

Land use and land cover changes in the peripheral regions of Czechia

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Abstract

The contribution deals with the analysis of land use development in the peripheral, borderline territory of South Bohemia. The analysis of the development of land structure has been carried out at two levels; at level of districts from 1960, and at level of judicial districts that existed as natural regional units in the territory of Czechia till the year 1949. The development of land use structure has been observed in the years 1845, 1948, 1990 and 2000 aiming at revealing of general and specific developmental features, causes and consequences of land use changes. The observed area demonstrates strong dichotomy in the meaning of physic-geographical differentiation as well as different developmental tendencies (determination by bordering localisation, the transfer of the Czech Germans). The analysis of land use development and the development of regional differentiation in the period of transformation was not the least objective.

Key words: peripheral regions, land use, South Bohemia

Introduction, methodical notes

Several questions, which answering can as help verify general conclusions and evaluations formulated so far as contribute to confirming of specific trends of development of space polarisation, emerge when handling research projects aimed at long-term land use changes in Czechia and geographical research of peripheral regions in Czechia. The aim of the contribution is the analysis of the development of the land structure at districts scale on the basis of lower territorial units – former judicial districts.

Through partial analyses we have tried either to verify or to disprove the precondition that the development of the land structure was influenced as by geographical localisation (mountainous and submontaneous, basin areas) as by specific development of the territory (mainly as a consequence of the transfer of the Czech Germans after the World War II and the consequent non-sufficient resettlement of the borderland and in the course of the period of transformation in the 1990s).

The territory of three South Bohemia districts in administrative delimitation from 1960 – Prachatice, Strakonice and Písek districts, has become the model area for the first part of the evaluation (Fig. 1). The districts are located on the west margin of South Bohemia districts, bordering with Plzeň (Pilsen) and Central Bohemia districts, in the

south with Austria and Germany (state border). Model area covers as the territory of outer periphery (lying along state border) as the inner periphery (lying along regional borders). Regarding physic-geographical point of view Prachatice district can be considered as “mountainous”, Strakonice district as “basin” and Písek district as “highlands”. Prachatice district shows (along with Český Krumlov district) the highest share of less favoured areas (LFA) in South Bohemia region and economically it belongs to problematic districts in Czechia. High degree of nature and landscape conservation is specific for the territory (the territory of national park), serving as a sort of a barrier against potential territory development (Šumava – the UNESCO Biospheric Reserve). On the other hand the model territory has got the potential for the development of tourism and that is why it is interesting to observe land use changes and their influence on changes in the “face“ and the character of the landscape.

