

DISCUSSION – DISKUZE

Feeding power: Central places and their supply systems in 9th–12th-century Central Europe

Živit moc: Centrální místa a jejich zásobovací systémy ve střední Evropě 9.–12. století

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Even after 150 years of archaeological research on fortified centres, to which key central functions in early medieval Central Europe are generally attributed, we still do not have a clearer idea of how their populations were supplied with basic goods in practice. This text follows on the discussion opened by Jiří Macháček (2026) for Great Moravian agglomerations. It presents a systematic analysis of possible subsistence strategies, consistently linking them to the social profile of the inhabitants of the centres and to the property regimes that determined the forms of exchange. The evaluation of individual models is based not only on archaeological evidence, but also on written sources from the 11th–12th century. The author concludes that it is not possible to postulate a single universal mechanism; it is more likely that there was a concurrence of multiple strategies that overlapped and were used to varying degrees by different social groups for different commodities. Therefore, the 'hinterland' should not be understood as a homogeneous economic zone around the centre, but as a variable network of relationships and related commodity flows, which could reach even significantly distant regions.

Early Middle Ages – centre – agglomeration – hinterland – subsistence – agriculture

Ani po 150 letech archeologického studia opevněných center, jimž běžně v rané středověké střední Evropě přisuzujeme klíčové centrální funkce, stále nemáme jasnější představu o tom, jak byly jejich populace v praxi zásobovány základními potřebami. Tento text navazuje na diskusi otevřenou Jiřím Macháčkem (2026) pro velkomoravské aglomerace. Předkládá systémový rozbor možných subsistenčních strategií, přičemž je důsledně váže k sociálnímu profilu obyvatel center a k majetkoprávními režimům, které determinovaly formy směny. Hodnocení jednotlivých modelů vychází nejen z archeologické evidence, ale i z písemných pramenů 11.–12. století. Autor dochází k závěru, že nelze předpokládat jediný univerzální mechanismus; pravděpodobnější byl souběh více strategií, které se překrývaly a které v různé míře využívaly odlišné sociální skupiny pro různé komodity. „Zázemí“ proto nenavrhuje chápat jako homogenní hospodářskou zónu kolem centra, ale jako proměnlivou síť vztahů a na ni vázaných toků komodit, jež mohly zasahovat i do výrazně vzdálených regionů.

raný středověk – centrum – aglomerace – zázemí – subsistence – zemědělství

Introduction

Historical narratives and archaeological discoveries often emphasise grand stories, significant institutions, conflicts, and symbols of prestige, while the energy basis of early medieval politics remains less visible and glamorous. Power rested on human and animal labour, the availability of food and fuel, and above all, the ability to create, store, and move surpluses and convert them into logistics, armaments, hospitality, and loyalty. The extraction of surplus and its redistribution were therefore a key material expression of authority in relatively simple societies (Earle 2011, 32–41). In fragile subsistence economies – where

administrative buffers were thin and rule relied heavily on face-to-face ties – regular and dependable flows of staple commodities were a precondition for provisioning, feasting, and redistribution, and thus for the long-term reproduction of hierarchy. In this sense, surplus financed domination.

The ‘material’ becomes inseparable from social structure, political power, ideology and religion. In early medieval societies (including Central Europe), elite strategies of rule were closely tied to forms of landholding and control over labour (Wickham 2005). A useful heuristic is the distinction between ‘staple’ and ‘wealth’ finance (D’Altroy – Earle 1985). Staple finance relies on collecting food and ordinary utilitarian products and transforming them into the operation of the apparatus – above all, the maintenance of dependants and officials. Wealth finance, in contrast, privileges compact, high-value items (prestigious goods, ‘primitive monies’, coinage), whose production and circulation can be more tightly controlled. In Central Europe, the first model was fully outweighed by the second only in the course of the 13th century. Alongside these socially embedded forms of exchange, we must also assume a market sector of varying intensity for everyday products, one that scholarship has often marginalised for reasons addressed below.

From the 9th century onward, Central Europe witnessed a distinctive concentration of political authority, religious activity, military organisation, and economic practices into fortified enclosures of different sizes and ranks. Their networks reacted dynamically to political change: older strongholds faded, new ones were founded, and multi-tier hierarchies emerged. Fortified centres thus became hotspots of early state formation and territorial organisation (Herold 2022). The ‘castle’ system, around which a mosaic of *suburbia* gradually developed, persisted into the early 13th century, before being replaced by a new socio-economic and institutional model adopted from Western Europe (Klápště 2012, 325–459).

Against this background, the question of how centres were provisioned with food and other basic commodities – most recently sharpened by Macháček (2026) for Great Moravia – touches the core of the problem. Any reconstruction of the internal socio-economic relations of this short-lived 9th- to early 10th-century polity on the eastern periphery of the Carolingian world is constrained by an extreme scarcity of written evidence, leaving room for divergent readings of the same archaeological and paleoenvironmental record. The recent debate on Great Moravian statehood illustrates how radically interpretive frameworks can diverge on key issues (cf. Macháček 2012; 2015; Kalhous 2014; Profantová – Profant 2014; Štefan 2014).

When working with preserved written records from the 11th and 12th centuries, which, with a few exceptions, only record property donated by the monarch to important ecclesiastical institutions, we encounter the following unknowns: 1) what part of his property the ruler actually transferred to the church; 2) to which centres the individual donated people, burdened with various duties and often scattered across distant locations, originally belonged, who organised the work of serfs and craftsmen within the original princely economy, and how the system of collecting taxes functioned; 3) how much of their production was handed over to the princely apparatus, and how they disposed of the rest.

It is clear that the centres of Great Moravia, and likewise the extensive hillforts of early Přemyslid Bohemia in the 9th and 10th centuries, were not – unlike high medieval castles – private residences of a narrow elite and its household staff. Rather, they were ‘public’ complexes that integrated much broader communities. In this sense, the period

may also be understood as a late chapter in protohistoric societies of a ranked type. Their subsistence strategies, therefore, cannot be reduced simply to the problem of provisioning elites but also, amongst other things, to take into account the phenomenon of hospitality and communal feastings as important principles of archaic societies.

Compared to Great Moravia, Bohemia combines a growing archaeological and palaeo-environmental record with the presence of written sources for the 11th and 12th centuries. We can assume that there were significant differences between individual early medieval societies across space and time. Models from Bohemia in the 11th and 12th centuries, therefore, cannot be transferred *ad hoc* to the situation in Great Moravia in the 9th century. Nevertheless, I believe that the energy and logistical possibilities and the socio-economic framework of these early medieval societies were essentially similar and implied the search for similar practical solutions.

The hinterland as an archaeological black box

The question of how centres were supplied with goods has become closely intertwined with the concept of the hinterland in archaeological discourse. *Christaller's* (1933) original concept is well known. Urban geographer *van Cleef* (1941) then attempted to systematically categorise the geographical zoning of the hinterland. The immediate surroundings of the city, on which the city is directly economically dependent, are called the *Umland*, while the *Hinterland* is understood as a wider market zone with interconnected local market areas.

When applying these ideal models to early medieval realities, their ‘default settings’ need to be kept in view. They were designed to capture the geographical logic of market exchange in urban centres embedded in a fully commercialised landscape, where the key constraint is the cost–benefit balance of transaction costs (cf. generally *Klír* 2024, 522–530). In economies with a limited market sector, where rents were predominantly paid in kind, their explanatory reach may therefore be restricted.

Therefore, the hinterland of early medieval centres should be understood less as a fixed, clearly demarcated zone, as it has been done, quite out of necessity in the archaeological literature. Instead, it should be approached as a dynamic network of social and economic relationships that could extend to varying distances from the centre. In any case, in the absence of robust written evidence, this issue is difficult to address on the basis of archaeological and palaeoenvironmental data alone (cf. *Moździoch* 1999; *Poláček* 2008; *Mařík* 2009; 2011; *Dresler* 2016, 237–239; *Hladík* 2020).

Based on earlier research, *Macháček* (2026) discusses the background of Pohansko near Břeclav in relatively straightforward terms as a network of surrounding rural settlements within a radius of approximately 10 km, which were functionally connected to the agglomeration in such a way that together they formed an integrated socioeconomic system. Rural production (especially cereals and livestock) was understood to cover the consumption needs of non-producing groups in the centre, while any surplus was, in his view, channelled to the centre primarily in the form of renders/dues.

