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*Welfare and demography in the time of Malthus.
Regional and local variations in poor relief and population developments
in Flanders, c. 1750-1810*

INTRODUCTION

As is well known, Robert Malthus forcefully argued that the impressive population growth recorded in England during the late eighteenth century owed much to the operation of the Old Poor Laws. In his view, the relative security offered by poor relief institutions to the English labouring poor, caused them to engage in marriage at an early age and to reproduce in high numbers. Labourers contracted marriage and reproduced irrespective of their available means. According to Malthus the traditional pattern of household formation and reproduction was therefore distorted by the Poor Laws.¹ The phenomenon of child allowances in particular – introduced on a large scale in some regions during the last decade of the eighteenth century – attracted Malthus’ attention. He found them to be “*a direct, constant and systematical encouragement to marriage by removing from each individual that heavy responsibility which he would incur by the laws of nature for bringing human beings into the world which he could not support*”.² The increased fertility resulting from social welfare would ultimately result in declining real wages and worsen the fate of the English labourer. In short, according to Malthus the operation of the poor laws was detrimental to the welfare of the English labouring classes in the longer run. Malthus’ viewpoints on the operation of poor relief in English society proved very influential. The arguments he set out in the many editions of his *Essay on the Principle of Population* contributed greatly to the creation of a sense of urgency to reform the English poor laws and ultimately also had an impact on the content of the New Poor Law enacted in 1834.³

Historical research into the claims of Malthus on the relationship between population and poor relief started already in the 1920s, but only really gained importance from the 1960s onwards. Daniel Blaug and James Huzel were sceptical about the positive effects of allowances on birth rates and population development. Both turned Malthus’ argument on its head: child allowances and other means to support the labouring household

¹ E.A. WRIGLEY, *The Preventive Check and the Poor Law: The Malthusian Model and Its Implications* in Thomas Robert Malthus. *An Essay on the Principle of Population. The 1803 Edition*, ed. S.C. STIMSON, New Haven-London 2018, pp. 516-533.

² J.P. HUZEL, *Malthus, the Poor Law and Population in Early Nineteenth-Century England*, in “Economic History Review”, 22, 1969, n. 3, pp. 430-452, 431.

³ A. DIGBY, *Malthus and the Reform of the Poor Law*, in *Malthus Past and Present*, J. DUPAQUIER, A. FAUVE-CHAMOUX eds., London 1983, pp. 157-169.

were a necessary response to the growing poverty of large parts of the English population caused by rising food prices and unemployment.⁴ This reversal of causality was in turn challenged by Boyer in his economic analysis of the operation of the poor law. In a more robust statistical analysis Boyer showed that the provision of child allowances in the early nineteenth century had a positive effect on birth rates in south-east England. He therefore concluded that Malthus was right and that the increase in birth rates was one of the major causes of English population growth during the first two decades of the nineteenth century.⁵ The micro-research of Samantha Williams on Bedfordshire rural communities between 1760 and 1834 resulted in a refutation of the argument of Boyer. Her analysis – at household level – indicates that child allowances were not the secure and structural source of income for labouring households that Malthus envisioned. Allowances were typically paid temporarily to young labouring families and did not constitute a structural source of assistance. Rather, child allowances were limited to large families and only during periods of high prices.⁶ The most recent contribution to the debate focused (for the first time) on the period before 1780. Kelly and O’Grada are sceptical about the claims of Malthus as they found no positive correlation between relief payments per capita in the 1770s and 1780s and population growth in the following decades.⁷

Depending on the unit of analysis used (household, parish or county), the period and the statistical technique, authors have reached sometimes radically different conclusions about the relationship between poor relief and population growth in England. Research on the complex relationship between fertility, population development and poor relief spending has been largely restricted to England in the eighteenth and early nineteenth centuries. In the historiography of continental Europe the topic has hardly received any attention. Although research on fertility and population development has flourished in continental Europe for many decades, its relationship with social spending or poor relief has not been researched into detail. One of the potential explanations for this lack of interest is perhaps the strongly embedded belief that welfare provisioning in rural Europe was too insecure and unstructured before the end of the nineteenth century to exert any real influence on patterns of household formation and fertility decisions among large parts of the population. For example, social spending or poor relief structures were completely absent from the debate between Franklin Mendels and Chris Vandenbroeke on

⁴ M. BLAUG, *The Myth of the Old Poor Law and the Making of the New*, in “Journal of Economic History”, 23, 1963, n. 2, pp. 151-184; M. BLAUG, *The Poor Law Reexamined*, in “Journal of Economic History”, 24, 1964, n. 2, pp. 229-245; J.P. HUZEL, *Malthus, the Poor Law and Population in Early Nineteenth-Century England*, in “Economic History Review”, 22, 1969, n. 1, pp. 430-452; IDEM, *The Demographic Impact of the Old Poor Law: More Reflections on Malthus*, in “Economic History Review”, 33, 1980, n. 3, pp. 367-381.

⁵ G.R. BOYER, *Malthus was Right After All: Poor Relief and Birth Rates in Southeastern England*, in “Journal of Political Economy”, 97, 1989, 1, pp. 93-114; IDEM, *An Economic History of the English Poor Law, 1750-1850*, Cambridge 1990.

⁶ S. WILLIAMS, *Malthus, Marriage and Poor Law Allowances Revisited: a Bedfordshire Case Study, 1770-1834*, in “Agricultural History Review”, 52, 2004, n. 1, pp. 56-82; S. WILLIAMS, *Poverty, Gender and Life-Cycle under the English Poor Law, 1760-1834*, Woodbridge 2011.

⁷ M. KELLY, C. O’GRADA, *The Poor Law of Old England: Institutional Innovation and Demographic Regimes*, in “Journal of Interdisciplinary History”, 41, 2011, n. 3, pp. 339-366. Recent work on the effects of the New Poor Law also reports no significant effects on fertility. See G. CLARK, M.E. PAGE, *Welfare reform, 1834: Did the New Poor Law in England Produce Significant Economic Gains?*, in “Cliometrica”, 13, 2019, n. 2, pp. 221-244.

the causes of population growth in Flanders during the eighteenth century.⁸ Although all Flemish communities disposed of permanent and – in some cases well-funded – relief structures at that time, the possibility that social spending could have exerted influence on the age at marriage, fertility or mortality, was not explored. The stereotyping of continental rural poor relief structures as underdeveloped and haphazard has however received increasing criticism in the past years as a number of authors have shown that poor relief in certain continental regions could bear many similarities with English practices.⁹ To what extent such relief structures and practices influenced population development is yet to be explored in detail.

This chapter is a first attempt to explore the possible connections and influences of poor relief on demographic behaviour in rural areas in the County of Flanders in the Southern Low Countries between c. 1750 and 1810. The territory of the County of Flanders corresponds more or less to the Lys and Scheldt departments of the French Empire (1795-1814) and the present-day Belgian provinces of West and East Flanders. Already one of the most densely populated regions in Europe, total population in Flanders increased by almost half between 1750 and 1800, especially in the countryside where proto-industry proliferated.¹⁰ According to the census of 1806, Flanders counted approximately 1.1 million inhabitants.¹¹

⁸ For a review of this debate, see I. DEVOS, *Marriage and Economic Conditions in Belgium since 1700*, in *Marriage and Rural Economy: Western Europe since 1400*, I. DEVOS, L. KENNEDY eds., Turnhout 1999, pp. 101-133.

