

Population changes in the vicinity of Wrocław in 1988-2021 as an expression of the formation of the urban functional area

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JEL: R11, R58

Abstract

Aim: The purpose of this article is to diagnose the process of formation of the Wrocław urban functional area, in particular the suburban zone, which is the strict hinterland of the metropolitan centre, and to determine the extent of this zone.

Methodology: The research used cartographic analysis, relying on population data for Wrocław and the neighbouring areas from the national census conducted in 1988, 2002, 2011 and 2021.

Results: The research showed that the contemporary suburban zone of Wrocław, designated as an area covered by suburbanization processes, emerged only after 1988, with its extent not coinciding with the urban functional area designated in official strategic and planning documents.

Implications and recommendations: The results of the study suggest the desirability of delimiting the Wrocław Urban Area covering Wrocław and the suburban zone strictly adjacent to the city, which requires a special approach in development policy, different from that for the other parts of the broad Wrocław Functional Area. It also seems justified to deepen the research in order to delimit the Wrocław suburban zone more precisely and to consider changes in the administrative division.

Originality/value: All analyses to date aimed at delimiting the urban functional area of Wrocław (as well as other metropolitan centres in Poland) have been based on aggregate statistical data aggregated by municipality. This article presents an attempt to delimit the suburban zone on the basis of more detailed data concerning individual localities. As a result, the zone thus delimited is territorially smaller but internally more homogeneous.

Keywords: Wrocław, functional urban area, suburbanisation, regional and local development

1. Introduction

Population development and territorial expansion of cities is a common process throughout the world, which is accompanied by the gradual depopulation of rural areas, especially those peripheral. In the 20th century, suburbanisation, one of the manifestations of which is the development of settlement units located in the vicinity of large cities, also became a characteristic phenomenon in highly developed countries. The specificity of these localities are strong relations with cities expressed in daily commuting to work, schools and various services. Urban centres together with their suburbs create urban functional areas over time. Determining the extent of these areas, as well as proposing directions for their location in regional policy, are frequent topics of research within various scientific disciplines, such as geography, economics, sociology, urban planning, and management. One of the important regional centres is Wrocław, the third city in Poland in terms of population. There are also processes of suburbanisation around Wrocław, but the formation of the urban functional area occurred here in a specific way, different from most similar-sized locations.

The purpose of the article was to propose a delimitation of the suburban zone within the direct influence of Wrocław, together forming an urban functional area. For this purpose the method of cartographic analysis was used, based on the author's population maps created on the basis of data from the National Censuses available in the Local Data Bank of Statistics Poland. The dissimilarity of the author's approach was adopting settlements as the basic units, whereas commonly municipalities are used in this capacity. However, in the author's opinion, the image thus obtained is oversimplistic and does not fully reflect the reality.

2. Review of literature, research hypotheses

The scholarly output in the field of the study of urban agglomerations, urban functional areas and suburbs is abundant, both in terms of theoretical and general studies, as well as the presented case studies. However, the purpose of this article was not to conduct a thorough review of the literature, therefore only examples were signalled, especially those related to the research area. Classic publications addressing the issue of the relationship between the city and the surroundings include studies by McKenzie (1933), Friedmann and Miller (1965). In the Polish literature, this issue in the context of the transformation of the structure of agglomerations was taken up by, among others, Eberhardt, Gontarski, Siemiński (1973), Korcelli (1976), Liszewski (1987), Markowski, Marszał (2006), Czyż (2009), Śleszyński (2013, 2014, 2015), whilst the Wrocław agglomeration was studied by Miszewska (1985, 1986), Łoboda (1992), Korenik (2001), Zathay (2003, 2006), Maleszka, and Szmytkie (2009). The Wrocław Functional Area was officially designated in the Strategy of Integrated Territorial Investments of the Wrocław Functional Area for 2021-2027, which is an official document of the Wrocław City Council. It was defined as an area encompassing Wrocław and 18 municipalities in its vicinity (Figure 1).

Functional areas around large cities, for practical reasons (availability of statistical data, application into regional and local development policy), are delineated on the basis of administrative division. In Polish conditions, the basic unit for which statistical data are collected and made available is the municipality. Thus, urban functional areas are designated as complexes of municipalities surrounding the main urban centre (core). This approach, however, represents a certain simplification as the municipalities included in urban functional areas are not homogeneous, and the strength of ties with the core within each of them may be visibly different. This applies, among others, to the Wrocław Functional Area. In the course of the research, the author tried to determine the extent of the suburban zone most closely linked to Wrocław using the population data.