A more nuanced framework for studying the hinterlands of Anglo-Saxon emporia was proposed by *Naylor* (2016), and it can be applied heuristically to Central European centres as well. Naylor distinguished four ideal-typical dimensions of the hinterland. The

impact hinterland (1) covers the zone in which an emporium exerted an immediate influence on settlement patterns and the local economy. Naylor places this at roughly 15 km, i.e. a plausible distance for daily travel. It is precisely this zone that archaeologists – Macháček included – most commonly have in mind. Productive hinterlands (2) are the areas from which an emporium drew raw materials, potentially extending 40–50 km or more. Subsistence hinterlands (3) serve for the provisioning zone for foodstuffs. Here, Naylor stresses the difficulties of establishing food provenance, since supplies may have been either local or brought in from much greater distances. Finally, social hinterlands (4) define the social reach and contact networks of an emporium, which varied by social strata (elites versus the peasantry).

A heuristic perimeter around a centre, defined by ease of access, clearly makes sense for the transport of perishable foodstuffs, and for the direct organisation of labour and land management, which presupposes day-to-day oversight (intensive agriculture). Yet even in the case of durable provisions, such as grain, the staple of the early medieval diet, as well as honey or livestock (including horses), transport could, as I will demonstrate below, in principle operate over much greater distances. A marked reduction in transport costs and the relatively straightforward movement of bulky commodities over long distances was enabled by river transport, especially along major waterways. This, in turn, significantly distorts models of potential accessibility derived from overland routes, which was the case for most of the major agglomerations of early medieval Central Europe.

A separate category – one I do not wish to pursue here – is the modelling of variables such as the economic potential of the landscape, nutritional requirements, and the productivity of early medieval agriculture. As the modern world demonstrates, the spectrum between basic requirements for survival and culturally or socially expected needs can be very wide indeed. Written evidence from Bohemia seems to point towards two extremes. At the bare subsistence threshold were apparently the two rural canons in the village of Únětice in Central Bohemia and their families before the mid-12th century, whose maintenance was to be secured by the labour of three peasant households comprising about twenty unfree individuals in total (*CDB I*, no. 124, 129–131; *Friedrich 1904–1907*). At the opposite end of the spectrum stand substantial endowments assigned to provosts and several canons of major ecclesiastical institutions: entire villages, scores of unfree dependants, and various renders and dues. In addition, these clerics often possessed private property of their own.

In the latter case, however, the issue was not mere subsistence, but also the maintenance of wealth, splendour, and the prestige that flowed from them. *Jarrett (2019)* has recently subjected *Duby's (1974)* influential thesis of the extremely low productivity of early medieval agriculture – apparently grounded in a misreading of the evidence – to a fundamental revision. Jarret argues for stable and relatively high productivity in Carolingian agriculture, comparable to yields in the High Middle Ages. For the Slavic parts of Europe, there is probably no reason to assume any marked differences (*Sárosi 2022*).

Despite the sophistication of attempts to reconstruct the subsistence mechanisms of protohistoric and early medieval settlement agglomerations, modelling has so far not led to an unequivocal confirmation of any of the extreme scenarios. In most cases, authors ultimately conclude that the surrounding landscape offered sufficient resources for predominantly autarkic production, without thereby ruling out the inflow of part of the supply from outside (cf. *Mařík 2009; Danielisová – Hajnalová 2014; Dresler 2016*).

Rural population and inhabitants of agglomerations

The reconstruction of the socio-legal composition of agrarian communities is certainly not just a marginal topic for historians; it determined the basic possibilities and limits within which the elites could exploit their labour and surpluses. Archaeologically, this composition may be approached through settlement patterns and through material forms of social display. Throughout early medieval Europe, the rural population was basically divided into two broad legal categories – free and unfree. Written sources from the 11th and 12th centuries indicate that there was still a significant proportion of personally free peasants in Central European monarchies, who were formally subordinate directly to the monarch and could not be given to anyone else (for Poland *Modzelewski 1987*).

On the other hand, a very heterogeneous group consisted of personally unfree people, whose status ranged from actual slaves bound to the courts of the elite to individual farmers or small craftsmen scattered throughout the villages. Modern historians refer to the complex patchwork of various taxes and services paid to the monarch, his apparatus, and subsequently to church institutions as a *service organisation* (*Modzelewski 2000; Krzemieńska – Třeštík 1978; Klápště 2012, 344–350; Petráček 2017; Curta 2009*). However, the share of both basic groups in individual agricultural communities or within regions cannot be determined more precisely. Nevertheless, the sources indicate a more significant concentration of unfree people in the hinterland of the centres (*Škvřáček – Janovská in press, obr. 8*).

Only the gradual erosion of the freedom of the free and their merging with the unfree into a single class of subjects opened up space for the gradual adaptation of the Western model of a landed estate. The question of the economic capital of elites and the origins and extent of landed property has thus become one of the cornerstones in debates on the functioning of early states in Central Europe (cf. most recently *Wihoda 2007; Klápště 2012, 13–110; Jan 2019; Žemlička 2024; Antonín – Macháček 2026*).

In the case of Great Moravia, where no written sources are available, the reconstruction of the social dimension of the rural landscape is based exclusively on archaeological or bioarchaeological evidence. It is usually traced through settlement patterns and funerary evidence, with militaria in rural graves suggesting a predominantly free population (*Štefan 2011, 335–339; Macháček et al. 2021*).

The most fundamental and at the same time the most challenging question in relation to protohistoric and early medieval centres concerns the motives behind their construction related to the range and proportion of functions they performed (written sources *Sláma 1986; Kalhous 2018b*; for Central Bohemia *Štefan – Boháčová 2018*; theory *Gringhuth-Dallmer 1999*). Estimates of their population size usually rest just on a handful of indirect variables: the extent of the occupied area, the parameters of fortification (and the inferred notions of defensive capacity derived from them), or the demography of adjacent cemeteries. None of these indicators, however, yields more than very approximate results. For the time being, little more can probably be said than that the populations of the most important centres in the 9th and 10th centuries did not exceed 1,000–2,000 people, while less prominent centres were permanently inhabited by communities of at most a few hundred. Comparable demographic parameters may be assumed for Great Moravian agglomerations (cf. *Mařík 2009, 139; Dresler 2016, 42–52; Štefan 2024, 49–53*). However, in the subsequent period from the 11th century onwards, population numbers undoubtedly rose markedly, above all in the case of Prague.

If centres drew on entire regional communities, their resident populations should be seen as highly dynamic rather than stable. Numbers could increase sharply in times of threat, during the ruler's presence, at assemblies, feast days, markets and other festive occasions, or seasonally. Rare written references scattered across Europe point to a close association between rural populations and military service in fortified centres, and the same must be assumed for the labour-intensive construction of ramparts that often extended for several kilometres. Anglo-Saxon sources of the 8th to 10th centuries show this particularly (Hollister 1961). From geographically and chronologically proximate evidence, one may cite Widukind's well-known account of Henry I's military reforms in Saxony in the 920s and 930s: '*First, he selected every ninth man from among the agrarii milites to live in fortifications. Each ninth man would build dwellings for the other eight, and would receive and store a third part of all of the grain. The other eight would sow and reap grain, and would gather up a ninth and would set this aside on their own properties. Henry desired that all law courts, assemblies, and festivals should be held in the fortifications. They were to train in these fortifications day and night so that they would learn in times of peace what to do when they faced the enemy. Aside from these strongholds, there were very few fortifications, and even these had poor walls.*' (Widukind, *Rerum gestarum Saxonicarum libri tres* I, 35, 49: Hirsch – Lohmann 1935).

A similar implication follows from the brief report of the Vyšehrad Canon on the Bohemian expedition to Poland in February 1134, which notes that the Czechs secured rich booty because the Poles – since Lent was approaching and they assumed no enemy would come – had left their castles and other fortifications, while remaining in their villages (*Fontes rerum Bohemicarum* II, 218: Emler 1874). In Poland, there is written evidence of specific duties performed by rural guards at castles ('posada') still in the 13th century (Jurek 2007, 79). In this light, Macháček's provocative metaphor of early medieval centres as South American 'favelas' is likely to be pointing in the right direction (Macháček 2026, 122).

The relationship between early medieval centres and the surrounding social landscape has recently been brought into sharper focus, *inter alia*, by the archaeological investigation of a bipartite fortified site at Prague-Vinoř, with a total area of 4.4 ha, established in the early 10th century. The site lay between two major centres – Prague Castle (13 km) and Stará Boleslav (9 km) – and can therefore hardly be regarded as a first-order centre in its own right. Yet in the northern part of the main enclosure, the excavation uncovered a large hall building with a high-status burial of a girl placed in one corner. Reaching the size of approximately 49.5 × 9.5 m, the capacity of the building may have reached several hundred people (Štefan – Hasil 2024). By whom and for whom, then, was this hall intended, situated in such close proximity to residential Prague?