⁹ T. LAMBRECHT, A. WINTER, *An Old Poor Law on the Continent? Agrarian Capitalism, Poor Taxes, and Village Conflict in Eighteenth-Century Coastal Flanders*, in “Economic History Review”, 71, 2018, n. 4, pp. 1173-119; A. WINTER, T. LAMBRECHT, *Migration, Poor Relief and Local Autonomy: Settlement Policies in England and the Southern Low Countries in the Eighteenth Century*, in “Past and Present”, 218, 2013, n. 1, pp. 91-126.

¹⁰ G. GYSSELS, L. VAN DER STRAETEN, *Bevolking, arbeid en tewerkstelling in West-Vlaanderen (1796-1815)*, Ghent 1986.

¹¹ S. VRIELINCK, *De territoriale indeling van België (1795-1963): bestuurs-geografisch en statistisch repertorium van de gemeenten en de supra-communale eenheden (administratief en gerechtelijk)*, Leuven 2000.

Fig. 1. Soil types in Flanders



Source: Cartography by UGent Quetelet Center.

The case of Flanders at the end of the *ancien regime* is an extremely relevant case study for several reasons. First, Flanders was characterized by highly diversified regional economies (so-called social agro-systems), defined by distinct soil typologies (Figure 1) with distinct agrarian structures and socio-demographic patterns as a result.¹² The coastal polder area to the north and west of the city of Bruges, with fertile soil composed of marine clays, was a rich agricultural area made up of commercially-oriented farms with large holdings. During the early modern period, big farms crowded out smaller ones, resulting in a strongly polarized society comprised of large landowners and a growing class of laborers. In contrast, inland Flanders to the south had lighter, sandy soils of lesser quality and was home to smallholders and peasant households. Subsistence farming was complemented there by additional income from proto-industry, mainly linen manufacturing.¹³

¹² For an overview of the literature, see E. DEPAUW, *Tall Farmers and Tiny Weavers. Rural Living Standards and Heights in Flanders, 1830-1870*, in "Tijdschrift voor Economische en Sociale Geschiedenis/The Low Countries Journal of Social and Economic History", 14, 2017, n. 3, pp. 56-84.

¹³ E. THOEN, *A 'Commercial Survival Economy' in Evolution: The Flemish Countryside and the Transition to Capitalism (Middle Ages - 19th Century)*, in *Peasants into Farmers? The Transformation of Rural Economy and Society in the Low Countries (Middle Ages-19th Century) in Light of the Brenner Debate*, P. HOPPENBROUWER, J.L. VAN ZANDEN eds., Turnhout, 2001, pp. 102-157; W. VANDERPIJPEN, *De proto-industrialisatie in Vlaanderen. Een grote regionale diversiteit*, in *Arbeid in veehoud, Een huldeboek voor Jan Craeybeckx en Etienne Scholliers*, E. WITTE, J. HANNES eds., Brussels 1988, pp. 123-130.

Secondly, local poor relief was well developed throughout the territory, and local autonomy together with variation in distribution practices was high.¹⁴

Although there are no equivalents to the stark opinions voiced by Malthus, some contemporaries in the Southern Low Countries claimed to observe a relationship between social spending and population growth. The purported causality between population growth and poor relief did in this case not run via the age at marriage or fertility, but via migration. In particular, it was argued that richly endowed parishes attracted more migrants and therefore experienced more rapid population growth. Parishes that had amassed large donations were able to assist a larger part of the population and at higher levels. Such parishes allegedly attracted migrants in search of secure and liberal doles. For example, the French prefect of the Scheldt department (the later province of East-Flanders) stated in his observations on rural poor tables: “*On avoit remarqué dans les communes où ces tables des pauvres étoient plus riches, et, par conséquent, les secours plus abondans, que les pauvres familles s’empressoient d’aller s’y établir*”.¹⁵

The aim of this chapter is to explore some of the possible relationships between poor relief structures and population development at the parish/municipal level. Earlier analysis of poor relief structures and spending in rural Flanders around 1800 has revealed some marked regional differences. In terms of the level of spending, the funding of welfare and the distribution of these resources, individual rural communities display significant differences albeit within a clear regional context.¹⁶ In this chapter we aim to analyse to what extent these different regional welfare regimes are related to the different components of population growth (nuptiality, fertility, mortality and migration). We first report on the data, sources and methods used in the analysis. Next, we examine the spatial patterns in poor relief followed by a discussion of spatial patterns in population growth and its components. In the third section, we examine the relations between poor relief and population developments.

DATA AND SOURCES

For figures on poor relief and population developments in late eighteenth and early nineteenth-century Flanders, we rely on data collected in the STREAM project (*Spatiotemporal Research Infrastructure for Early Modern Brabant and Flanders*).¹⁷ STREAM systematically collects key data from a diversity of early modern sources at the local level (parishes, villages, towns) regarding territory, demography, agriculture, industry, trade and transport.

¹⁴ N. VAN DEN BROECK, T. LAMBRECHT, A. WINTER, *Preindustrial Welfare between Regional Economies and Local Regimes: Rural Poor Relief in Flanders around 1800*, in “Continuity and Change”, 33, 2018, n. 2, pp. 255-284.

¹⁵ P. DEPRez, *Mémoire Statistique du Département de l’Escaut par M. Faipoult*, Ghent 1805/1960, p. 65. Cf. A. DE SWAAN, in *Care of the State: Health Care, Education, and Welfare in Europe and the USA in the Modern Era*, Oxford 1988.

¹⁶ N. VAN DEN BROECK et al., *Preindustrial Welfare*.

¹⁷ STREAM systematically collects key data from a diversity of historical sources to provide a geographically comprehensive and long-run quantitative and spatial account of early modern society at the local level (parishes, villages, towns) regarding territory, transport, demography, agriculture, industry and trade, related to a tailored historical geographical information system (GIS) based on the well-known map of Count de Ferraris (1770-1778). See <http://www.streamproject.ugent.be/en>

The project also provides a tailored historical geographical information system, which enables us to map these data.¹⁸

Data on poor relief in the STREAM dataset were derived from an 1808 departmental survey in which the 549 municipalities of the Lys and Scheldt departments provided basic details on the total number of assisted poor and the main sources of revenue of the poor table, distinguishing between fixed revenue, taxes and miscellaneous income. As 1807 was a relatively ‘normal’ year in terms of harvests and food prices, the data can be considered representative for the situation in the late eighteenth and early nineteenth century. As the poor table accounts were subjected to yearly inspection from the departmental authorities, municipalities had little room to misrepresent their situation.¹⁹

Data on population growth in the County of Flanders during the second half of the eighteenth century were obtained via STREAM from two different sets of sources. First, the censuses carried out from the late 1740s to the mid-1770s by local and regional lay authorities in light of fiscal reforms have been collected for the rural districts (so-called *chatellenies* or *kasselrijen*) of Bruges (1748), Veurne (1759), Ieper (1765), Kortrijk (1765), Aalst (1765), Oudenaarde (1767) and Land van Waas (1774).²⁰ These censuses report the total number of inhabitants for the rural communities. The population data from these sources were compared with the numbers reported in the population census of 1806 in order to reconstruct average annual growth rates for the second half of the eighteenth century. For a number of regions (e.g. Oudburg) we were not able to calculate population developments between the mid-eighteenth and early nineteenth centuries, because no censuses are available.²¹ These cases have been excluded from our analysis. In total we were able to reconstruct population totals for 336 communities. Although this results in a map with large blind spots (see Figure 7), we feel confident that we have been able to collect a sufficient number of reliable population estimates that cover different economic regions within the county of Flanders. Annual growth rates have been calculated for all these parishes and were integrated into our database.