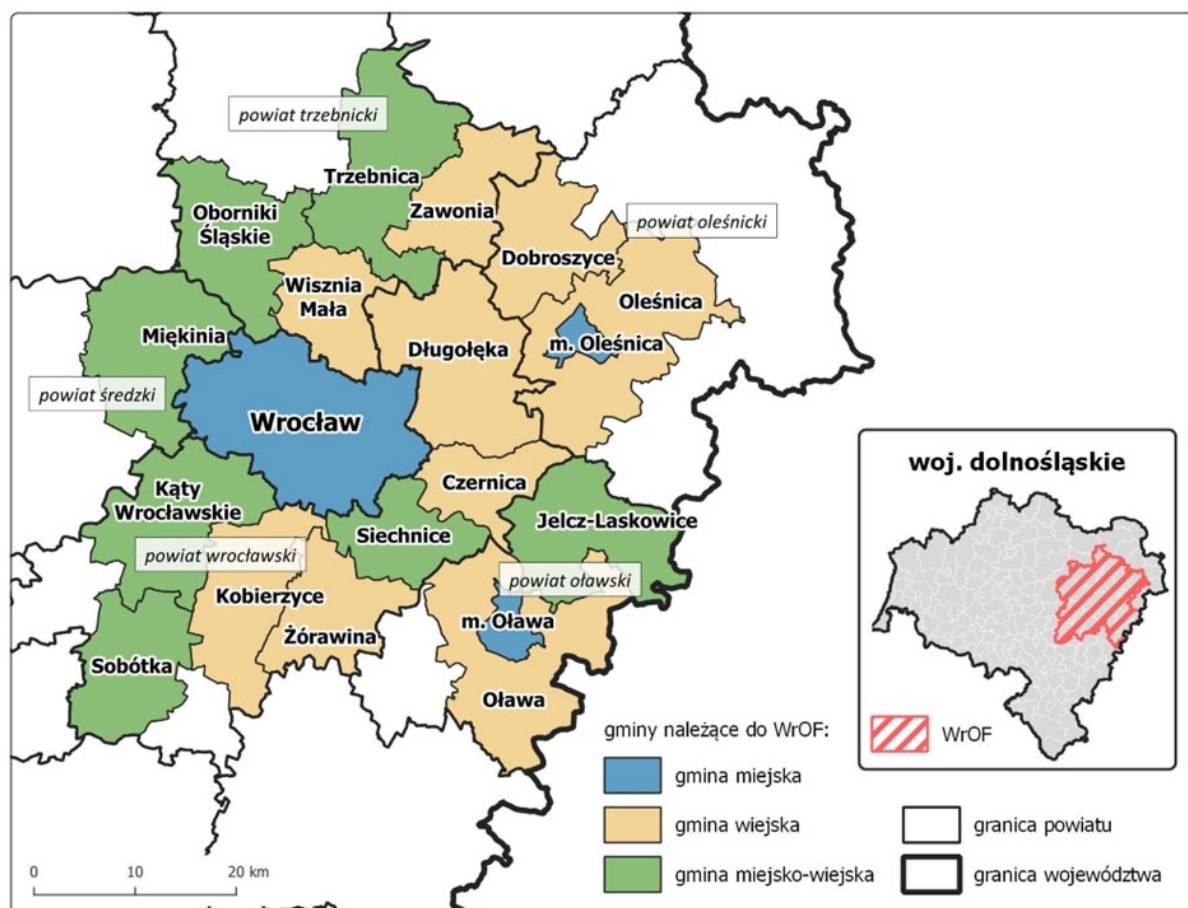


Fig. 1. Wrocław Functional Area according to official documents

Source: Strategia Zintegrowanych Inwestycji Terytorialnych Wrocławskiego Obszaru Funkcjonalnego na lata 2021-2027.

3. Methodology

The research was conducted in two stages.

Stage 1 included the collection of data on the population of each settlement in the Wrocław agglomeration provided by national censuses. Data from 1988, 2002, 2011 and 2021 were taken from the Local Data Bank of Statistics Poland, and the 1871 census published in *Die Gemeinden und Gutsbezirke (...)*.

Stage 2 involved creating the population maps of the Wrocław agglomeration for 1871, 1988 and 2021, as well as a map of population changes in the period 1988-2021. They were then used to analyse the changes and delineate the settlements subject to intensive suburbanisation, which, together with Wrocław, form the Wrocław Urban Area.

4. Results

The Wrocław Functional Area is a relatively recent creation, having only been recognised for about 30 years. This is because until the late 1980s, Wrocław had practically no strict suburban zone as a result of its history in the 20th century. The administrative area of the city was enlarged several times during that period, with particularly significant expansions taking place in 1928, 1950 and 1973, when all the suburbs and numerous villages quite loosely connected with Wrocław were incorporated into the city.

As a result, in 1995, 46% of the city's area was agricultural land – and building in the suburbs hardly extended beyond the borders of Wrocław. The lack of more pronounced urban expansion beyond the city limits was also due to the fact that the city was badly damaged during World War II (in 1945), the following reconstruction proceeded slowly, and it was only around 2020 that the city reached its pre-war population size. Thus, for several decades new settlements were built inside the city where there was an abundance of building land (some of which was previously developed). It is also worth noting that Wrocław, unlike Warsaw, Poznań, Kraków and Łódź, did not have satellite towns in its immediate vicinity. Leśnica and Psie Pole were incorporated into Wrocław in 1928, and Brochów in 1950, which meant that even in the late 1980s the population in the immediate vicinity of the city differed little from that of a century ago, and most of the localities had a typically rural character subject to little (or no) suburbanisation (cf. Figures 2 and 3).

The pronounced suburbanisation in the vicinity of Wrocław began in the 1990s, encouraged by the political changes in Poland and the economic transformation. In particular, the following factors should be mentioned here:

- freeing of market mechanisms favouring individual entrepreneurship,
- easier access to construction loans,
- the development of private motorisation, increasing the mobility of society,
- the increase in real estate prices in large cities, raising the attractiveness of building sites and apartments in neighbouring municipalities to increase.