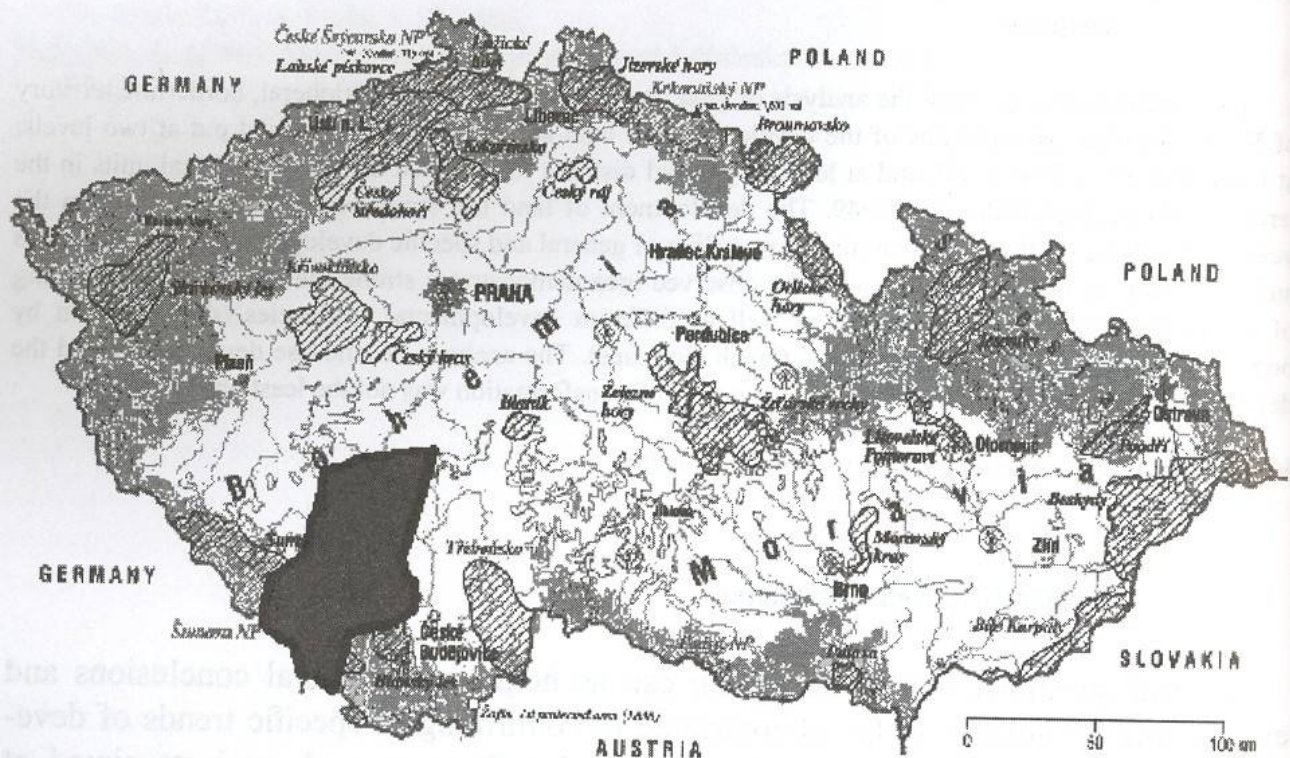


Fig. 1 The model area in the map of Czechia

- Evaluation comes from the data included in the LUCC PřF UK (Faculty of Science, Charles University) in Prague (I. Bičík et al). The above-mentioned database contains:
- Data for individual land categories (in rough categorisation): agricultural land (AL), woodlands (WL) and other lands (OL), which are further divided into partial categories: e.g. agricultural land (AL) consists of arable land (ArL), meadows (Me), pastures (Pa) and permanent cultures (PC).
 - Data in the time horizons of 1845, 1948, 1990, 2000; coincidentally at the turning points of Czech history.
 - Data for approx. 13,000 cadastral territories that is 9,300 basic territorial units (formed to enable data comparison in individual time horizons by merging those cadastral territories where the area changed during the observed years). Basic territorial units enable composing into higher regional units.

The results of land use analysis in the model area

Analysing land structure in individual districts and individual years (Fig. 2) we have come to the following conclusions:

- Land use structure demonstrates marked differences in individual districts. Strakonice district, with relatively intensive agricultural use, proved the share of agricultural land higher than 60% in all observed time horizons. On the other hand we recorded high share of woodlands (40% till 1948, over 50% in 1990 and 2000) in Prachatice district.
- The share of woodlands on the total land use structure is relatively stable in the districts, particularly in Strakonice and Písek districts.
- Marked dynamics (share increase) have been recorded in the category of other lands in all the three observed areas. The share of other lands was highly levelled in the years 1845 and 1948; in Strakonice and Písek districts the share of other lands has nearly tripled compared with 1948.
- The dynamics of land use changes in Prachatice district between the years 1990 and 2000 was significantly different from the development of shares of individual land macrostructure in Strakonice and Písek districts.
- In the period of transformation Prachatice district was relatively stable from the demonstrated land structure point of view. How is this possible when the landscape has changed noticeably? Let us look for the answer to that question in the analysis of the development of the inner structure of agricultural land.