¹⁸ I. DEVOS, T. WIEDEMANN, R. DEMEY, S. VRIELINCK, T. LAMBRECHT, P. DE MAEYER, E. RANSON, M. VAN DEN BERGHE, G. PLETTINCK, A. WINTER, *STREAM. A Spatio-Temporal Research Infrastructure for Early Modern Flanders and Brabant: Sources, Data and Methods*, in “International Journal of Humanities and Arts Computing”, 12, 2018, n. 2, pp. 102-119.

¹⁹ See N. VAN DEN BROECK et al., *Preindustrial Welfare*, for an earlier exploration and more substantive discussion of this source.

²⁰ For Bruges (1748) see STATE ARCHIVES BRUGES, Bundels Brugse Vrije, nos. 791-792; Veurne (1759) see G. DALLE, *De bevolking van Veurne-Ambacht in de 17de en de 18de eeuw*, Brussels 1963, pp. 219-223; for Ieper (1765) see CITY ARCHIVES IEPER, Kasselrijarchief (6de reeks), nos. 2887-2888; for Kortrijk (1765) see J. DE SMET, *De toestand van de Kastelrij Kortrijk in 1765*, in “Handelingen van de Geschied- en Oudheidkundige Kring van Kortrijk”, 8, 1929, pp. 103-107; for Aalst, see BELGIAN STATE ARCHIVES, Jointe voor Besturen en Subsidiezaken, n. 604, *Tablelle contenant l'état de population de chaque village* (ca. 1765) (J.B. De Patin); for Oudenaarde (1766), STATE ARCHIVES GHENT, Kasselrij Oudenaarde, n. 584; For Land van Waas (1774), see ARCHIVES OF THE KONINKLIJKE OUDHEIDKUNDIGE KRING VAN HET LAND VAN WAAS, Manuscript A19, *Generale lyste der inwoonders, grootte van de prochiën van den Land van Waas, opgenomen ingevolge den circulairen brief van d'heeren van het hoofdcollégie van selven Land*, in dato 10 july 1774.

²¹ For some parishes population numbers can be obtained from religious censuses. However, as these religious censuses only report the number of *communicants* per parish (that is the number of parishioners expected to attend communion around Easter) and we have to adopt a standard conversion factor to calculate total population, we did not include these data in our analysis.

For the compilation of the components of population growth (mortality and fertility), annual data on births and deaths were collected from vital registration for 1806, 1807 and 1808, the years surrounding the poor relief survey. For two areas (Land van Waas and Meetjesland) the data collection is still ongoing, and as a result could not be included in the analysis of the population components.

For figures on population and occupational structure, we could rely on data from the 1796 census available in the STREAM dataset. During the early 1980s a great body of work was carried out at Ghent University, when all traceable nominal lists of the census were collected and subjected to the same aggregation to calculate a series of demographic and socio-economic figures for each municipality, including age and occupational structures, Coale's fertility indicators and the proportion of non-native residents. The latter is particularly useful as annual data on the number of immigrations and emigrations are available only from the middle of the nineteenth century onwards. The aggregate results by municipality were assembled by Jos De Belder et al. in the 1980s and recently entered in the STREAM database.²²

After discarding 34 parishes with more than 5,000 inhabitants in 1806 from the analysis in order to limit our analysis to *rural* relief practices, and restricting the dataset to parishes for which data on poor relief, population growth and its components were available, data on more than 300 parishes were available for further analysis. Geographical and statistical bivariate analyses were used to examine the data.

SPATIAL PATTERNS OF POOR RELIEF

The spatial patterns of poor relief practices as evinced from the 1808 survey have been the subject of an earlier study.²³ The local and regional differences that could be observed in poor relief spending are the result of the autonomy of local communities. The accounts and budgets of poor relief institutions were subject to state control and inspection, but as long as no financial mismanagement occurred, rural communities could manage their own welfare resources. Each municipality disposed of resources that belonged to the Ancien Régime poor tables, but were managed by new local relief institutions called '*bureaux de mendicité*' from 1796 onwards. These resources were mainly generated from rental income of landed properties and financial investments and made up the bulk of poor relief income. However, when these patrimonial resources were insufficient to meet the needs of the local poor, the *bureau de mendicité* could receive additional financial support from the municipality. This local autonomy also extended to distribution practices. Local overseers were appointed by the municipality to distribute aid to the poor. The duration, frequency, level and nature of relief was left to the discretion of these local overseers. In contrast to some English regions, for example, there was no official system

²² J. DE BELDER, C. GYSSELS, L. JASPERS, C. VANDENBROEKE, *Arbeid en tewerkstelling in Oost-Vlaanderen op het einde van het Ancien Regime: een socio-professionele en demografische analyse. Werkdocumenten*, Ghent 1983; J. DE BELDER, C. GYSSELS, L. JASPERS, C. VANDENBROEKE, *Arbeid en tewerkstelling in West-Vlaanderen op het einde van het Ancien Regime: een socio-professionele en demografische analyse. Werkdocumenten*, Ghent 1984.

²³ N. VAN DEN BROECK et al., *Preindustrial Welfare*. See also T. LAMBRECHT, A. WINTER, *De vele gezichten van zorg: armoede en armenzorg op het platteland in het graafschap Vlaanderen tijdens de achttiende eeuw*, in "Tijd-Schrift", 7, 2017, n. 1, pp. 44-57.

of child allowances or scales that adjusted relief to changes in family composition. In Flanders, families and individuals only enjoyed a right to apply for relief in a community. Ultimately, local overseers of the poor decided who qualified for relief and determined how this relief was dispensed.

The 1808 survey evidenced that all but three parishes in the former County of Flanders disposed of a yearly income to finance poor relief expenses, to the equivalent of 1.35 francs per inhabitant on average, i.e. about $\frac{1}{4}$ of an agricultural labourer's weekly wage. The spatial variation behind this average proved to be very high (see Figure 2). The coastal parishes in particular recorded overall higher levels of income than inland parishes, which we could correlate positively with a range of proxies for agrarian capitalism: other things being equal, the presence of large farms and wage labourers (present mostly in the polder areas) in particular were associated with higher levels of poor relief expenditure than that of small farms and independent farmers (characteristic of the more inland areas).

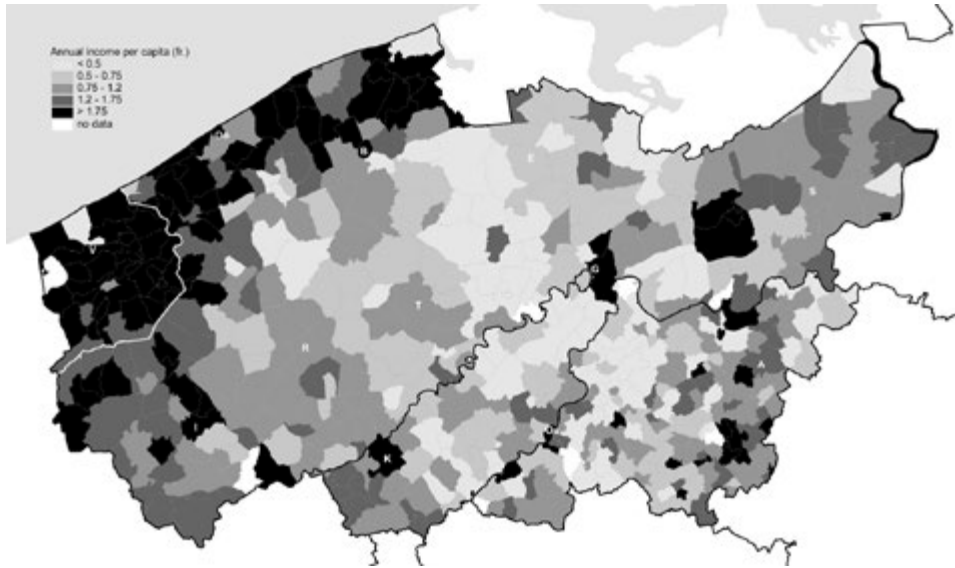
Yet, complicating this correlation was the role of coincidence in the historical accumulation of poor relief income. The most important source of income of local poor tables was fixed income derived from capital assets, that is: gifts and endowments received in the past. In practice, this meant that the presence of some exceptionally generous benefactors in the past could make all the difference between a relatively 'rich' and 'poor' relief table – so that there also was a random component in the spatial spread of income for poor relief. That this 'random' component however interacted differently in distinct local economic contexts, is evidenced by the fact that coastal parishes with low fixed income tended to top these up with municipal taxes, while this never happened in the most inland parishes in the east of the County. Moreover, overall distribution policies were more selective in the coastal than in the inland areas, in the sense that available resources were distributed among fewer relief recipients (see Figure 3). The end result of this spatial variation is that actual distribution levels to relief recipients diverged markedly: while relief per recipient in municipalities in the coastal district of Veurne averaged 57.30 fr. (median 41.85 fr.) on an annual basis, in the inland district of Oudenaarde this was only 9.94 fr. (median 6.93 fr.) (see Figure 4).