The aforementioned factors underpinned changes in population distribution, compounded by several trends. Wealthier urban residents built single-family homes in the suburban zone and moved there over time, leading to the transformation of suburban villages from agricultural settlements into typical suburbs ('bedroom communities'). It should be noted, however, that a similar process of city residents moving to neighbouring rural areas was also taking place around many smaller towns. Thus, suburbs also began to take shape around smaller towns located at a distance of about 30 km from Wrocław, such as Oleśnica, Oława, Trzebnica, etc. In the case of some towns taking on the character of suburbs, it is difficult to clearly assess to what extent their suburbanisation occurred under the influence of migration from Wrocław, and to what extent from the satellite city.

The suburbanisation-related loss of residents in the satellite towns was mostly offset by an influx of people from Wrocław, attracted by lower real estate and rental prices (this included young, non-wealthy Wrocław residents entering the labour market).

Another factor that dynamised the processes of suburbanisation was the intensive increase of developer construction projects, which intensified in the 2010s, when whole estates of not only single-family houses, but also typical 'urban' multi-family blocks began to grow in suburban villages. This resulted in a rapid increase in the number of residents in some villages, taking on an increasingly urban character and also in a number of conflicts over land use (Grochowska, 2016). Nevertheless, in just one case did this lead to the granting of city status to a village near Wrocław, namely Siechnice – a former industrial settlement – which began to expand intensively from the 1990s, aided by the liquidation of the local steel mill in 1989, highly problematic for the environment and for residents. The population of Siechnice increased from 1988 to 2021 from 4,000 to almost 10,000, and the locality was granted city rights in 1997.

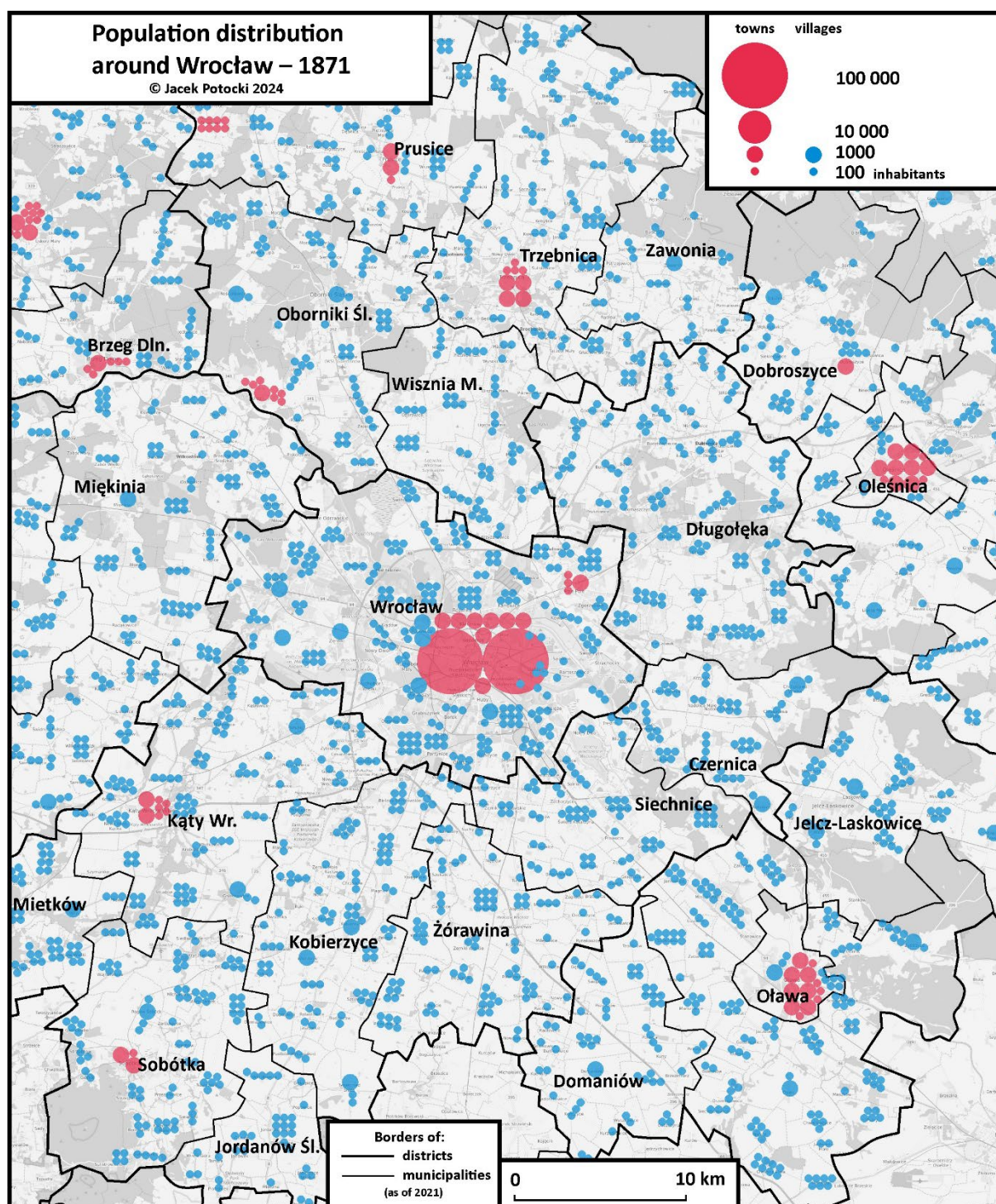


Fig. 2. Population distribution around Wrocław in 1871

Source: author's own elaboration.