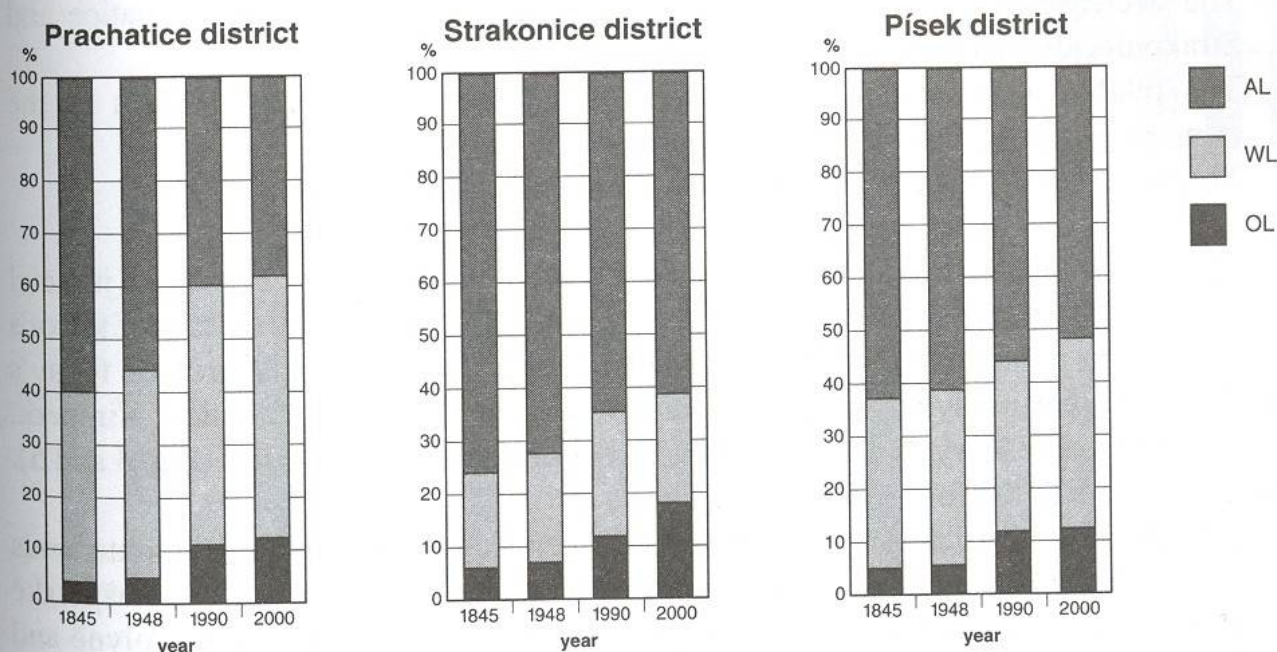


Fig. 2 The land structure in individual districts in the years 1845, 1948, 1990 and 2000

Analysing the development of the inner structure of agricultural land in individual districts and years (Fig. 3) we have come to the following conclusions:

- Higher share of arable land in Strakonice and Písek districts (over 70%) comes near to the value of average ploughed land in Czechia.