We interpreted these findings as corroborating our hypothesis that poor relief developed primarily as a response to the spread of agrarian capitalism and wage dependency. As proletarianization implied the erosion of independent sources of income, a growing number of people had no alternative means of support when unable to find or perform waged work, while the spread of wage labour also heightened employers' interests in regulating an adequate supply of labour. Hence, public poor relief expanded primarily in areas of high levels of proletarianization to provide selective relief to 'deserving poor', i.e. those considered unable and/or demonstrably willing to work.²⁴ In the less proletarianized areas of inland Flanders, there was less need for public relief provisions as a broader array of income pooling opportunities and more informal relief provisions were available

²⁴ Cf. C. LIS, H. SOLY, *Poverty and Capitalism in Pre-Industrial Europe*, Bristol, 1979; L. PATRIQUIN, *Agrarian Capitalism and Poor Relief in England, 1500-1860: Rethinking the Origins of the Welfare State*, Basingstoke, 2007.

in the local exchange economy, where the cultivation of small plots of lands could be combined with occasional rural wage labour and/or proto-industrial activities.²⁵

Fig. 2. Relief income per capita (francs), 1807



²⁵ E. VANHAUTE, T. LAMBRECHT, *Famine, exchange networks and the village community. A comparative analysis of the subsistence crises of the 1740s and the 1840s in Flanders*, in "Continuity and Change", 26, 2011, n. 2, pp. 155-186.

Fig. 3. Relief recipients (% of population), 1807

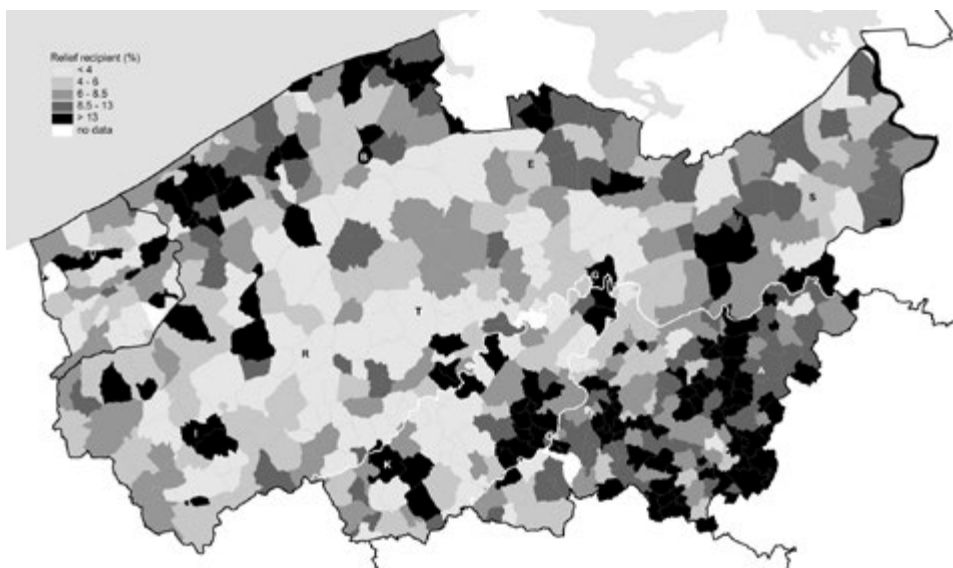
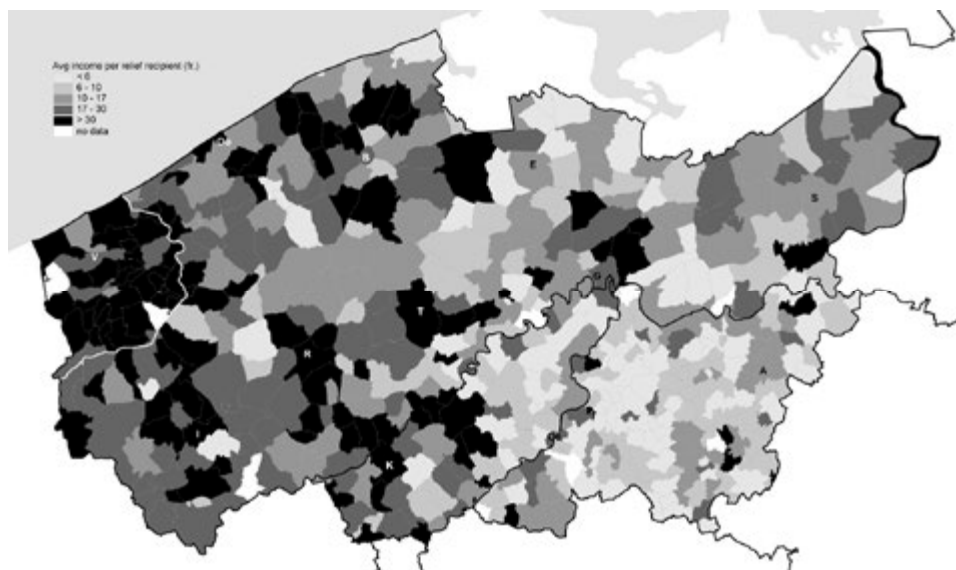


Fig. 4. Relief income per relief recipient (francs), 1807



SPATIAL PATTERNS OF POPULATION

Although we are well informed about population development in early modern Flanders,²⁶ its spatial distribution has not been the subject of close scrutiny. Flanders is known historically for its high degree of urbanization, but the majority of its population lived in the countryside. According to the census of 1806, about 70% of the population lived in a settlement with less than 5,000 inhabitants (see Table 1). About 44% of the villages had fewer than 1,000 inhabitants, but contained only about 13% of the population. These were mainly situated in the coastal and polder areas of Flanders. More than a third of the population was living in a village with 2,000-5,000 inhabitants (Figure 5).