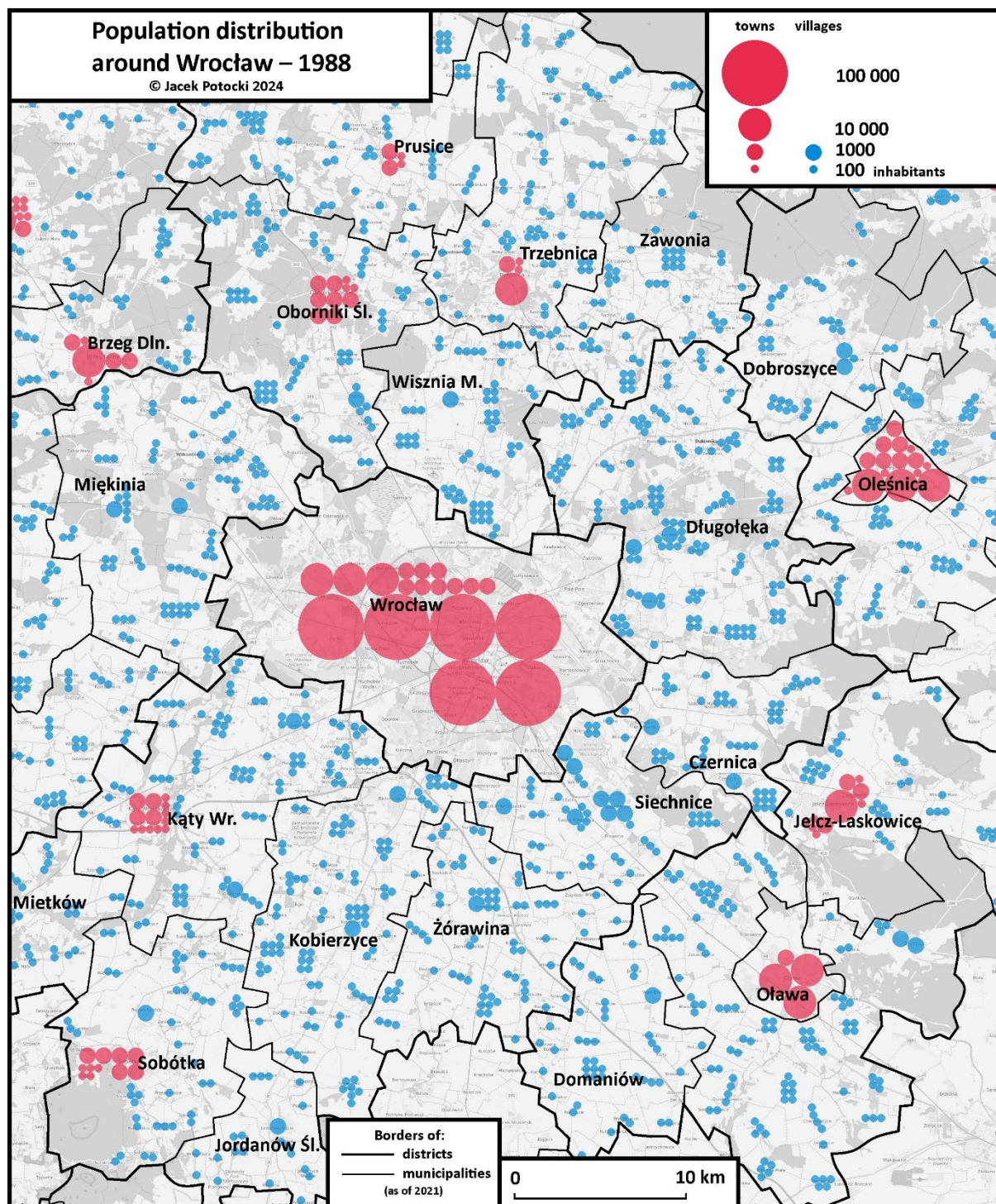


Fig. 3. Population distribution around Wrocław in 1988

Source: author's own elaboration.