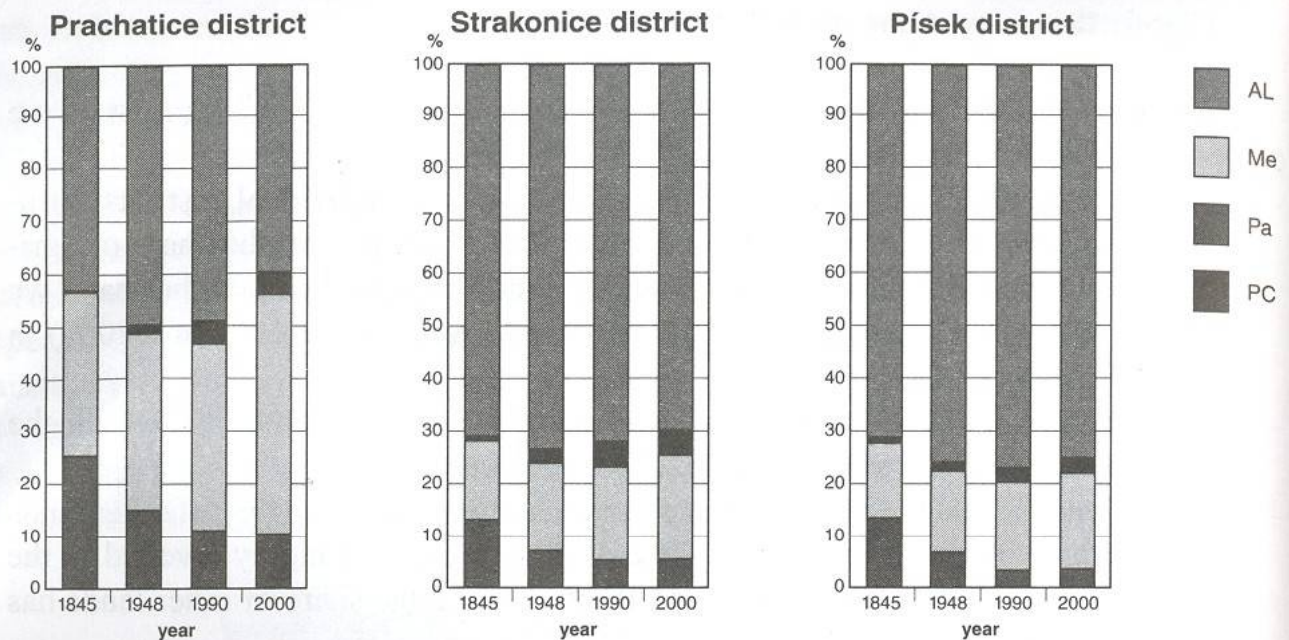


Fig. 3 The inner structure of agricultural land in individual districts in the years 1845, 1948, 1990 and 2000

- In the period of transformation (1990–2000) we recorded the increase of permanent grassed areas in all observed districts. This phenomenon accords with general trends in development of permanent grassed areas in Czechia, (the influence of subsidies policy of the Ministry of Agriculture of the Czech Republic and the European Union, the changes of function of agricultural production from productive to out of productive functions – landscape maintenance).
- The decrease of share of arable land below the level of 1845 in Prachatice and Strakonice districts, at the level of 1948 in Písek district.
- The relative stabilisation of the share of pastures in all three districts in the transformational period.
- The increase of the share of meadows, particularly in Prachatice district.

Prachatice district was formed in 1960. Till the abolition of the system of judicial districts in 1949 totally 9 judicial districts (Fig. 6) partly covered the territory of today's district while judicial district Chvalšiny involve only a very small area of today's territory. Further analyses have been carried on the basis of Prachatice, Vimperk, Volary, Kašperské Hory, Netolice, Volyně and Vodňany judicial districts (Fig. 4 and 5). We have come to the following conclusions:

- In Prachatice district clear dichotomy between mountainous and submontaneous regions, at the level of judicial districts Prachatice, Vimperk, Volary and Kašperské Hory can be regarded as mountainous while judicial districts Netolice, Volyně and Vodňany as submontaneous districts.
- Mountainous regions show a high share of woodlands in a long-term period.
- Submontaneous regions show a high share of agricultural land.
- The share of woodlands is relatively stable in all areas.
- There was no more significant change in land use structure (macrostructure) in the territory of former judicial districts of Prachatice, Kašperské Hory, Netolice and Vodňany in the period of transformation.