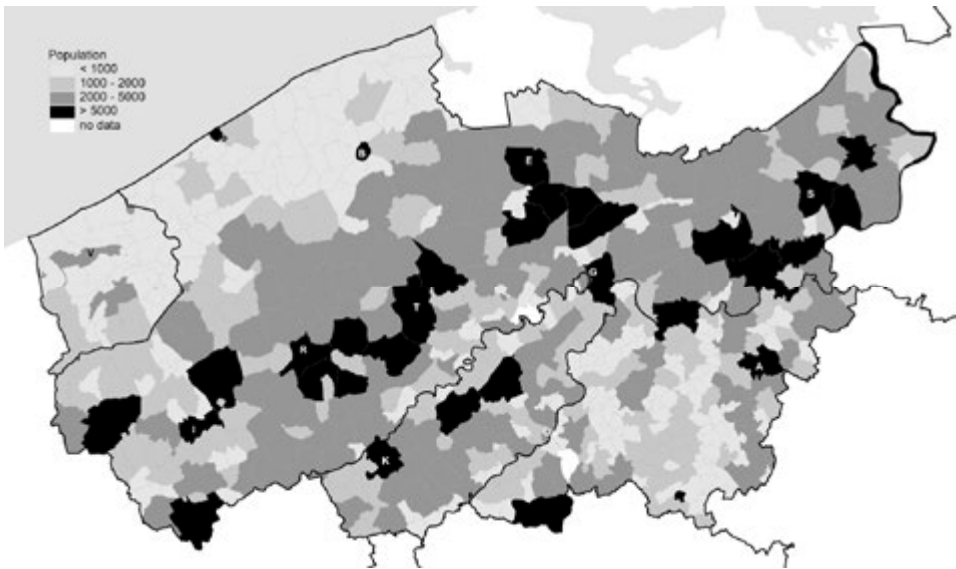
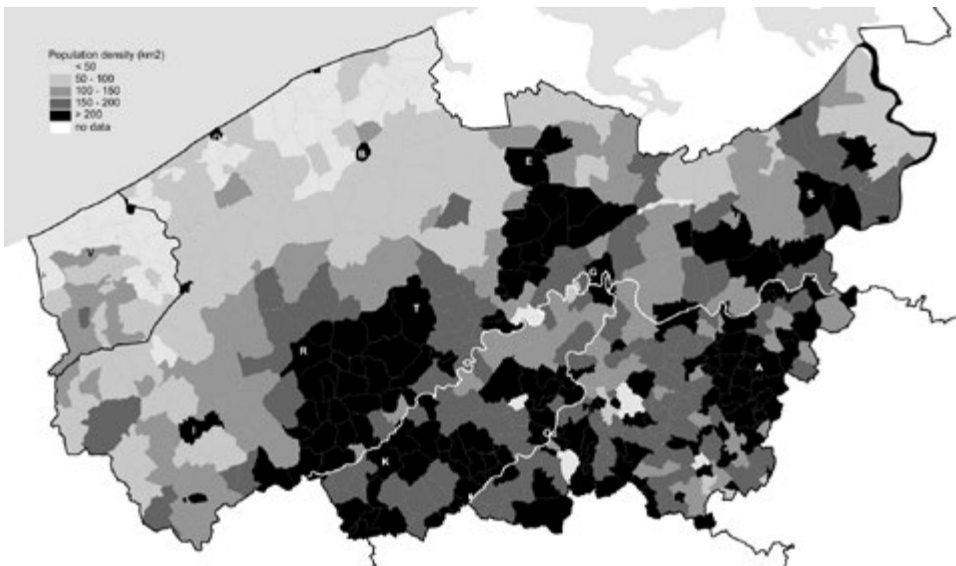
Tab. 1. **Population according to size of the municipality, 1806**

Municipalities	%	Population	%
< 1000	44	< 1000	13
1000-2000	26	1000-2000	20
2000-5000	24	2000-5000	37
5000+	6	5000+	31
Total	100		100

Flanders' population was not evenly spread across its territory. The average and median population density in 1806 was 154 and 173 inhabitants per km² (Table 2). Figure 6 with population density in 1806 confirms that the northern area, along the coast, was less populated (less than 50 inhabitants or roughly 10 households per km²) whereas the centre and the southeast, areas where proto-industry proliferated, were much more densely populated. In the areas around Kortrijk-Roeselare-Tielt and Oudenaarde-Aalst, population density reached an average of resp. 238 and 217 per km².

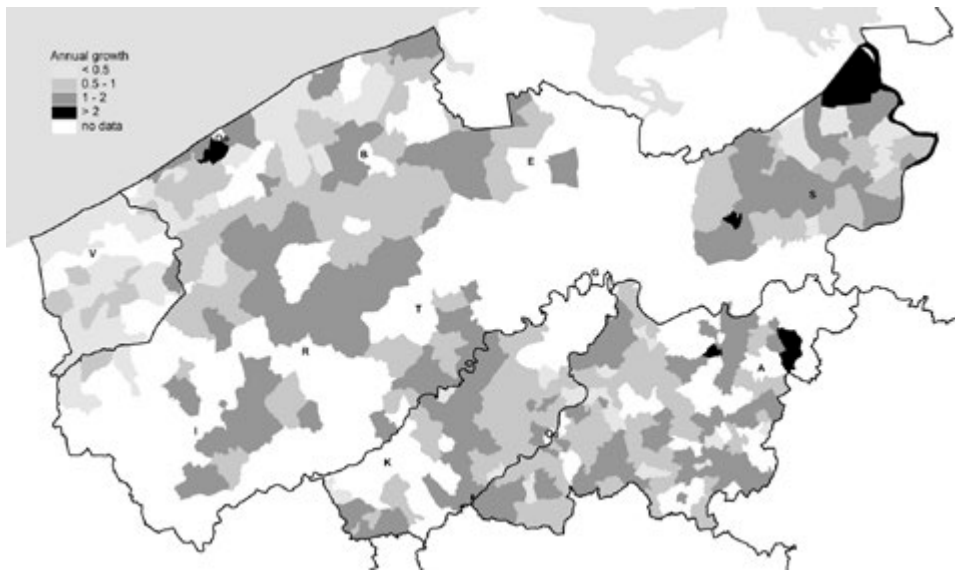
²⁶ C. VANDENBROEKE, *Bevolking, voeding en levensstandaard in het verleden. Verzamelde studies van Prof. dr. Chris Vandenbroeke*, I. DEVOS, T. LAMBRECHT eds., Ghent 2004.

Fig. 5. Population distribution, 1806

Fig. 6. Population density (per km²), 1806

Also in terms of population change, important spatial differences were notable. Comparing the population numbers of the 1806 census with those from the mid- and late eighteenth century, it appears that both the median and average annual growth rate in the second half of the eighteenth century was 0.93%, equivalent to a doubling period of 75 years (Table 2). These numbers are substantially higher than those for France but lower than in the English countryside.²⁷ Only 13 municipalities out of 327 recorded a negative growth rate, while at the top end 32 municipalities grew by more than 1.5% per year. The middle 50 percent of all parishes recorded average annual growth rates between 0.6% and 1.2%. The spatial distribution of growth rates shows a varied picture (see Figure 7), but the lowest levels of growth were clearly recorded in the coastal parishes. Still, interpretation is hampered by the fact that low or high levels of population growth could be the result of very distinct interactions of fertility, mortality and migration. Consequently, to truly test the validity of any Malthusian causality, direct correlations with nuptiality, fertility, mortality and migration should be part of the analysis, while additional checks should be developed to control for variations in local economic structure.

Fig. 7. Population growth (%), c.1750-1806



In an effort to disentangle the population dynamics, we examine the four demographic components, separately and combined, drawing on data from the STREAM project. We use crude death and birth rates (the number of deaths and births in the total population) from vital registration, together with Coale's standardized indices of fertility

²⁷ E.A. WRIGLEY, R.S. SCHOFIELD, *The Population History of England, 1541-1871: a Reconstruction*, London 1981, pp. 213-215.

and nuptiality, enabling us to control for age effects.²⁸ Table 2 presents the descriptive statistics for nuptiality, fertility, mortality, migration and population growth, together with a range of other interesting demographic variables for coastal and inland Flanders.