It is even more challenging to determine what proportion of a centre's population was systematically and entirely supported by the surpluses of others due to their privileged social status or economic specialisation. The internal subdivision of agglomerations into distinct fortified areas and suburbia already points to the presence of different communities with varied status (cf. Macháček 2005; Štefan – Boháčová 2018). Alongside the principal authorities – members of princely kindreds, castellans, or the heads of noble families, as well as priests and members of ecclesiastical communities, whose presence is documented in written sources – discussion most often centres on 'professional' members of armed retinues present at hillforts. The influential Czech historian Třeštík even posited several

thousand such men for the Přemyslid army of the dukes Boleslav I and II in the second half of the 10th century, who should be maintained, paid, and equipped from the duke's resources (*Třeštlík 2001*; critically *Kalhous 2012*, 32). Archaeologists have tended to seek these professional warriors above all in richly furnished cemeteries associated with major centres. Recent work on Carolingian warfare, however, has raised well-founded doubts whether large professional armies could have existed in the Early Middle Ages at all. A model of situational or seasonal mobilisation of people of varying social standing, who normally pursued other activities, including agriculture, appears much more realistic (*Haack 2020*, 208–209, 215–216). In this regard, one may recall the testimonies cited above. Independent evidence is also provided by stable isotope analyses of buried individuals, which suggest that the richness of grave furnishings is not necessarily related to the quality and composition of diet; for some groups associated with centres, dietary patterns were indistinguishable from those of ordinary agrarian communities (*Kaupová et al. 2019*).

A useful example is provided by the cemetery of 152 graves around the church in the northern outer bailey at Pohansko near Břeclav. In my view, Macháček offers a highly plausible interpretation, arguing this community to be an early medieval *familia* headed by a noble authority buried within the church, perhaps the hillfort's administrator. His prestigious lineage was associated with individuals of varying social status (some furnished with militaria), including an unfree household workforce (*Macháček et al. 2016*, 191–198; *Macháček 2019*, 195). A comparable basic structure may also be assumed for Bohemian centres of the 9th and 10th centuries. One of its likely manifestations are the burials in discrete clusters corresponding to extended kin-based units in the immediate vicinity of centres (cf. Prague Castle, Budeč, Levý Hradec, Klecany: *Štefan 2024*, 53–55; 2026, 152–153). Yet can we assume that even the low-born members of these communities were sustained through the labour of others?

Another potential group exempted from agricultural production would have been craftspeople. Their presence in centres is clearly attested both by the archaeological record and – at least for the 11th and 12th centuries – by written sources (*Tomas 1983*; *Petráček 2017*, 64–75). However, caution is again warranted. Despite the intuitive assumption often made by archaeologists, part-time rather than full-time production was the norm in most pre-industrial societies, and producers were frequently self-sufficient (*Costin 2005*, 1055, 1062).

A specific social category associated with centres, which is relatively well known from written sources of the 11th and 12th centuries, comprised unfree individuals who either practised crafts under controlled conditions (above all textile production within the so-called *gynaeceum*) or performed a range of practical services (*Petráček 2017*, 52–58). They were sometimes grouped under the collective label *de familia*, being, with occasional exceptions, donated without land (*Kalhous 2018a*, 67, Tab. 10, Graph 8). Even for these people, however, full dependence on food rations is not unequivocally demonstrated. The majority of servants donated to ecclesiastical institutions were in fact settled at greater or lesser distances from the centres, to which they presumably travelled only temporarily – for example, to Litoměřice once a week (*CDB I*, no. 55, 56; *Friedrich 1904–1907*).

It follows from the above that attempts to quantify the number of people permanently present in centres who were, for various reasons, wholly removed from primary food production are subject to exceptional uncertainty. Substantial variation may be expected depending on the function and hierarchical rank of individual centres, alongside a gradual expansion of this segment in the most important agglomerations. The difference between

‘a few dozen’ and ‘several hundred’ such individuals must have had profound implications both for the choice of economic strategies and for the organisational demands of provisioning and redistribution. This, in turn, affects the extent to which and how such arrangements could leave a recognisable imprint in the archaeological record.

Ideal-type models of centre provisioning

I will attempt a heuristic assessment of the main variants of subsistence strategies following and developing the argumentative structure proposed by *Macháček (2026)*.

Model 1: Central places with their own agricultural hinterland

As noted above, the economic configuration of a central place with its ‘own’ agrarian hinterland constitutes the basic scheme to which archaeology most often returns – explicitly or implicitly. This is also the model most commonly invoked in interpretations of Great Moravian centres (*Hladík 2020; Hladík – Látková 2020; Macháček 2026*).

The current debate over the subsistence basis of Pohansko near Břeclav was above all triggered by doubts whether the settlement network identified in the agglomeration’s surroundings through fieldwalking is synchronous with Pohansko’s existence (cf. *Dresler – Macháček 2008; Dresler 2016, 180; Macháček 2026*). I shall leave the chronological assessment to specialists. A strong argument for the existence of a synchronous settlement structure around Pohansko is, in any case, the securely demonstrated concentration of agriculturally oriented settlements and cemeteries around the nearest major centres in Mikulčice (*Hladík 2020*) and Uherské Hradiště-Staré Město (*Galuška 2008*). If such a contemporaneous structure existed at Mikulčice, it seems unlikely that the subsistence of a neighbouring centre of comparable size and importance would have been based on fundamentally different principles.

A strong supporting argument for the interdependence of centres and surrounding rural settlements is that settlement intensification in the wider area occurred only in direct connection with the emergence of the centre itself. Unfortunately, clear separation of chronological horizons before and after the formation of centres is not straightforward, especially in regions with long-term settlement continuity. This is an issue that would certainly benefit from a new, detailed analysis. Convincing archaeological evidence of this kind is available, for example, in the hinterlands of the most important early Piast centres in Greater Poland (*Kurnatowska 1999; Janiak 2008*). Among the Great Moravian centres, settlement identification is convincingly documented around Mikulčice (*Hladík 2020; Hladík – Látková 2020*).

In Bohemia, a marked acceleration of settlement activity has recently been demonstrated – on the basis of both archaeological and palynological evidence – in the micro-regions around Prague–Vinoř and Stará Boleslav northeast of Prague. Up to the turn of the 10th century, the fertile region between the Vltava and the Elbe appears to have been only sparsely settled (*Fig. 1: A*). Pollen data from the immediate vicinity of the Prague–Vinoř hillfort still indicate, for the second half of the 9th century, an open, park-like landscape used primarily for grazing. In contrast, the emergence of centres around c. 900 is associated both with a marked increase in archaeological evidence for settlement across the region

