |
| 13 | Dopiewo       | R               | 5 798  | 8 886  | 3 088  | 53.3 |
| 14 | Buk           | U-R             | 3 377  | 3 778  | 401    | 11.9 |
| 15 | Tarnowo Podgórne | R         | 6 540  | 8 356  | 1 816  | 27.8 |
| 16 | Rokietnica    | R               | 4 005  | 5 618  | 1 617  | 40.4 |
| 17 | Murowana Goślin | U-R         | 4 805  | 5 329  | 524    | 10.9 |
| 18 | Pobiedziska   | U-R             | 5 378  | 6 663  | 1 285  | 23.9 |
|    | Poznań county |                 | 101 858 | 129 197 | 27 339 | 26.8 |
|    | Total         |                 | 339 444 | 387 212 | 47 768 | 14.1 |

Table 6. Culture, sport and tourism – Poznań county in years 2000-2017
CP – city of Poznań, PCC – communes of the current Poznań county (17)

| No | Culture, tourism, sport | 2010 CP | PCC | 2017 CP | PCC | Balance CP | PCC |
|----|-------------------------|---------|-----|---------|-----|------------|-----|
| 1  | Public libraries        | 57      | 67  | 41      | 66  | -16        | -1  |
| 2  | Museums                 | 21      | 10  | 20      | 10  | -1         | -1  |
| 3  | Cinemas                 | 8       | 1   | 11      | 1   | 3          | -   |
| 4  | Tourist accommodation   | 75      | 64  | 95      | 73  | 20         | 9   |
| 5  | Sports clubs            | 78      | 56  | 149     | 127 | 71         | 71  |

To highlight the importance of transformations in the quantitative range, which is an added value of socio-economic transformation, selected culture-, tourism- and sports-related facilities were analysed. Statistical data were presented in tables, comparing years 2010-2017 (Table 6). Despite the dynamic population growth in communes adjacent to the central city, years 2010-2017 registered a decrease in the number of public libraries and cinemas. The decrease in the number of the former may result from, among others, a growing number of opportunities of obtaining access to different sources of knowledge.
and information, and the development of information society based on new technologies. Cinemas were replaced by multiplexes and complexes of auditorium systems in shopping centres. In years 2010-2017, the number of museums in the central city decreased, while the number of museums in Poznań county communes remained unchanged. The number of tourist accommodation facilities and sports clubs grew. The comparison of selected statistical data (Table 6) shows that the investigated area is characterized by significant development of sport and tourism. The process of activation of commune residents may be interpreted as an added value resulting from functional-spatial and socio-economic development of communes, and the spectacular increase in the number of sports club has been following an upward trend.

5. Conclusion
The example of the analysed selected economic and social issues concerning transformations of the communes within the impact zone of the central city, which together form the Poznań Metropolitan Area, suggests that the transformation process in the metropolitan areas in Poland, after the political change, occurs at different levels and to varying degrees. As a result, the new situation rendered it necessary to connect the developing economic functions, urban in character, with traditional functions of agricultural production space. Suburbanization caused a lot of rural communes to lose their primary agricultural character. Combination of housing and economic functions along with remnants of agricultural functions, development of the technical infrastructure, and transportation network for cars and passengers caused qualitative and quantitative changes in areas of communes adjacent to the central city.

The functional-spatial changes and socio-economic transformation in Poland resulted in a dynamic urbanization process in areas of rural communes adjacent to the central city. The processes also illustrate the phenomenon of synergy in the transformation of the communes. A variable pace and scale of the ongoing ecological, economic and social phenomena require constant monitoring both by architects and urban planners, both in practice and theory to examine processes occurring in contemporary urbanization in rural areas.

Self-governments and local communities, who share responsibility for functional-spatial planning and management of communes in a metropolitan area, should modify tendencies of sustainable functional-spatial and socio-economic development. The need to design and realize new buildings with diverse functions in the rural communes activates their further development. Finally, this need stimulates synergistic processes occurring in functional-spatial and socio-economic development in the communes of a metropolitan area.

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