Tab. 2. Descriptive statistics of demographic indicators, 1750-1810

	Coastal Flanders					Inland Flanders					Flanders				
	Mean	Median	Std. Dev.	P(10)	P(90)	Mean	Median	Std. Dev.	P(10)	P(90)	Mean	Median	Std. Dev.	P(10)	P(90)
Crude death rate (‰)	38,0	36,6	8,1	29,1	50,1	32,8	32,6	5,5	27,0	39,2	34,3	33,7	6,8	27,3	41,8
Crude birth rate (‰)	43,1	41,4	9,4	33,5	55,3	36,0	36,0	5,9	29,5	42,6	38,0	37,3	7,7	29,8	47,0
Coale Im index	0,5	0,5	0,7	0,4	0,6	0,4	0,4	0,6	0,4	0,5	0,4	0,4	0,6	0,4	0,5
Migrants (% pop.)	48,7	50,0	17,7	23,3	68,7	28,3	25,4	14,0	11,1	50,7	34,8	31,9	18,0	12,0	60,2
Natural growth (‰)	5,0	5,1	3,6	0,0	8,6	3,1	3,2	3,0	-0,5	6,7	3,7	3,6	3,3	0,0	7,9
Annual growth rate (%)	0,70	0,67	0,51	0,10	1,32	1,03	0,98	0,65	0,45	1,56	0,93	0,93	0,63	0,26	1,49
Sex ratio (M/F)	108	108	12	94	120	107	106	11	96	120	107	106	12	96	120
Average household size	4,6	4,5	0,6	3,8	5,2	4,6	4,6	0,5	4,0	5,2	4,6	4,6	0,5	3,9	5,2
Married women aged 25-29 (% pop.)	2,3	2,2	0,8	1,3	3,4	1,8	1,8	0,5	1,1	2,5	1,9	1,9	0,7	1,2	2,7
Crude marriage rate (‰)	9,5	9,1	3,1	6,2	13,2	8,6	8,2	2,5	6,3	10,9	8,8	8,3	2,7	6,3	11,7
Coale Ig index	0,9	0,9	0,3	0,8	0,9	0,8	0,8	0,3	0,7	0,9	0,9	0,9	0,3	0,7	0,9
Population aged 80+ (% pop.)	0,3	0,3	0,3	0,0	0,7	0,7	0,6	0,3	0,3	1,1	0,6	0,5	0,4	0,1	1,1
Population density (per km ²)	118	67	302	31	136	193	174	148	98	268	174	154	202	55	261
Municipal surface (ha)	1348	1192	864	434	2337	969	760	755	276	1951	1067	851	801	309	2108

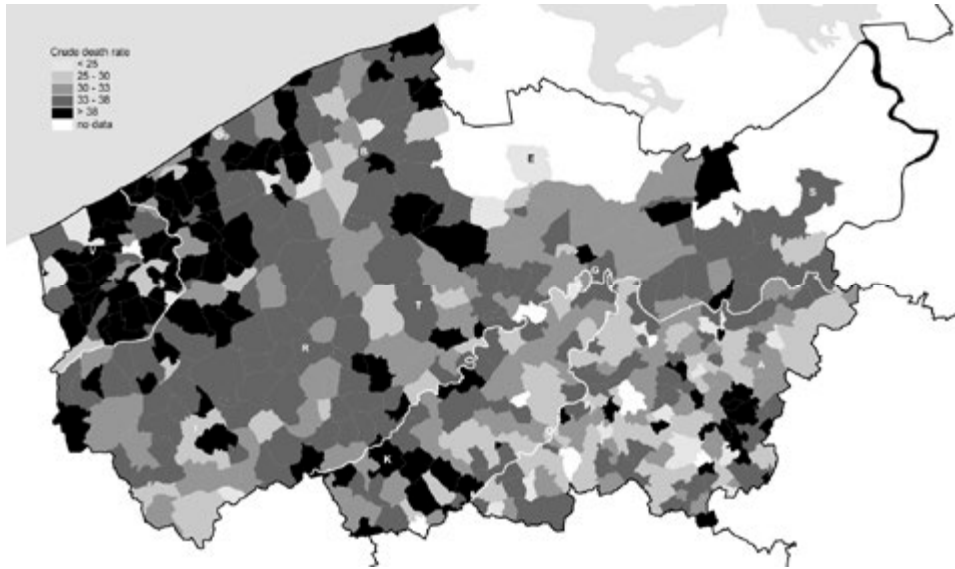
With an average municipal crude death rate of 34 per thousand, mortality in Flanders was high, yet comparable to other areas in Western Europe (Table 2). Exceptionally high figures, however, were to be found along the coastal area, especially to the western part, in the marshland polders around Veurne, where rates reached on average 40 per thousand (Figure 8). Research has pointed to three possible causes for this high mortality. Malaria, indigenous to the coastal marshes around the North Sea where the malaria mosquito could thrive, had a severe impact on death and disease in the area.²⁹ In addition,

²⁸ The I_m and I_g indexes were developed by the European Fertility Project during the 1980s to estimate the effect of marriage patterns on fertility. It uses the age-specific fertility rates of Hutterite women, a high fertility religious community, to compute the expected fertility of women at ages 20 through 49. Both indexes can take values from 0 to 1. I_g represents the ratio behind the legitimate fertility of the population studied and the maximum of the Hutterites. Values below 0.6 generally indicate a degree of voluntary fertility control. I_m is the ratio of the expected number of births to married women to those of the Hutterites. I_m is identified as an indicator of early marriage: values closer to 0 indicate late marriage, whereas those closer to 1 indicate early marriage. See A.J. COALE, C. WATKINS, *The Decline of Fertility in Europe*, Princeton 1986.

²⁹ I. DEVOS, *Malaria in Vlaanderen tijdens de 18de en 19de eeuw*, in *Orbis in Orbem. Liber Amicorum John Everaert*, J. PARMENTIER, S. SPANOGHE eds., Ghent 2001, pp. 197-233; O. KNOTTNERUS, *Malaria around the*

high mortality has been attributed to the poor quality and salinity of the drinking water and the shorter breastfeeding period for infants related to the outdoor activities of working mothers in the polders (field work), which both contributed to a strong increased risk for diarrheal diseases.³⁰ In inland Flanders where the cottage industry was prevalent, conditions were more favourable for prolonged breastfeeding and infant mortality was generally lower.³¹

Fig. 8. Crude death rate (%), 1806-1808

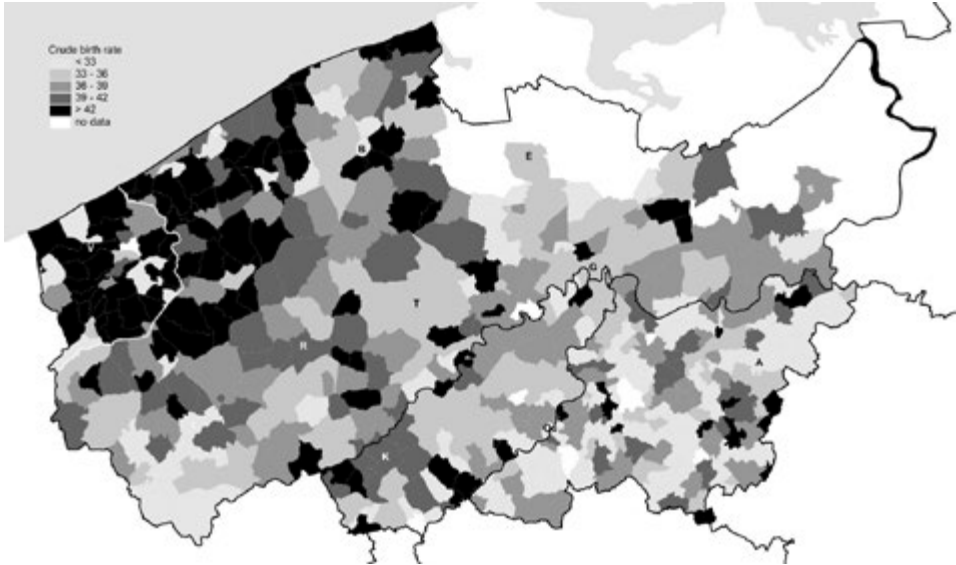


North Sea: a survey, in *Climate Development and History of the North Atlantic Realm*, G. WEFER, W. BERGER, K.-E. BEHRE, E. JANSEN eds., Berlin 2002, pp. 339-353.