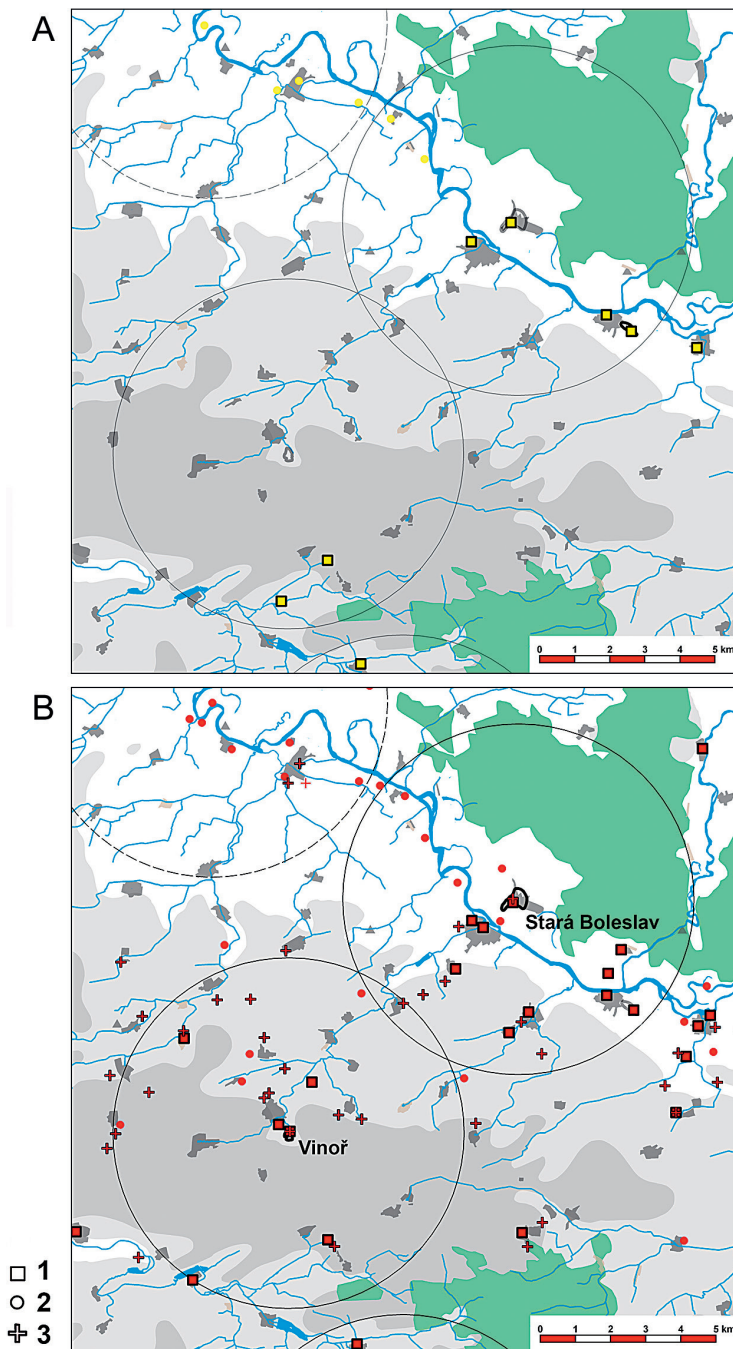


Fig. 1. Archaeological evidence of settlement development in the region northeast of Prague around the fortified settlements of Prague-Vinoř and Stará Boleslav. A – c. 700–900/950; B – c. 900/950–1200. 1 – settlements evidenced by archaeological research; 2 – settlements evidenced by surface prospecting; 3 – burial grounds (developed by Z. Neustupný).

and with extensive deforestation and the onset of cereal cultivation (*Fig. 1: B*) (Boháčová 2008; Pokorný 2024, 356–357; Štefan *et al.* 2024). In the case of Greater Poland, this ‘colonisation’ is usually interpreted as evidence for forced transfers of an agrarian population from other regions in order to meet the needs of military elites (e.g. Kurnatowska 1999, 55–57). As suggested above, however, relations between a centre and its surrounding population may have been considerably more complex, potentially offering a range of benefits not only to elites but also to the rural communities themselves. At the same time, the restructuring of settlement patterns may reflect a broader complex of social transformations associated with the formation of early states (Curta 2009, 41).

Let us focus on the structure of property and population in the area around the centres. Early medieval centres did not exist in splendid isolation. At least some of their inhabitants were undoubtedly linked by kinship to the surrounding agrarian communities, and the provisioning of hillforts with food may have been organised, at least in part, through broad networks of kin, as indicated by the cited reports. From this perspective, we really do not need to see ‘elites’ everywhere.

Princely donations to major ecclesiastical institutions in 11th- and 12th-century Bohemia – especially those located within, or close to, major princely centres – suggest that zones of settlements held in ducal property may have existed around centres and contributed to their provisioning (Škvrňák – Janovská *in press*). The original hinterland of the important centre in Stará Boleslav is partly reflected in the pattern of endowment of the chapter founded there before the mid-11th century (CDB I, no. 382, 358–362: Friedrich 1904–1907). The charter opens with the donation of seven entire villages, strongly concentrated within a radius of only a few kilometres of Stará Boleslav, whereas subsequent gifts of individual servants (both with land and without) and various dues were dispersed across a much wider territory (cf. *Fig. 2*). In addition, the duke assigned seventeen ploughmen (*aratores*) to these villages, which must have increased their economic productivity and, at the same time, points to the ruler’s capacity to reallocate people.

A further example is provided by the endowment of Břevnov Monastery on the edge of the Prague agglomeration, which, among other assets, received four entire villages in its immediate vicinity, together with dependants and land and various appurtenances (*‘cum omni familia et terra sufficienti’*). The most significant rulers’ zone was the extensive Prague agglomeration itself, from which the ruler appears to have alienated relatively little. Břevnov, in Prague, received thirty *animatores* together with land (CDB I, no. 375, 348: Friedrich 1904–1907). Comparable concentrations are suggested by charters relating to regional centres in Prácheň (ten villages; CDB I, no. 379, 352–354: Friedrich 1904–1907), Libice nad Cidlinou (seven villages; CDB II, no. 378, 422: Friedrich 1912), and Litoměřice (seven villages; CDB I, no. 55, 53–60: Friedrich 1904–1907).

On the basis of a geographical analysis, Mařík (2009, 155–156; 2011) identified a clear concentration of these settlements within roughly 8 km of the original centres. Yet the archaeological evidence for settlement does not, in fact, display distinct clusters around the centres in question; in fertile regions, settlement appears to have continued seamlessly beyond the notional zone. Without written sources, we would be unable to delimit the presumed catchment areas at all. Nor does the written evidence allow us to determine what share of his landed resources the ruler donated to ecclesiastical institutions. That the duke was not the sole landholder even in the vicinity of strongholds is hinted at by the Stará Boleslav foundation charter itself. In this document, ducal and non-ducal lands are

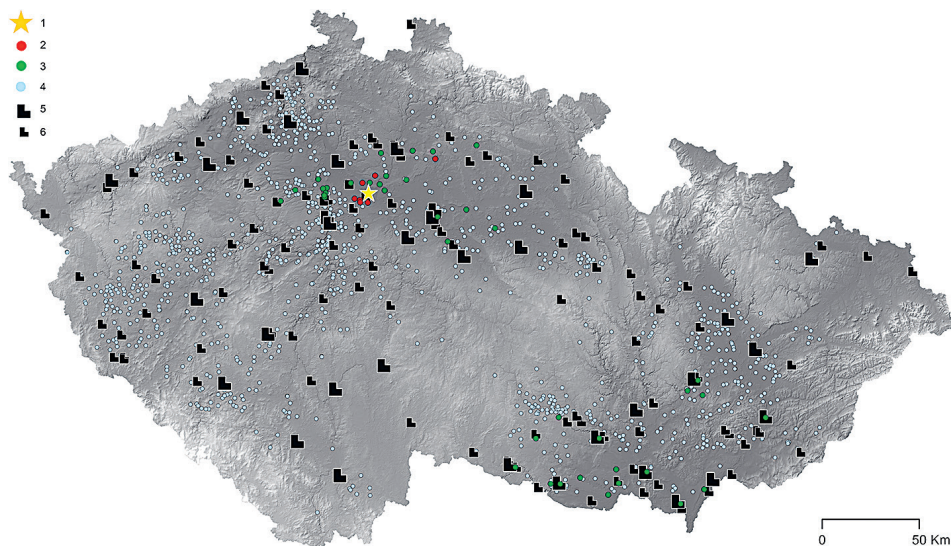


Fig. 2. Geographical distribution of the property holdings of the chapter in Stará Boleslav, founded in the 1050s from the royal estate on the basis of document *CDB* I, no. 382, 358–362: *Friedrich 1904–1907*. 1 – Stará Boleslav; 2 – donation of entire villages; 3 – individual plots of land, servants, levies, customs duties, and tolls; 4 – other locations mentioned in written sources until around 1200; 5 – main administrative centres of the 11th and 12th centuries; 6 – older and less significant fortified centres (data by J. Škvrňák, graphics by D. Václavíková).

distinguished both in the Žatec area of north-western Bohemia and around Stará and Mladá Boleslav in east-central Bohemia (*CDB* I, no. 382, 361: *Friedrich 1904–1907*).

From where, then, was agricultural production organised, and what share of their output did rural communities deliver? As in Western Europe, the principal nodes of agricultural production and the collection of renders of all kinds were manorial estates (*curiae*), even though they are mentioned only rarely in the sources, presumably because rulers were reluctant to alienate them. Only a small number can be located with any precision. The phrasing of the written sources suggests that such estates stood in close association with all major castellany centres (explicit references to *curiae* occur at Prague and Stará Boleslav: *CDB* I, no. 393, 405; no. 382, 360: *Friedrich 1904–1907*), where not only agricultural produce but also goods of many kinds were assembled. Manorial estates – sometimes with a residential component, sometimes without – are, however, also attested in the open countryside without any direct connection to centres (*Petráček 2017*, 138–158). The best described is the estate in Radonice, with a substantial staff (*CDB* I, no. 156, 159: *Friedrich 1904–1907*; *Meduna 2009*). Valuable information is also provided by the foundation charter of the Hradisko Monastery near Olomouc, founded in 1179 from the property of the Olomouc duke and his wife, which mentions the estate at Úsobrno, situated some 35 km (!) from Olomouc, again together with villages said to belong to it (*CDB* I, no. 79, 83: *Friedrich 1904–1907*).