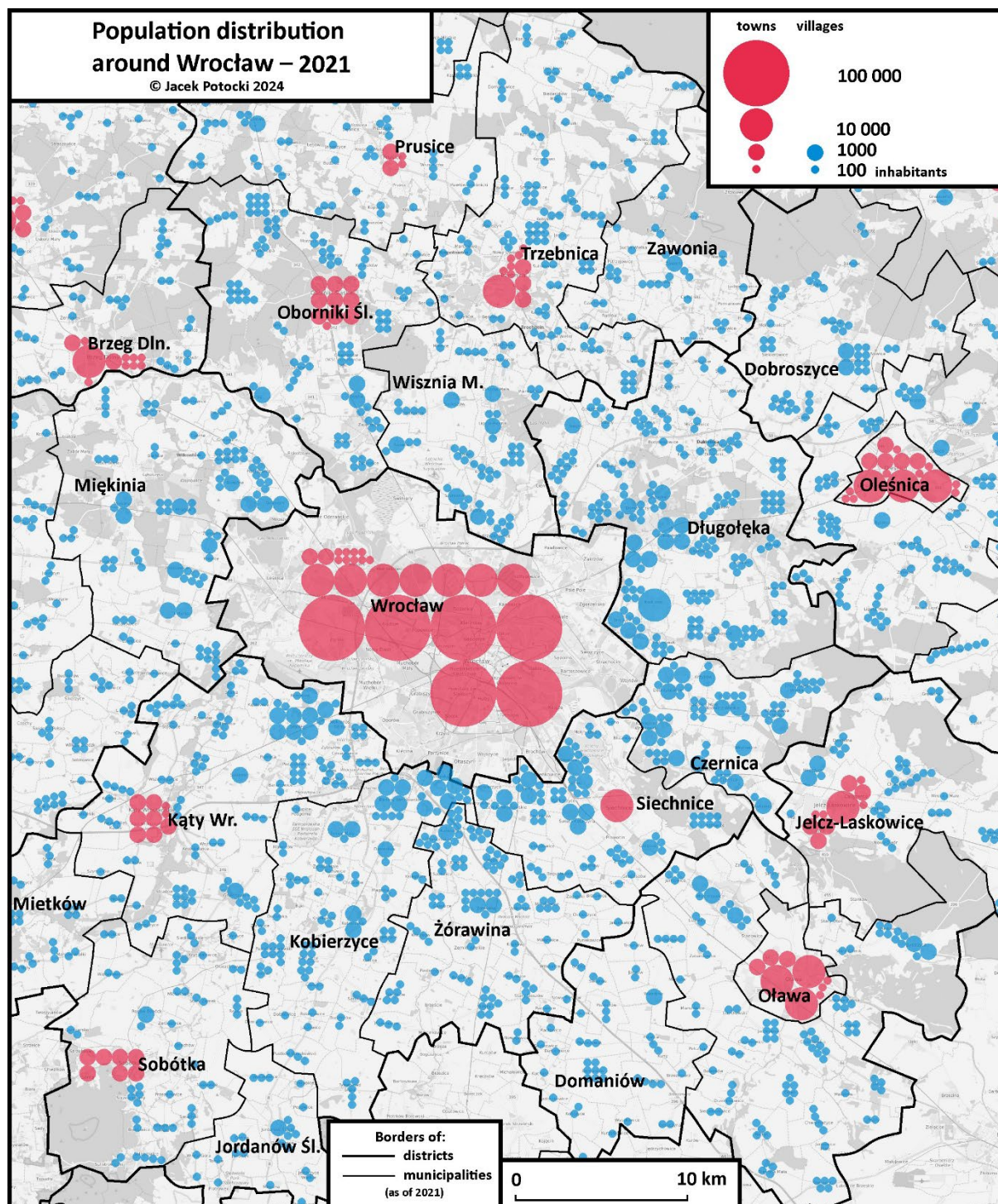


Fig. 4. Population distribution around Wrocław in 2021

Source: author's own elaboration.