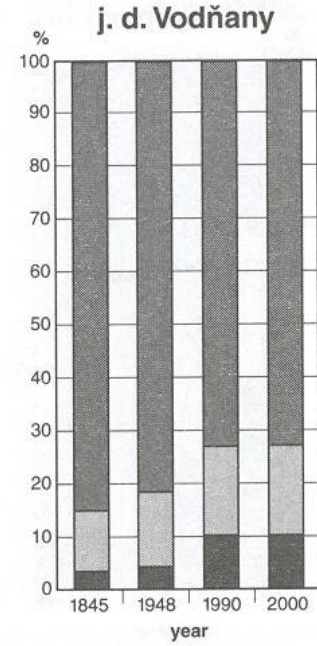
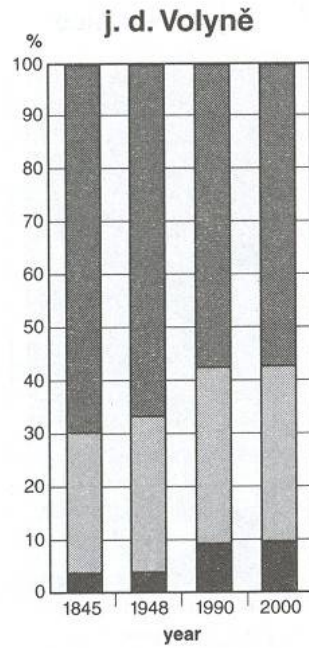
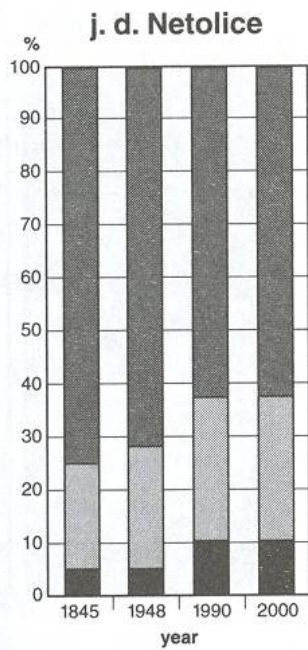
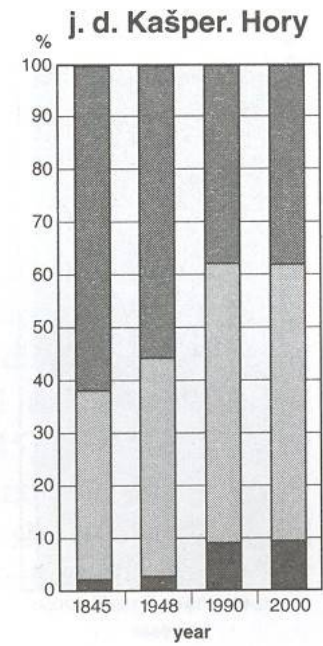
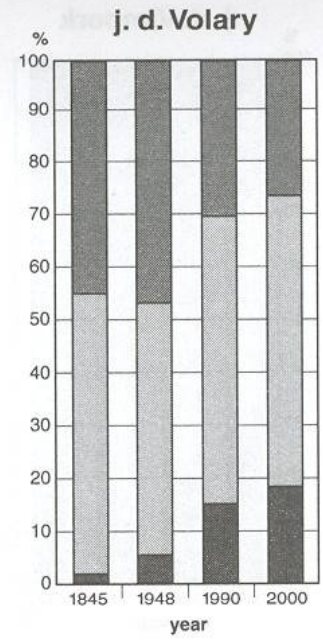
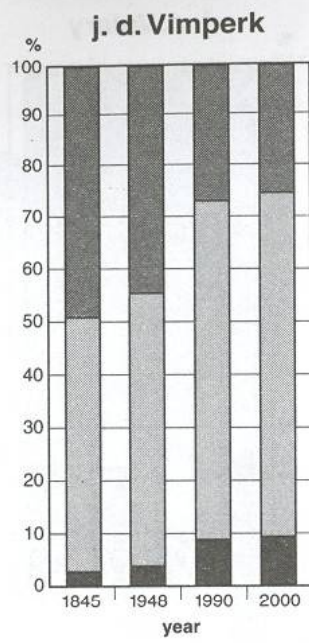
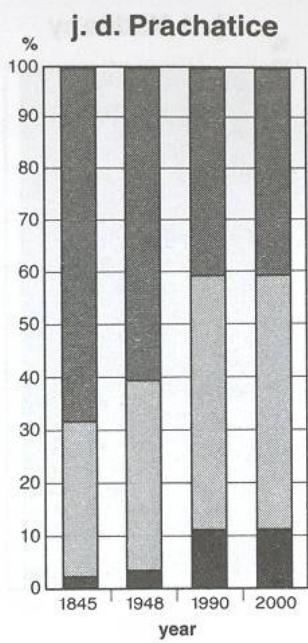


Fig. 4 The structure of land in individual judicial districts in the district of Prachatice region in years 1845, 1948, 1990 and 2000