The situation around Prague is documented most clearly in the written sources, though the record is still very fragmentary (*Fig. 3*). In addition to the central ducal estate located somewhere in the vicinity of Prague Castle, a comparable economic institution must also

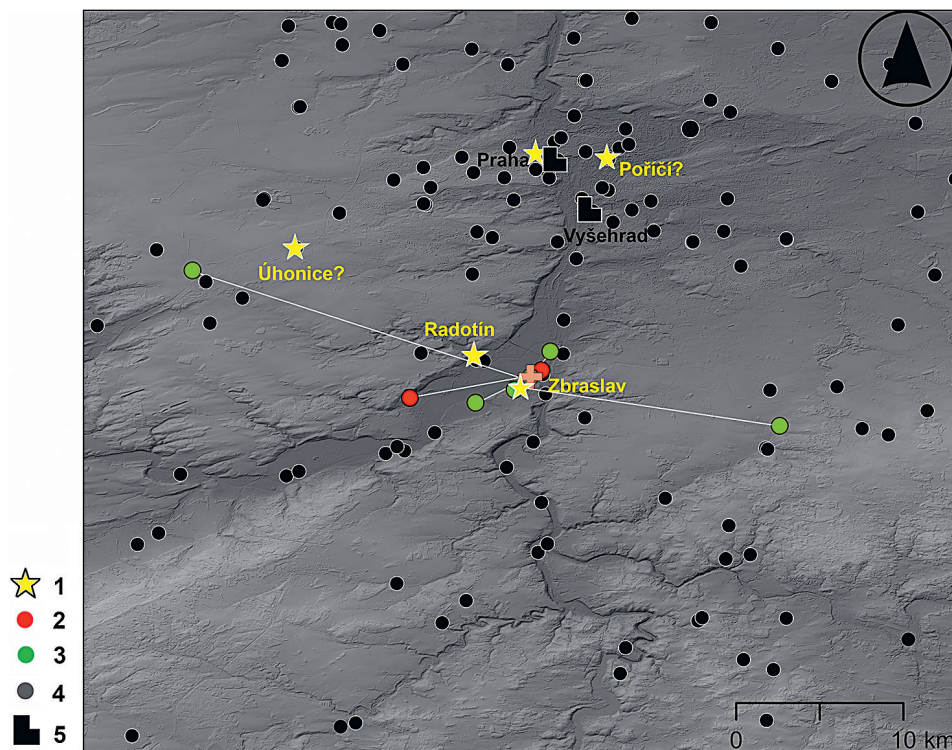


Fig. 3. Documented and potential ducal manors in the vicinity of the Prague agglomeration in written sources from the 11th and 12th centuries. 1 – manor; 2 – entire villages belonging to Zbraslav and the Church of St Gall; 3 – parts of villages or individual servants belonging to Zbraslav and the Church of St Gall; 4 – other settlements documented in written sources until around 1200 (graphics by D. Václavíková and I. Štefan).

have existed at the nearby Vyšehrad. A princely estate at Radotín (*curia mea Radotyn*) was about 12 km from Prague Castle (CDB I, no. 375, 348: *Friedrich 1904–1907*). Directly across the Vltava, the village of Zbraslav along with the nearby Church of St Gall were donated to the Kladrby monastery ‘with everything that belongs to it’. This record is followed by a list of several whole villages with fishermen and other dependants (CDB I, no. 390, 396–397; no. 405, 429: *Friedrich 1904–1907*). Evidently, this too was an additional manorial estate (*Petráček 2017*, 143). Both locations were situated on the banks of the Vltava River, which significantly reduced the transaction costs associated with transporting commodities to Prague. Other references are less explicit, yet they very likely point to a further autonomous economic centre at Poříčí, perhaps also at Rybník, from which the ruler granted Břevnov a tithe on agricultural production and a plot for the construction of barns and a mill (CDB I, no. 375, 348: *Friedrich 1904–1907*), as well as at Úhonice. Here, a detailed enumeration lists sixty-six men with no specified obligations and only a single female servant (CDB I, no. 156, 161: *Friedrich 1904–1907*). Further sizeable manorial estates were subsequently established on properties at the metropolitan fringe by ecclesiastical institutions and the secular elite (for an overview, see *Štefan 2024*, 89–94).

The available written sources for key castellany centres allow us to envisage zones of ducal property in their immediate vicinity. At the same time, however, they make clear that landholding even within these zones was far from uniform, and that the ‘hinterland’ cannot be reduced to a simple ring of settlements. The organisational backbone of the agrarian economy consisted above all of manorial estates (*curiae*), where production and renders were gathered, and which could operate both at the centres themselves and beyond them (see map *Škvřák – Janovská in press*, obr. 9). In the better-documented cases, the sources refer to their unfree personnel as well as to nearby settlements tied to these estates. The Prague evidence, in particular, suggests that princely agrarian provisioning extended to considerable distances from the metropolis and that its operation already required second-order nodes.

From a general perspective, it appears that the catchment area of agricultural manorial centres in the Early Middle Ages was around 8–10 km, i.e., a two-hour walk. Beyond this boundary, it was no longer possible to organise work directly, but this did not preclude the seasonal collection of surplus. Model 1 could therefore take the form of a local catchment area or a multi-level network. It would be appropriate to consider this question in the case of Great Moravia. In Central Bohemia, the network of fortified centres of the first Přemyslids was so dense that it was probably not necessary to add second-order centres (cf. *Fig. 4*). This became necessary after the complete restructuring of the entire system in the 11th century, when larger centres were abandoned in favour of the Prague agglomeration (*Štefan 2014*, 59ff.).

Model 2: Early medieval agglomerations as self-sufficient settlements oriented towards primary agricultural production

Before we delve deeper into the autarkic model, let us recall two well-attested analogies from economically more complex societies: even in Greek poleis and Roman towns, a substantial share of the inhabitants were farmers cultivating their own land outside the walls (*Hansen 2006*, 90–91; *Erdkamp 2015*, 185–186). Strong links to household cultivation and peri-urban land persisted in European towns of the High Middle Ages and the Early Modern period. The founding privileges regularly included large plots of land around towns (*Hoffmann 2009*, 134–135; *Isenmann 2014*, 672–676; *Klír 2020*). Can we, then, under the far simpler conditions of the Early Middle Ages, really assume a massive dependence of large segments of the population on food supplies from outside?

As far as the material evidence is concerned, a strong argument, in my view, is provided by the distribution map of fortified centres within the relatively small region of Central Bohemia in the early Přemyslid period (late 9th to 10th century). The mean distance between the principal centres was c. 10–15 km, which would imply an ‘ideal’ catchment for each of only about 20–40 km² (*Fig. 4*). If we accept a rough estimate of 22,000 inhabitants for Central Bohemia in this period and, for the ten largest centres (including Prague, which was certainly several times more populous), assume an average of 400 permanently resident inhabitants, we arrive at some 4,000 individuals living within fortified enclosures. This would amount to almost one fifth of the total population (see further *Štefan 2024*, 52).