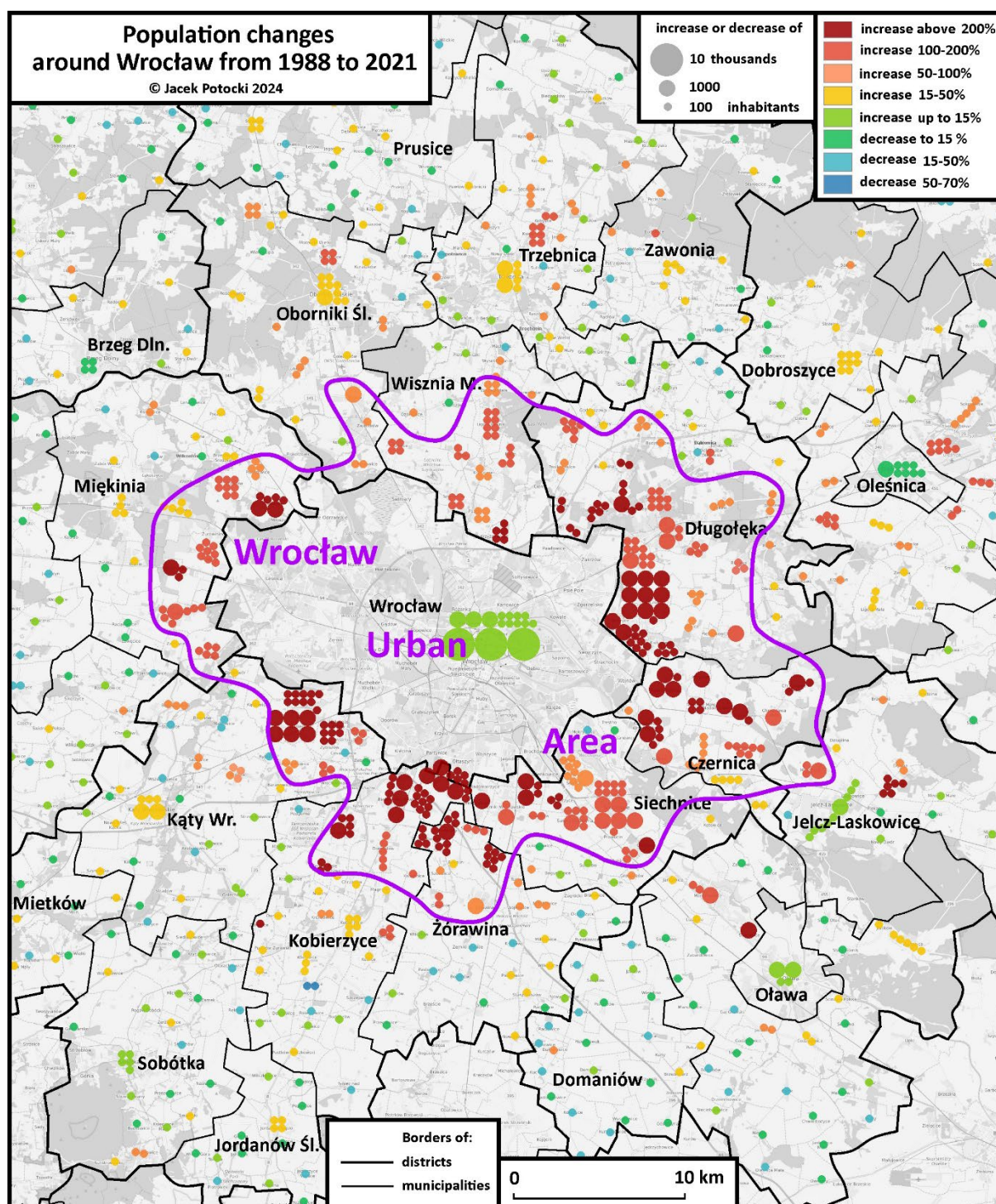


Fig. 5. Population changes around Wrocław 1988-2021

Source: author's own elaboration.

Whilst the population in the vicinity of Wrocław (within its current boundaries in effect since 1973) did not change significantly over the course of more than a century (1871-1988), fundamental changes occurred in little more than 30 years, i.e. 1988-2021 (see Figures 3 and 4). Many settlements multiplied in population and were transformed from agricultural villages to urban settlements, however this did not apply to the entirety of the municipalities included in the Wrocław Functional Area. Analysis of changes in the population of municipalities neighbouring Wrocław in the period 1988-2021 made it possible to distinguish a distinct zone subject to intensive suburbanisation resulting from the expansion of Wrocław (Figure 5), which included 91 localities listed in Table 1. The 12 villages are located in the municipality of Czernica, 23 in Długołęka, 9 in Kąty Wrocławskie, 7 in Kobierzyce, 11 villages and 1 town in Siechnice, 8 villages in Żórawina, 1 in Jelcz-Laskowice, 3 in Oborniki Śląskie, 9 in Wisznia Mała, and 8 in Miękinia.

Table 1. Settlements of the suburban zone of Wrocław – population development in 1988-2021

Settlement	Municipality	Population number				Population 2021/1988 [%]
		1988	2002	2011	2021	
1	2	3	4	5	6	7
Chrzęstawa Mała	Czernica	622	655	964	1 646	265
Chrzęstawa Wielka	Czernica	582	660	900	1 782	306
Czernica	Czernica	994	1 111	1 286	1 389	140
Dobrzykowice	Czernica	400	492	1 114	3 522	881
Gajków	Czernica	538	695	1 145	1 538	286
Jeszkowice	Czernica	593	645	813	1 175	198
Kamieniec Wrocławski	Czernica	1 110	1 701	2 295	3 493	315
Krzyków	Czernica	117	150	320	1 148	981
Łany	Czernica	130	153	179	243	187
Nadolice Małe	Czernica	126	128	243	554	440
Nadolice Wielkie	Czernica	452	534	955	2 544	563
Wojnowice	Czernica	358	392	648	1 032	288
Bąków	Długołęka	51	60	145	230	431
Bielawa	Długołęka	257	272	335	592	230
Borowa	Długołęka	571	598	673	914	160
Brzezia Łąka	Długołęka	827	907	1 136	1 826	221
Budziwojowice	Długołęka	52	62	67	85	163
Bukowina	Długołęka	217	233	279	317	146
Byków	Długołęka	490	577	598	770	157
Długołęka	Długołęka	1 895	2 444	3 002	4 121	217
Domaszczyń	Długołęka	378	473	613	1 735	459
Kamień	Długołęka	395	406	532	833	211
Kietczów	Długołęka	1 499	2 162	3 750	10 572	705
Kietczówek	Długołęka	109	112	198	635	583
Łozina	Długołęka	450	492	577	745	166
Mirków	Długołęka	1 230	1 694	1 965	3 111	253
Pasikowice	Długołęka	665	631	763	862	130
Piecowice	Długołęka	365	356	480	704	193
Pietrzykowice	Długołęka	102	100	106	171	168
Prusowice	Długołęka	258	276	471	787	305
Ramiszów	Długołęka	102	215	315	550	539