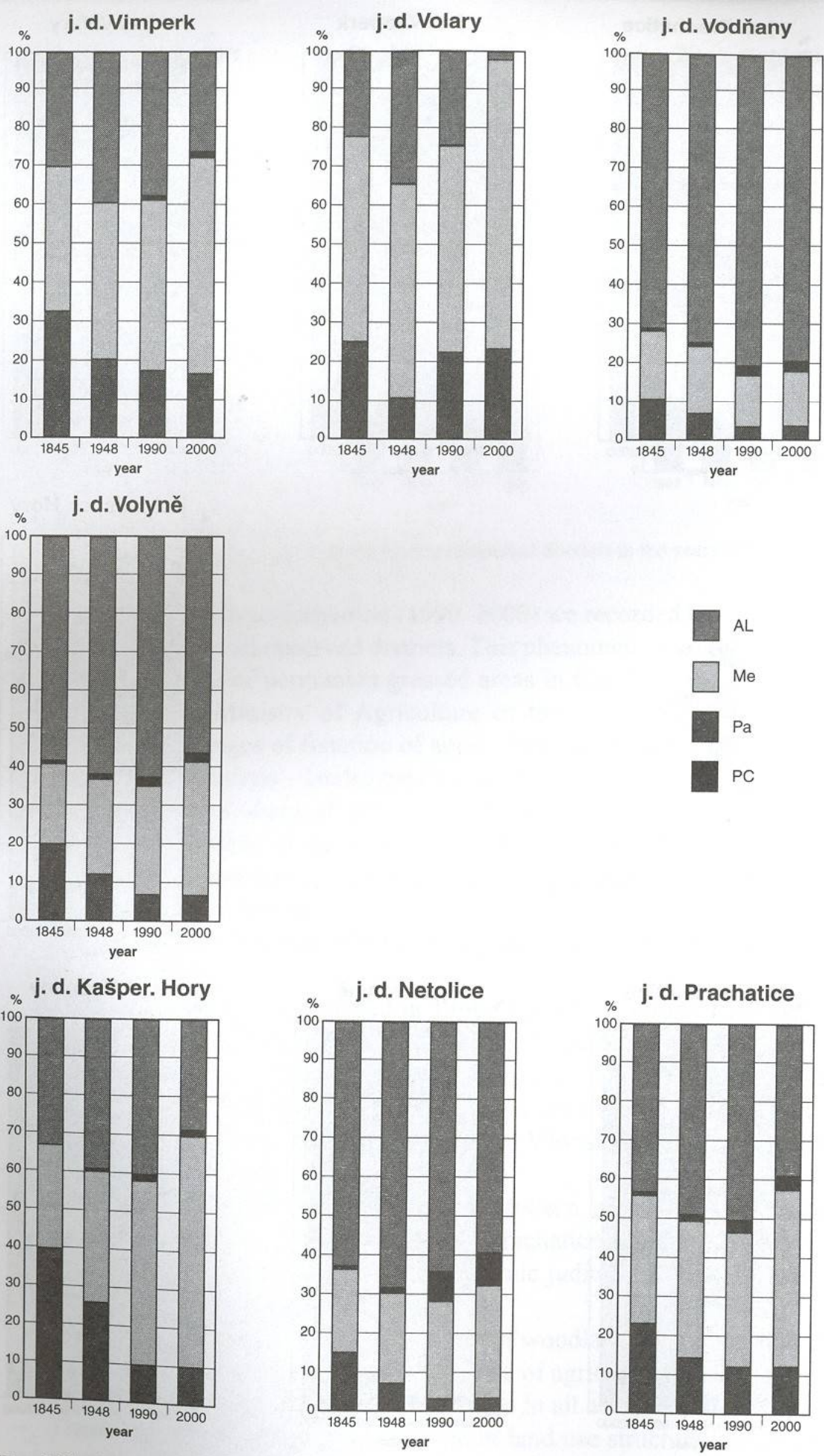


Fig. 5 The inner structure of agricultural land in individual judicial districts in the districts of Prachaticko region in years 1845, 1948, 1990 and 2000

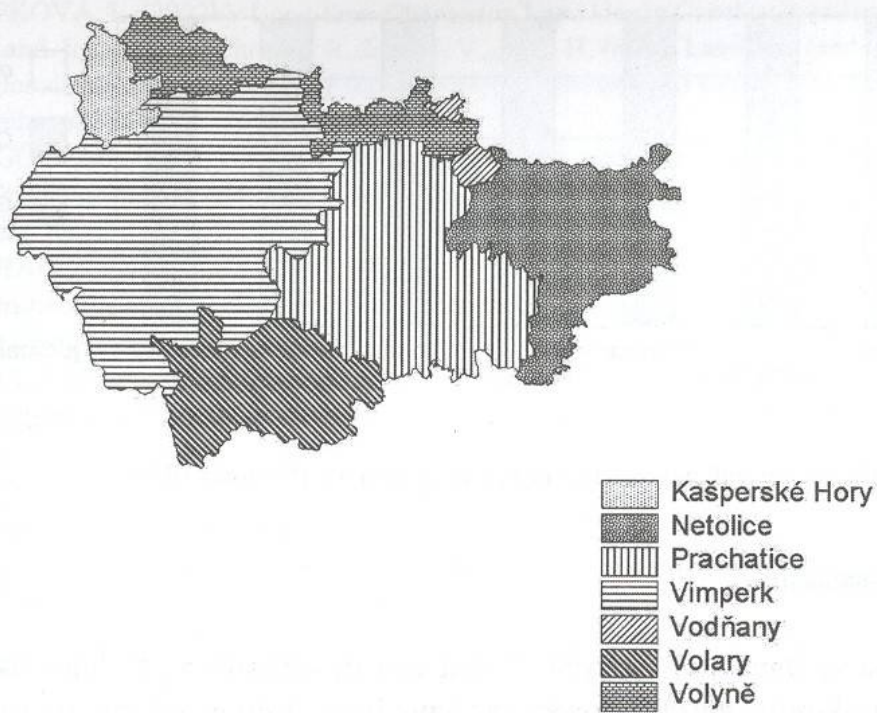


Fig. 6 Former judicial districts in Prachatice region

How did the inner structure of agricultural land change in individual judicial districts? The results of the analyses can be summarised into the following points:

- The share of arable land decreased in the territory of all judicial districts in the period of transformation (with the exception of Vodňany district in all judicial districts the share of arable land decreased below the level of the year 1845; in the territory of judicial district Volary we can record the minimum of arable land in 2000).
- Distinct dichotomy of Prachatice district was proved; marked share of arable land in submontaneous districts (Netolice and Volyně over 50%, Vodňany over 70% of arable land in the whole observed period).
- Markedly “green” mountainous districts (Prachatice judicial district over 50%, Vimperk, Volary and Kašperské Hory over 60% share of green areas – meadows and pastures – for the whole observed period).
- The share of meadows was growing in the territory of all judicial districts.
- The share of pastures on the structure of agricultural land was generally decreasing with the exception of Volary (with more distinct decrease only in the year 1948) and Vodňany (with the increase from the year 1948) judicial districts.

The ethnicity of the population in judicial district in Prachatice region

Analysing the ethnic structure of the population of Prachatice region in 1930, we have arrived at confirmation of clear dichotomy of the district, namely in the polarity of mountainous and submontaneous regions (Fig. 6).

Mountainous districts Volary, Kašperské Hory, Vimperk and for the most part also Prachatice district have been predominantly settled by the population of German nationality. Submontaneous judicial districts (Netolice, Vodňany and Volyně) have been predominantly settled by the population of Czech – Czechoslovakian then – nationality.

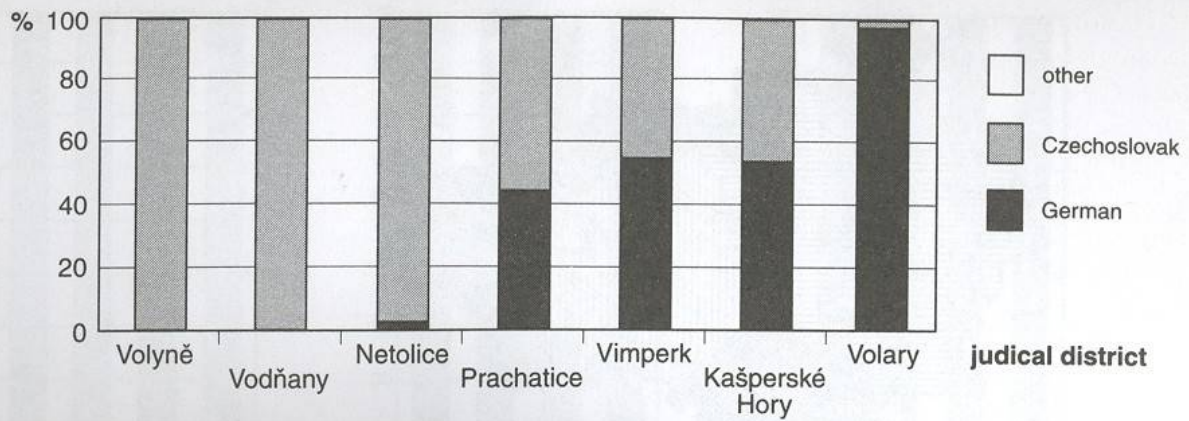


Fig. 7 The ethnicity in judicial districts in Prachatice region (the year 1930)

Conclusion

In conclusion there can be stated that the development of land use structure in Prachatice, Strakonice and Písek regions have been influenced mainly by geographical location of the area – the hypothesis of different use of land in mountainous and submontaneous regions has been proved right.

The statement that the development of land structure has been influenced by specific development of the territory (mainly by the transfer of the Czech Germans or by the transformation in the 1990s) has not been positively proved in the first event, in the case of the process of transformation the influence on the development of the inner structure of the land fund has been unambiguously proved. However the both observations would deserve further elaboration and above all the analysis of the territory with similar geographical and geopolitical conditions.

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