For comparison, we may consider the sophisticated subsistence models developed for the La Tène oppidum of Staré Hradisko: at an estimated population of 800–1,500, it would

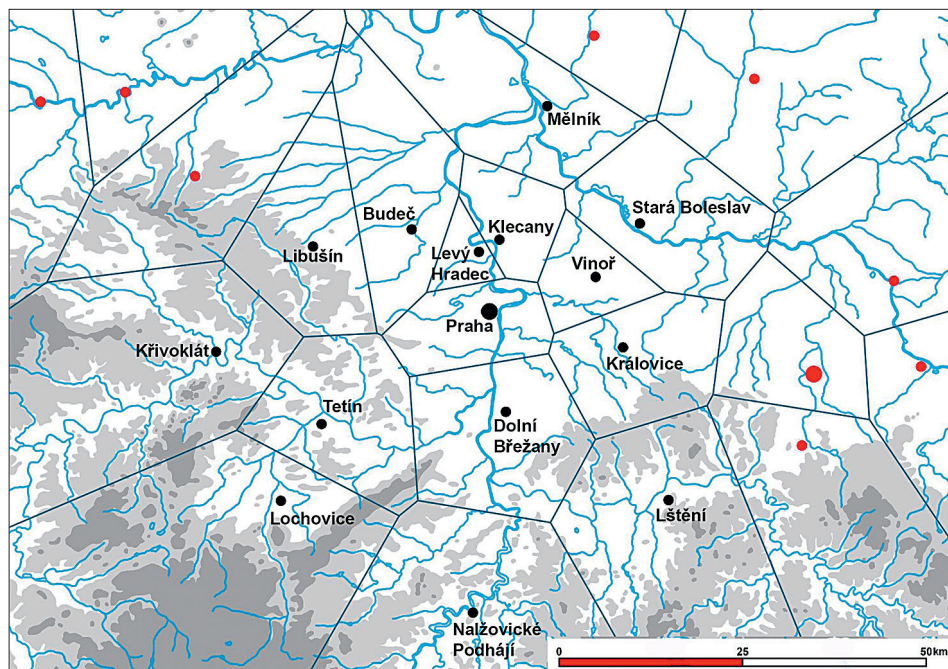


Fig. 4. Fortified centres founded c. 880–950 in the region around Prague with potential ‘hinterlands’ (graphics by I. Štefan and J. Hasil).

have required external provisioning for roughly 369–2,213 households, or 112–671 community settlements (*Danielisová – Hajnalová 2014*, 422). Therefore, a fully consumption-based model seems unlikely for the Central Bohemian centres, given the small size of ordinary rural settlements. On the contrary, all hillforts of the period under discussion had sufficient land in their immediate surroundings for their own potential economic production, without conflicting with the requirements of neighbouring rural communities (cf. *Neustupný 2024*, Fig. 3, 13–16). I thus lean towards the conclusion that at least part of the population of centres must have lived off their own production, cultivated on fields and pastures in the vicinity of the hillforts (similarly *Mařík 2009*; *Dresler 2016*).

In Central European historiography, the notion that elites and the administrative apparatus were fully dependent on the redistribution of ducal renders has deep roots and has become one of the cornerstones of the model of the so-called ‘Central European-type state’. Yet the corpus of written sources suggests that the ruler was not able, over the long term, to sustain even relatively small ecclesiastical communities from his revenues alone. Already at the moment of their founding, he routinely granted them, alongside a share in various dues, rents, and tolls, landed property together with the people settled upon it. These farmers (*rustici, aratores*), often at considerable distances from the seats of ecclesiastical institutions, constitute the largest category among the donated persons (*Kalhous 2018a*, Tab. 11).

If we set aside the hagiographic notice of a retainer Hněvsa possessing his own estate at Stará Boleslav in the 930s (*První staroslověnská legenda o sv. Václavu: Králík 1969*, 56), the silence of the sources is only broken by Cosmas’s story of the castellan of Bílina,

set in the 1060s, who built and furnished his own church in the suburbium beneath the stronghold that presupposes his access to private landed resources (*Cosmas, Chron. Boem. II, 19: Bretholz 1923*). At other castellany centres in Bohemia, we can identify further examples of proprietary churches founded by elites (*Klápště 2012, 46–58*). A crucial issue in this discussion, therefore, remains the interpretation of the term *beneficium*, which apparently referred to landed property attached to centres and granted in usufruct to their administrators (*Jan 2009; 2019*).

Macháček repeatedly invokes the example of Cosmas's Mstíš in attributing the social status of those buried around the turn of the 9th and 10th centuries inside the rotunda in the north-eastern outer bailey at Pohansko near Břeclav: '*This man was likely in possession of some landed property and real estates, possibly the curtis in the suburb, but certainly the church in which he was buried himself.*' (*Macháček et al. 2016, 212–216; Macháček 2019, 195*; to Great Moravian nobility see also *Antonín 2026*). Comparable churches in close association with centres are also known from the other most important Great Moravian sites, where they are likewise most often linked to the manorial estates (*curtis*) of early elites (*Galuška 2010; Poláček 2010; 2020*). If we accept this social interpretation, it is highly likely that the subsistence of a substantial part of the elite was secured through agrarian estates managed in their own right, worked by unfree members of their *familiae*. This again implies a variegated mosaic of holdings owned – or at least cultivated – by different communities. Unfortunately, written evidence only becomes more abundant in the course of the 12th century (*Klápště 2012, 46–58; Štefan 2024, 82–86*).

This solution, in turn, points towards a Western European manorial system, albeit one that existed in a range of regional variants (*Rösener 1989; Wickham 1995; Verhulst 2002, 31–60*). If the spatial distribution of private churches is taken as a primary proxy for 'nobilification' in Central Europe, the earliest evidence suggests that noble estates were concentrated above all in the vicinity of major centres. These zones may initially have marked localised enclaves of a new regime of property and rights, which only gradually extended into the wider landscape.

Model 3: Agglomerations as local markets with agricultural commodities

The role of markets and commercial ties in ancient and early medieval economies has been among the intensively debated questions of past decades (cf. *Smith 2004; Wickham 2005; Feinman – Garraty 2010; Skre 2016*). The issue was discussed in Central Europe for a long time without an adequate methodological framework. A major impulse came with Macháček's intervention, when he raised the question of the socio-economic complexity and political integration of Great Moravia. He concluded that Great Moravia did not meet the criteria of a state and was closer instead to an advanced (cyclical) chiefdom. His argument draws primarily on the neo-evolutionist framework associated with *Hodges (1982)*, inspired by the substantivist approach, which emphasised an 'embedded' economy and questioned the role of markets and commercial exchange in pre-industrial societies. One of Macháček's key arguments was the absence of coin circulation in Great Moravia's internal exchange; without it, he maintained, internal mobilisation would not have been possible. The cohesion of internal relations was instead to be provided by a gift-giving economy typical of chiefdoms (*Macháček 2012, 780–781; 2015, 468–473*). Under the influence of substantivism, I initially endorsed this view as well (*Štefan 2011*), but I later

revised it in favour of the existence of exchange in everyday products, which could have operated based on so-called commodity money. I proposed applying the concept of ‘separate spheres of exchange’, i.e. frameworks within which objects of comparable value and social prestige were exchanged through different mechanisms (Štefan 2014, 155–163). The debate was subsequently shaped in important ways by Hlavica and Procházka who – supported by a stronger theoretical background – also advocated a return of the market to the agenda. Their arguments draw above all on analyses of distribution patterns in pottery and axe-shaped bars, which they identify as non-monetary currencies (Hlavica – Procházka 2020; Hlavica et al. 2022).

Cross-cultural comparisons suggest that we would be hard pressed to find an agrarian society in which market exchange in everyday goods was entirely absent. Even modest forms of regional specialisation, or the concentration of particular skills, create the conditions for supply and demand (see the general literature cited above). I therefore think we no longer need to grapple with the binary dilemma of ‘market exchange – yes or no’. Rather, we should seek to reconstruct its significance and functional reach: whether it amounted merely to marginal barter in surpluses, or whether it constituted a regular channel carrying a more substantial share of provisioning for centres as well as ordinary households, and of the everyday flows between them.

In Moravia, the Raffelstetten toll tariff of 904–905 attests the existence of a stable market-place (or several such places), to which, among others, small-scale Bavarian salt traders, who were bringing a commodity not available locally, were expected to travel regularly along the Danube. A Moravian market is also mentioned in the less reliable Anonymous Arabic account (*Magnae Moraviae fontes historici* IV, 114–119: Havlík et al. 1971; Třeštlík 1973). In Bohemia, the existence of a major market in Prague, where agricultural commodities also circulated and payment was made in a local currency of small linen cloths, is famously described in Ibrāhīm ibn Ya‘qūb’s account from the 960s. The presence of markets at all major strongholds, presumably on a weekly rhythm, is further indicated by the various shares in tolls and market dues granted to ecclesiastical institutions in the 11th and 12th centuries. Markets and tolls, which until the 12th century remained under the ruler’s privileged control, evidently constituted a non-negligible source of income (Klír – Štefan 2025). Markets could be exploited in a straightforward manner even in non-monetised or only weakly monetised societies. An entry in the foundation charter of the abbey of Tihany in Hungary (1055), for instance, records that King Andrew I granted the abbey the market toll (*mercati tributum*) from Veszprém, paid partly ‘in cooking vessels, food, pails, and all ironmongery (tools)’ (Weisz 2018, 425). Comparable practices of collecting tolls in kind are also suggested by the Litoměřice toll tariff (e.g. ‘grnecne’: CDB I, no. 383, 363: Friedrich 1904–1907).