1	2	3	4	5	6	7
Siedlec	Długołęka	494	507	695	1003	203
Szczodre	Długołęka	713	1 026	1 243	1 492	209
Śliwice	Długołęka	375	338	424	595	159
Wilczyce	Długołęka	588	910	1 384	3 435	584
Cesarzowice	Kąty Wrocławskie	311	284	118	170	55
Gądów	Kąty Wrocławskie	230	218	313	502	218
Krzepków	Kąty Wrocławskie	131	91	346	1 063	811
Mokronos Dolny	Kąty Wrocławskie	179	252	391	516	288
Mokronos Górny	Kąty Wrocławskie	197	226	599	962	488
Pietrzykowice	Kąty Wrocławskie	527	515	558	842	160
Samotwór	Kąty Wrocławskie	197	230	241	253	128
Smolec	Kąty Wrocławskie	1 392	1 502	3 637	7 481	537
Zabrodzie	Kąty Wrocławskie	347	291	345	339	98
Bielany Wrocławskie	Kobierzyce	1 046	1 424	3 151	4 495	430
Domasław	Kobierzyce	543	638	708	1 089	201
Księginice	Kobierzyce	114	124	153	229	201
Ślęza	Kobierzyce	352	348	422	1 246	354
Tyniec Mały	Kobierzyce	624	796	1 177	2 053	329
Wysoka	Kobierzyce	551	782	2 544	5 297	961
Żerniki Małe	Kobierzyce	104	162	215	444	427
Siechnice	Siechnice	4 066	3 943	5 376	9 957	245
Biestryków	Siechnice	133	206	443	1 087	817
Blizanowice	Siechnice	179	192	173	161	90
Groblice	Siechnice	309	314	476	1 322	428
Iwiny	Siechnice	327	417	567	2 557	782
Mokry Dwór	Siechnice	382	355	315	269	70
Radwanice	Siechnice	2 092	2 230	2 698	3 934	188
Smardzów	Siechnice	163	178	227	410	252
Święta Katarzyna	Siechnice	1 487	1 759	2 284	3 030	204
Zacharzyce	Siechnice	91	106	157	410	451
Zębice	Siechnice	218	289	402	564	259
Żerniki Wrocławskie	Siechnice	1 042	1 207	1 638	2 229	214
Galowice	Żórawina	188	211	288	413	220
Karwiany	Żórawina	167	200	541	1 932	1157
Komorowice	Żórawina	137	132	285	549	401
Mędłów	Żórawina	48	45	206	787	1640
Rzeplin	Żórawina	331	377	396	381	115
Suchy Dwór	Żórawina	181	170	210	493	272
Szukałice	Żórawina	88	95	106	151	172
Żórawina	Żórawina	1 780	1 968	2 346	2 770	156
Miłoszyce	Jelcz-Laskowice	850	898	1 418	2 087	246
Paniowice	Oborniki Śląskie	241	275	362	461	191
Pęgów	Oborniki Śląskie	1 313	1 454	1 908	2 315	176
Zajęczków	Oborniki Śląskie	244	297	331	358	147
Krynica	Wisznia Mała	342	389	468	646	189
Krzyżanowice	Wisznia Mała	175	418	499	708	405

1	2	3	4	5	6	7
Ligota Piękna	Wisznia Mała	463	816	993	1 303	281
Malin	Wisznia Mała	328	389	576	730	223
Psary	Wisznia Mała	845	984	1 144	1 270	150
Rogóż	Wisznia Mała	204	218	324	498	244
Szewce	Wisznia Mała	631	694	948	1 340	212
Szymanów	Wisznia Mała	552	636	932	1 274	231
Wisznia Mała	Wisznia Mała	504	647	766	986	196
Brzezina	Miękinia	450	467	698	1 265	281
Gałów	Miękinia	421	358	557	883	210
Lutynia	Miękinia	884	981	1 357	2 447	277
Mrozów	Miękinia	1 074	1 107	1 265	1 570	146
Pisarzowice	Miękinia	485	486	588	846	174
Wilkszyn	Miękinia	648	703	1 219	3 122	482
Wróblewice	Miękinia	456	454	518	1 628	357
Total		49 469	57 115	81 536	142 275	288

Source: author's own elaboration based on National Censuses 1988, 2002, 2011, 2021.