³⁰ E.W. HOFSTEE, *Geboorten, zuigelingenvoeding en zuigelingensterfte in hun regionale verscheidenheid in de 19^{de} eeuw*, in "Bevolking en Gezin", 1983, supplement, pp. 7-60.

³¹ C. VANDENBROEKE, F. VAN POPPEL, A. VAN DER WOUDE, *De zuigelingen- en kindersterfte in België en Nederland in seculair perspectief*, in "Tijdschrift voor Geschiedenis", 94, 1981, pp. 461-491.

Fig. 9. Crude birth rate (%), 1806-1808



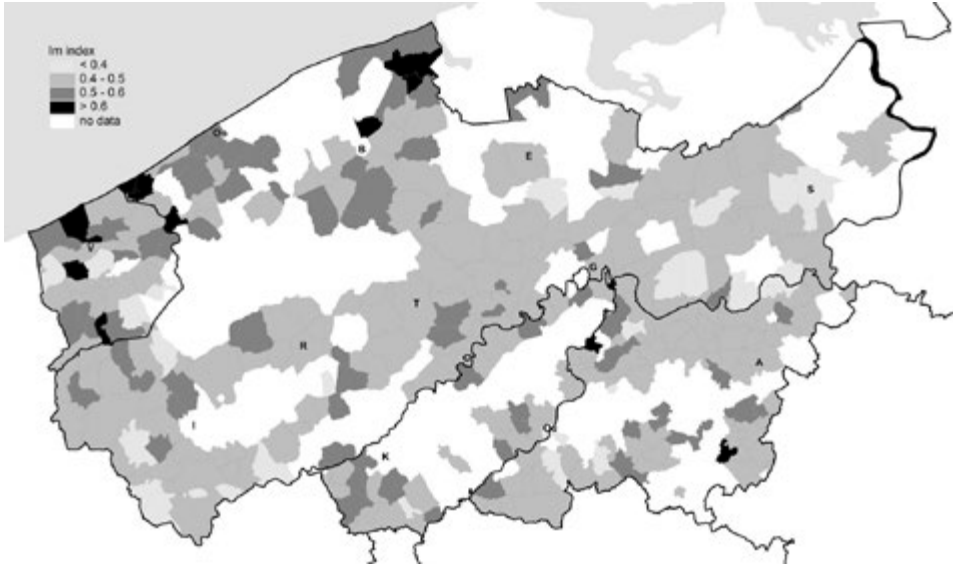
As high mortality is generally compensated by high fertility, it is not surprising to find a similar spatial pattern for fertility (Figure 9). Crude birth rates were on average 38 per thousand across Flanders. Again, the top figures (on average 45 per thousand) can be observed in the northwest, whereas the inland parishes in the southeastern quadrant of *Land van Aalst* mostly showed the lowest fertility (crude birth rate of ca. 35 per thousand).

Nuptiality is presented in Figure 10 by Coale's I_m index of nuptiality derived from the 1796 census. As the timing of marriage is a crucial determinant of fertility in the pre-industrial era, we prefer this indicator to the crude marriage rates which measure the intensity of marriage and not the timing. I_m values below 0.5 indicate that late marriage prevailed in Flanders, as was the case in most places in Western Europe. Clearly, fertility was restricted by late marriage across Flanders, but in some areas even later than others, and possibly also for different reasons (see below). Table 2 shows that the timing of marriage appeared somewhat earlier in the western half of Flanders, again particularly along the coast (see also Figure 10).

With regard to migration, it is unfortunately not possible to estimate migration flows, as there are no sources like the parish or civil registers in which migration is registered. The census of 1796, however, records for each person above age 12 whether he/she was born in the municipality or elsewhere. These data show that in the Flemish countryside approximately 35% of the population was a non-native resident (Table 2). In the top ten percent the proportion amounted to 60% and in some localities along the French and Dutch borders, the population was almost entirely composed of non-natives. Figure 11 shows that mobility was clearly higher in western Flanders compared to the east. Again,

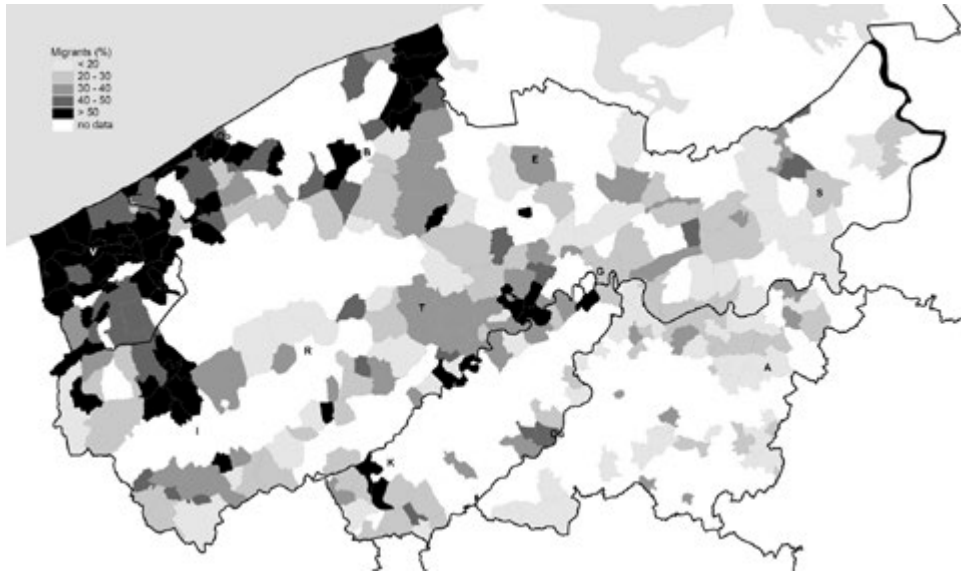
mobility appears much more pronounced in the Polders and suggests a strong relationship with the different regional economies and the so-called agro-systems (Figure 1).³²

Fig. 10. Coale I_m indice, 1796



³² Obviously, we have to take into account that small municipalities have a larger chance to have more non-natives, as its borders are more rapidly crossed. However, that does not appear to be the case for northern Flanders: the average surface of a municipality there was a third larger than in the inland (see Table 2). See for an exploration of migration dynamics on the basis of these data: N. DESCHACHT, A. WINTER, *Micro-Mobility in Flux: Municipal Migration Levels in the Provinces of Flanders and Antwerp, 1796-1846*, in "Journal of Migration History", 5, 2019, n. 1, pp. 1-30.

Fig. 11. Non-native residents (% of population), 1796



In any case, the spatial analyses for rural Flanders show that the Polder area clearly stands out in terms of high mortality, high fertility as well as high migration (Table 2). Its specificity can be easily described as a high pressure regime compared the rest of the Flanders. In order to probe deeper into the determinants of this marked spatial contrast, we examine whether these demographic regimes can be linked to the main variations in regional economies in Flanders. The census of 1796 provides us with a number of proxies for the municipal economic structure. Table 3 shows their correlations with the demographic components. Overall, the correlations in the table confirm the spatial patterns observed in the maps. Still, it is important to be extremely careful when interpreting the results, as correlation obviously does not necessarily imply causation.