I believe that the absence of coin circulation cannot be used as an argument for the absence of market exchange as such. The interpretation of iron axe-shaped bars as local currency tokens of Great Moravia is now based on solid arguments (Hlavica et al. 2022). We can attribute the same role to the cloth scarves mentioned for 10th-century Prague by Ibrāhīm ibn Ya‘qūb’s account and Rani tribe in the early 12th century (Klír – Štefan 2025).

Archaeology has tended to assign exceptional indicative value to the distribution patterns of pottery when assessing the scale of exchange in everyday goods. I consider it highly plausible, both in Moravia and in Bohemia, that the distribution zones of distinctive regional vessel types corresponded to particular market circuits centred on the major

sites. Such circuits can be identified for the 9th and 10th centuries in both Moravia and Bohemia (Varadzin 2010; Hlavica – Procházka 2020, 79–81). Nevertheless, I agree with Macháček that the current corpus of evidence for identical marks on vessel bases, indicating production in the same workshop, remains too limited in Moravia to serve as a convincing basis for assessing the intensity of exchange between centres and the countryside (Macháček 2026, 117–118).

The distribution of salt must have been of exceptional, society-wide importance. In the context of a decentralised economy without real bureaucracy, it is difficult to envisage its transfer across the whole of society by mechanisms other than market exchange. Alongside salt, the main items exchanged between centres and rural communities were likely to have been everyday craft products requiring access to constrained raw-material sources or specialised technologies, yet carrying little in the way of overt social signalling. One might envisage a basic and indispensable set of iron tools, leather and textile products, quernstones, and perhaps also simple weapons and ornaments in copper alloys, as well as glass beads – items that form a routine component of inventories at rural cemeteries. Evidence for this range of productive activities is overwhelmingly concentrated at strongholds.

I suggest that the growth of a limited commercial sector was driven above all by the concentration of craftspeople at major centres, working either under dependent conditions or in freer arrangements to meet elite demand. Production beyond the renders or commissions owed to their patrons could then be exchanged on local markets for agricultural goods obtained from the surrounding rural population. I therefore see no need to posit a fundamental contradiction between a craftsperson's dependent status and their participation in market relations (for Bohemia Tomas 1983, 77–78; in general, Costin 2005, 1072).

Despite the undeniable existence of markets, I would argue that the written evidence for the complex material provisioning of ecclesiastical institutions in 11th- and early 12th-century Bohemia broadly supports Wickham's view that the Early Middle Ages were not a period in which exchange structures were sufficiently reliable to eliminate most existential risks and to abandon subsistence production organised on one's own account (Wickham 2005, 699). In terms of the overall degree of commercialisation, Great Moravia and Bohemia in the 10th to 12th century can most plausibly be placed within Smith's ideal category of '*economies with low commercialisation*', which '*have limited marketplace distribution of goods and services, but land and labour are not commodities. Government control of many sectors of the economy is strong, but typically a small independent commercial sector of merchants and marketplaces does exist. These economies are often of limited spatial scale*'. Such economies are typically characterised by solar and dendritic marketing systems (Smith 2004, 79).

The development of markets was a dynamic process shaped by a range of internal and external factors. One important stimulus was undoubtedly the gradual monetisation of taxation, which was arguably underway in Bohemia by the 11th century, whereas in Poland it is usually argued only in the 13th. It would have compelled regular participation in market exchange across social groups (Klápště 2012, 351–358; Guzowski 2021, 101).

The organisation and the provision of security for markets and merchants formed one of the important roles of the early medieval ruler (and potentially of other elites). For access to certain commodities, a functioning market was indispensable, yet markets also fulfilled significant social roles. The ruler's capacity to guarantee the market and to 'draw in' exchange from a wider region was undoubtedly a visible marker of prestige and reach.

When it comes, however, to provisioning the inhabitants of early medieval centres in the 9th and 10th centuries, I do not consider markets to have been the principal channel through which staple foodstuffs moved from producers to consumers on a regular and predictable basis.

Model 4: Long-distance transfer of commodities and taxes in kind

We should add one further option to the range of subsistence variants proposed by Macháček. Early medieval societies were evidently capable of organising the regular and reliable transport of staple commodities over long distances, despite high transport costs, even before the emergence of internally integrated states. *Naylor's (2016)* category of the subsistence hinterland extends this perspective into archaeological interpretation on a disconcertingly broad spatial scale – one that, inevitably, also bears directly on how we read palaeobotanical and archaeozoological evidence.

From the very outset of the Frankish expansion eastwards, the sources record the levying of tributes payable to the Frankish realm, which in aggregate must have constituted a non-negligible source of revenue. In the pre-monetary societies on the eastern periphery, these payments were typically rendered in livestock or horses (*Reuter 2006*, 231–250). According to Einhard, Charlemagne compelled not only the Czechs but also the Veleti, Sorbs, and Obodrites to pay tribute (*Einhard, Vita Karoli Magni*, 18; *Waitz 1911*). The chronicler Cosmas attributed the imposition of a traditional tribute, consisting of 120 selected oxen and 500 marks of silver, to Charlemagne's son Pippin (*Cosmas*, II: 8). The Moravians had committed themselves to regular tribute payments by no later than 874, in the peace concluded at Forchheim (*Annales Fuldenses*, 82–83; *Kurze 1891*). The collection of tributes from the Moravians – apparently in cattle – is also attested by the letter of Margrave Aribio (*Schwarzmaier 1972*). Such burdens were surely distributed across a number of regional units organised around local elites and hubs. Tribute in kind, as a material manifestation of subordination and loyalty, could moreover serve to materialise power relations among elites not only externally but also within a polity prior to its definitive unification (*Štefan 2026*, 150–157; for the early Anglo-Saxon kingdoms cf. *Yorke 1990*, 9–11, 81, 105). Livestock and agricultural produce could therefore circulate across regions to a significant extent even before the integration of those regions into larger political territories.

Even more complex organisation was required for the collection of the ecclesiastical tithe. In Central Europe, this was introduced, after the initial phase of conversion, already during the 10th century, at a time when the economy still operated almost entirely on staple finance. The issue has recently been analysed well by *Pauk (2024)*. A valuable document is, for instance, Otto I's charter recording the endowment of the newly founded bishopric of Meissen in recently annexed Slavic territory. Tribute (and thus the tithe) from five provinces was rendered in honey, animal furs, silver, slaves, clothing, pigs, and grain (*MGH Diplomatum regum*, no. 198: *Gesellschaft für ältere Deutsche Geschichtskunde 1879–1884*).

In Bohemia, the beginnings of the tithe after the foundation of the Prague bishopric in the 970s remain debated (*Kalhous 2016*). Reliable information is provided by the account of the tithe reform introduced by Bishop Ekkehard of Prague in 1017–1023 (*Cosmas, Chron. Boem.* II. 26; *Bretholz 1923*): ‘*This bishop established that, as a tithe, each person,*

whether powerful, rich, or poor, whether he possessed arable land from his benefice or his allod, would pay the bishop two measures of five palms and two fingers, one of wheat and the other of oats. Previously, as had been established by the first bishop, Thietmar, they gave two stacks (a hundred handfuls) of the harvest as a tithe’ (trans. Wolverton 2001, 104). For Poland, a key source is the charter for the archbishopric of Gniezno of 1136, which likely reflects earlier arrangements. It lists seventeen strongholds from which the metropolitan was entitled to a tenth share of the dues rendered by the population to the duke. Tithes were paid in grain, honey, iron, pigs, and marten and fox pelts. Comparable practices are, in any case, attested in other Slavic territories (further examples in Pauk 2024). Until the emergence of small parishes, tithe collection was evidently organised through the stronghold-based administrative system, by earmarking a portion of the dues owed by the free population.

Written sources of the 11th and 12th centuries allow us to trace complex transregional redistributive networks through which cattle, grain, honey, textiles, and slaves were moved, among other things. The principal fiscal institutions were strongholds, where a wide range of goods in kind was assembled from the surrounding provinces; these may be understood as an early form of taxation levied on the free population. The granaries, stables, and storehouses of the central manorial estates must in any case have possessed extraordinary capacity, yet none of them has been excavated to date.

A key junction of these networks within the Bohemian principality was the economic court situated somewhere in the vicinity of Prague Castle, which the Vyšehrad forgery refers to as a *curia* (CDB I, no. 393, 405; Friedrich 1904–1907). It was headed by a steward (*villicus*), who thus occupied one of the most crucial economic posts in the Přemyslid polity. Under his authority served specialised officials, including the cellarer, the master of horse, and a woman referred to as an *avia*, responsible for organising the production and distribution of clothing and textiles. From the 11th century onwards, the Prague ‘central office’ received both in-kind revenues collected in the provinces and monetary dues and tolls – that is, a combination of staple and wealth finance. The creation of this institution may, however, have had deeper roots, perhaps building upon older practices of collecting tribute from territories that were then only loosely controlled.