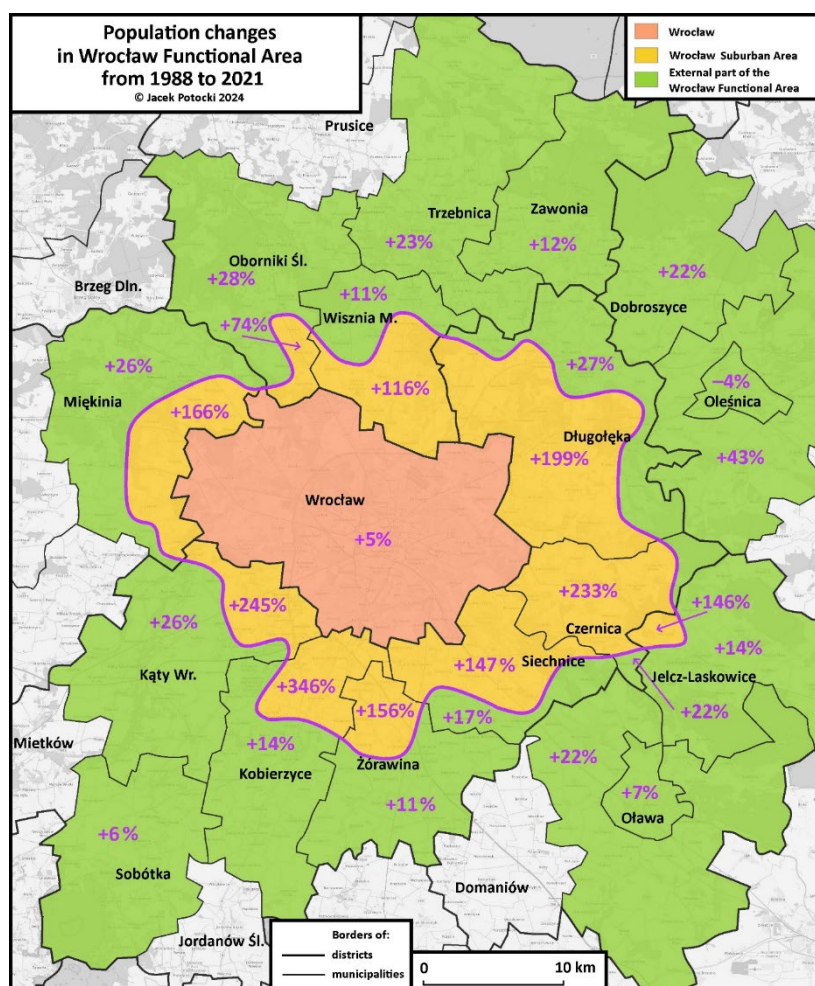


Fig. 6. Population changes in Wrocław Functional Area 1988-2021

Source: author's own elaboration.

This zone of intensive suburbanisation is distinctly different from the other parts of the municipalities included in the Wrocław Functional Area. The villages were dominated by the population that settled there in the last 30 years, while in the other parts of the Wrocław Functional Area the population growth between 1988 and 2021 was relatively small (Figure 6), giving rise to an internal zone within the Wrocław Functional Area in the form of the Wrocław Urban Area formed by Wrocław itself and its suburban zone.

5. Conclusion

Studies of population development in the vicinity of Wrocław led to the conclusion that a distinct inner suburb zone developed within the Wrocław Functional Area, dominated by the population settled there over the last 30 years (after 1988). The localities within it require a special approach in local development policy, due to the fact that they seem to be more strongly related to Wrocław than to other parts of the municipalities to which they belong. Together with Wrocław, they form the Wrocław Urban Area, and it would be advisable to consider the possibility of annexing some of these localities into Wrocław. However, to this end it would be necessary to deepen the research using further criteria, the application of which would make it possible to determine the extent of the Wrocław Urban Area more precisely.

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Zmiany zaludnienia okolic Wrocławia w latach 1988-2021 jako wyraz kształtowania miejskiego obszaru funkcjonalnego

Streszczenie

Cel: Celem artykułu jest diagnoza procesu kształtowania się miejskiego obszaru funkcjonalnego Wrocławia, w szczególności strefy podmiejskiej, będącej bezpośrednim zapleczem ośrodka metropolitalnego, i wyznaczenie zasięgu tej strefy.

Metodyka: W badaniach zastosowano analizę kartograficzną, przy czym oparto się na danych dotyczących zaludnienia Wrocławia i terenów przyległych do miasta pochodzących z narodowych spisów powszechnych przeprowadzonych w latach 1988, 2002, 2011 i 2021.

Wyniki: Badania wykazały, że współczesna strefa podmiejska Wrocławia, wyznaczona jako obszar objęty przez procesy suburbanizacji, wykształciła się dopiero po 1988 roku, przy czym jej zasięg nie pokrywa się z miejskim obszarem funkcjonalnym wyznaczonym w oficjalnych dokumentach strategicznych i planistycznych.

Implikacje i rekomendacje: Wyniki badań sugerują celowość wyznaczenia Wrocławskiego Obszaru Miejskiego obejmującego Wrocław i bezpośrednio przyległą do miasta strefę podmiejską, która wymaga szczególnego podejścia w polityce rozwoju, innego niż w odniesieniu do pozostałych części szerokiego Wrocławskiego Obszaru Funkcjonalnego. Zasadne wydaje się też pogłębienie badań w celu precyzyjniejszego wyznaczenia strefy podmiejskiej Wrocławia i rozważenia zmian w podziale administracyjnym.

Oryginalność/wartość: Wszystkie dotychczasowe analizy zmierzające do wyznaczenia miejskiego obszaru funkcjonalnego Wrocławia (podobnie jak innych ośrodków metropolitalnych w Polsce) opierały się na zbiorczych danych statystycznych agregowanych w układzie gmin. W niniejszym artykule przedstawiono próbę delimitacji strefy podmiejskiej w oparciu o dane bardziej szczegółowe, dotyczące poszczególnych miejscowości. W efekcie tak wyznaczona strefa jest mniejsza terytorialnie, ale bardziej jednorodna wewnętrznie.

Słowa kluczowe: Wrocław, miejski obszar funkcjonalny, suburbanizacja, rozwój regionalny i lokalny