The Vyšehrad Chapter, for example, was to receive annually from the Prague *villicus*, among other items, ten sheep delivered as far away as the Netolice (115 km) and Doudleby (130 km). The chapter was also granted the tenth denarius from market fees, the tenth sheaf of grain, and the tenth bull from the province of Dřevíč (45 km), and, in addition, from the collector of pigs the tenth sack of salt. The canons further received a shepherd with eight shares of land, together with a hundred sheep and six cows at Čachovice (45 km), a herd of mares at Ouholice (27 km), and a vineyard at Žitenice (58 km) (CDB I, no. 111, 111–115; Friedrich 1904–1907). A real logistical challenge must have been the annual transfer of 16 oxen from distant Moravian castles, which were to be used ‘to restore the chapter’s farmland’ in Stará Boleslav (CDB I, no. 382, 361; Friedrich 1904–1907; cf. Fig. 1).

Foodstuffs and livestock did not necessarily have to pass through the Prague ‘central office’. The chapter at Stará Boleslav, for instance, received the tenth sheaf of grain and a tenth share ‘of all animals, small and large, that are raised there, from all fields belonging to the strongholds of Žatec [80 km] and [Mladá] Boleslav [28 km]’ (CDB I, no. 382, 361; Friedrich 1904–1907). Alongside such arrangements, ecclesiastical institutions were

also routinely granted only small fragments of the settlement network, often at distances of many tens of kilometres. Sometimes these were entire villages, at other times merely individual dependent servants residing at them. How such dispersed fragments of domains were administered, and how effectively they could be exploited economically, remains entirely unclear. In any case, the Prague centre (and through it the endowed ecclesiastical institutions) obtained agricultural produce quite routinely from very distant areas, even though transport costs must have been extremely high. One advantage of such arrangements was the dispersal of risk within an inherently vulnerable early medieval agrarian system. This dispersed pattern of holdings was also common in Western Europe (e.g. *Meier 2009*).

How far back did the roots of the levy known as the *tributum pacis* – a tax paid annually ‘per plough’ by the entire free population – extend in Bohemia remains unknown. By the early 12th century at the latest, it was reliably collected across all of Bohemia in the amount of twelve denarii (*Žemlička 1997*, 165). According to *Smetánka’s* (2010, 182) estimate, this sum was roughly equivalent to one sheep or twenty chickens. Whether Great Moravian rulers exercised territorially comprehensive control over their *regnum*, and were therefore capable of a similarly systematic fiscal extraction, also remains unclear. Drawing on *Třeštík’s* authoritative judgement, *Macháček* assumes that they did not (*Macháček 2015*, 476–477). It is nevertheless worth asking what, precisely, financed the operation of the Moravian bishopric during Methodius’s episcopate.

We also need to consider these issues in a broader perspective. If we accept that Great Moravian centres were capable of organising the large-scale transport of raw ore from distant mining areas (*Lebsak – Kapusta 2024*), or quarrying of building stone for the Pohansko fortifications in the Mikulčice hinterland (*Macháček et al. 2007*, 305), we cannot *a priori* rule out seasonal movements of durable foodstuffs over longer distances either, especially where transport costs were reduced by access to navigable rivers, on which all major hillforts were situated. These considerations further weaken any mechanical understanding of the economic hinterlands of early medieval centres as merely their immediate catchment region.

Conclusion: Provisioning as a strategic patchwork

There is no doubt that, unlike today’s scholars, the Early Middle Ages did not follow the blueprints of ideal production-consumption models. Contemporaries were forced to make fuzzy choices between different economic strategies. The limiting social framework for the functioning of long-term sustainable mechanisms for securing the elites was specific property relations, which were strongly conservative. Polanyi’s reduction of forms of exchange to three categories (reciprocity, redistribution, market) is so schematic that, without further elaboration, it proves to be an analytically unproductive tool (cf. *Feinman – Garraty 2010*, 45–47).

Even *Krzemieńska* and *Třeštík*, as one of the main proponents of the concept of a ‘Central European type of state’, faced the problem of identifying the parallel existence of several distinct modes of elite provisioning in 11th- and 12th-century written sources (cf. *Krzemieńska – Třeštík 1978*). All participants in the ongoing heated debate on the socio-economic matrix of early medieval states generally accept the parallel existence of various

forms of economic organisation, but they disagree on which mode of production was dominant in Central Europe and where to look for its origins. The important debate on strategies for supplying the Great Moravian agglomerations, opened by Macháček (2026), can thus be understood as a continuation of the Central European discussion, but conducted mainly on the basis of archaeological and paleoenvironmental evidence set within schemes adapted from economic theory and cultural anthropology.

I find a certain methodological contradiction in the fact that, on the one hand, Macháček acknowledges that ‘*various forms of distribution of material goods (market, redistribution, reciprocity) exist in parallel and are not mutually exclusive*’, but ultimately strongly advocates the existence of a single correct solution. According to him, this was the prevailing subsistence dependence of Great Moravian agglomerations on food supplies from the surpluses of surrounding agricultural communities. Denying the importance of market exchange and the predominance of redistributive mechanisms is an important argument for his vision of Great Moravia not as a state but as a complex chiefdom, following the simplified scheme of chiefdom equals redistribution, state equals market). The degree of commercialisation is, of course, an extremely important variable, but it was probably only indirectly related to the degree of social integration (cf. *Smith 2004*). Let us mention the economy of ancient Egypt, based on pervasive redistribution, and, conversely, the decentralised La Tène society in Central Europe with its developed monetary exchange.

We have shown that even pre-state societies were able to systematically extract agricultural surplus and transform it into political power. The supply of food to centres from nearby, more distant, and very distant agricultural settlements is an indisputable fact based on written sources from the 11th and 12th centuries. However, behind this stood a number of different socio-legal mechanisms that are difficult to distinguish archaeologically. Sources mention fixed taxes and levies from the free population in kind, but also the production of serfs on *curtes*. Some sources also indicate that food supplies from the countryside, mediated by kinship networks, may have played an important role for the underprivileged inhabitants of the centres.

In my opinion, it is very likely that a significant portion of the underprivileged population of the centres was involved in the direct production of food on the surrounding land. However, this was probably not some kind of spontaneous ‘hippie’ farming. The organisational hubs of agricultural activities seem to have been the manorial estates of the ruler and other elites. The work of the unfree servants of the *familia* was most likely also secured by the prestigious line of builders of the rotunda in the northeastern outer bailey of Pohansko near Břeclav. Nonetheless, I find the ‘revisionist’ shift towards complete autarky of the centres (*Dresler 2016*) problematic, as it is based on less convincing arguments and does not take into account the settlement patterns identified in the vicinity of nearby Great Moravian centres.

As far as trade on the market is concerned, I consider its existence in Great Moravia and Bohemia since at least the 10th century to be unequivocal. The question, however, is the degree of commercialisation of society, which could have undergone dramatic situational fluctuations (wars, crop failures). In the long-term perspective, it undoubtedly increased in Bohemia as a result of monetisation. Nevertheless, I do not regard marketplaces as having played a decisive role in provisioning major settlements before late 12th century. The basic reason is structural: the volume and regularity of consumption of basic foodstuffs by stable groups required a more reliable and better controllable mechanism than occasional

exchange. This view is supported by the complex structures of donations to church institutions in written sources from the 11th and 12th centuries from the monarch's property. Although the documents also mention market exchange, the main burden of supply was based on the extraction of surplus in kind. I believe that the market then functioned more as a supplement. It balanced out short-term fluctuations, enabled the exchange of surpluses, and provided necessary specific commodities and handicrafts. Strict control of craft production, especially for everyday products without a significant social signal by the elites, is, in my opinion, highly unlikely.

The impressive large-capacity grain silos discovered near Pohansko and Mikulčice were undoubtedly connected to the economy of these centres. However, it seems easy to fall into them (see various interpretations: *Curta 2009*, 36; *Dresler 2016*, 22–26; *Látková 2017*, 105; *Hladík 2020*, 295–296; *Macháček 2026*). I believe that archaeology and archaeological sciences should take all of the aforementioned variants of exchange into account when interpreting their data. Rather than seeking a single, definitive answer, it seems more productive to ask under which socio-economic conditions and at what scale particular forms of exchange could operate.

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