First, we look at the dynamics between the different demographic components. As expected, death and birth rates were positively correlated: the coefficient indicates a very strong correlation. That is to say, the higher the mortality in the village, the higher its fertility. Since couples tended to compensate for the infant and child deaths they experienced, the correlation essentially measures a common phenomenon. Between fertility and nuptiality, the association is much less clear-cut. Correlation between Coale's indicators was negative, but not statistically significant. In early modern times, it was usually the case that where women married early, the number of children was large(\bar{r}). The lack of a strong negative relationship between marriage and fertility however does not necessarily mean the use of birth control. It is quite possibly the result of the influence of one or several other variables. For instance, high mobility – as we showed earlier – was a key feature of the demographic regime in Flanders, particularly in the coastal area, as well as its exceptionally high mortality. Hence, the positive correlations between migration, fertility and mortality in Table 3. Consequently, when controlling for migration and mortality, the

correlation between I_g and I_m increases to -0.198 ($p < 0.05$). However, when combining the four components by examining the correlations with annual population growth, correlations in the opposite direction appear. For instance, annual growth correlates negatively with crude birth rate and the proportion of migrants. This apparent contradiction, in which the trend of the aggregate is different from or even the opposite of the trend of its components, is not an uncommon phenomenon in data analysis (cf. Simpson's paradox). It is most often due to one or several confounding variables (or their interaction) and/or the different numerical size of the subpopulations (cf. the different weights of the municipal units). Our maps indeed suggest important local and regional variations in population growth and size, which are possibly the outcome of very distinct interactions between the different components. In the near future, we aim to probe deeper in what causes these results by using more complex multivariate models. Separating the data into smaller regional clusters is another way to deal with the issue.

Secondly, we examine the relations between the demographic components and the different regional economies in Flanders. These are measured here through the occupational structure of the municipality registered in the census of 1796. More specifically, the proportion of male and female textile workers are supposed to capture the proto-industrial economy of inland Flanders, whereas the proportion of servants and labourers are indicators of the predominance of waged labour in large-scale agriculture. Table 3 reveals that all the demographic components were positively associated with the indicators of agrarian capitalism, whereas they were negatively associated with proto-industry. Migration appears the most pronounced. The positive correlations between the percentage of migrants and those of servants and labourers reflect the fact that most servants were migrants and that large farms generally employed a large amount of labourers (often on a short term contract or in seasonal employment). Conversely, the negative correlations with textile workers correspond to the earlier observation that inland Flanders, where the cottage industry provided substantial labour opportunities at home, was characterized by much lower mobility.³³ Where a large group of textile workers was observed, we find also rather low values of I_m , as such corroborating Vandenbroeke's theory that proto-industry did not erase the preventive check. Likewise, the negative correlations with mortality and fertility reflect women's position in proto-industry. Work inside the home resulted generally in prolonged breastfeeding, longer birth intervals, and hence lower infant mortality and fertility. According to Vandenbroeke, protoindustrialization in inland Flanders affected population growth primarily by reducing out-migration to cities, rather than easing restrictions on marriage and fertility.³⁴

Overall, the exploratory spatial and descriptive analysis suggests a strong association between a high pressure demographic regime (with high mortality, high fertility and high migration), commercial capital-intensive agriculture and unhealthy marshland ecology in coastal Flanders on the one hand, and a more low pressure demographic regime (with *relatively* low fertility, low mortality, low migration and a more restrictive marriage pattern) in

³³ See also N. DESCHACHT, A. WINTER, *Micro-Mobility in Flux*, cit.

³⁴ C. VANDENBROEKE, *Le cas flamand: évolution sociale et comportements démographiques aux XVII^e-XIX^e siècles*, in "Annales Economies Sociétés Civilisations", 39, 1984, n. 5, pp. 915-938; G. ALTER, M. GUTMANN, *Belgian Historical Demography as Viewed from North America: Protoindustrialization, Fertility Decline, and the Use of Population Registers*, in "Belgisch Tijdschrift voor Nieuwste Geschiedenis", 35, 2005, n. 4, pp. 523-546.

inland Flanders, characterized by small-scale farming combined with industrial linen manufacturing on the other hand. Whether these demographic regimes were correlated with different poor relief distributions systems in Flanders, is the subject of the following section.

Tab. 3. Correlation coefficients between demographic estimates and proxies for local estimates

	Crude death rate	Crude birth rate	Coale Ig index	Coale Im index	Natural growth (‰)	Migrants (%)	Annual growth(%)
Crude death rate (‰)	1	,905**	,123*	,264**	0,071	,293**	-,269**
Crude birth rate (‰)	,905**	1	,132*	,282**	,488**	,306**	-,297**
Coale Ig index	,123*	,132*	1	-0,082	0,051	,127*	-,286**
Coale Im index	,264**	,282**	-0,082	1	,116*	,171**	-0,017
Natural growth rate (‰)	0,071	,488**	0,051	,116*	1	0,114	-,154**
Migrants (%)	,293**	,306**	,127*	,171**	0,114	1	-,334**
Annual growth (%)	-,269**	-,297**	-,286**	-0,017	-,154**	-,334**	1
Farmers (% of male HH)	-0,109	-0,077	0,041	-,132*	0,033	-0,098	-0,035
Labourers (% of male HH)	,208**	,206**	0,048	,250**	0,059	,291**	-,148*
Textile workers (% of male HH)	-0,109	-,119*	-,136*	-0,054	-0,052	-,258**	0,040
Other industries (% of male HH)	0,045	0,006	0,030	-0,008	-0,071	0,050	-0,107
Trade and transport (% of male HH)	0,052	-0,008	-0,084	-0,052	-0,113	-0,107	-0,052
White collar (% of male HH)	-0,071	-0,094	0,018	-,204**	-0,076	0,094	-0,127
Renteers (% of male HH)	0,112	0,044	0,014	-,154**	-,118*	0,027	-0,039
Textile workers (% of female population)	-,172**	-,204**	-,207**	-,152**	-,115*	-,311**	0,133
Servants (% of population)	,158**	,218**	,148*	-0,012	,181**	,593**	-,312**

** . Correlation is significant at the 0.01 level.

* . Correlation is significant at the 0.05 level.

RELATIONS BETWEEN POOR RELIEF AND POPULATION DEVELOPMENTS

If we look at how population growth and poor relief income per capita were correlated, the result is a negative correlation (Table 4). This correlation runs counter to the most crude interpretation of the Malthusian hypothesis, which would expect higher relief income to produce higher levels of population growth, by stimulating fertility and/or attracting migrants. Also the share of relief recipients in the population was correlated negatively with population change – although not significantly so. Lastly, also average income per relief recipient was negatively correlated with population change. All available indicators therefore point to a negative correlation between proxies for relief ‘generosity’ and population growth: overall relief income and average income per relief recipient were correlated negatively with population growth, as was the share of relief recipients. Notwithstanding issues of multicollinearity, when the variables are included in a multivariate regression model as independent variables, none of these appear significant. It is clear that in any case no crude Malthusian interpretation would hold here. If at all, the more active poor relief tables were, whether in terms of sums distributed or number of relief supported, the smaller the overall population increase observed in the second half of the eighteenth century.

It has been suggested that in pre-industrial societies, old age support was a prime motivation for child rearing. Impoverished aging parents relied on support from children.³⁵ Although poor relief supported many individuals in their old age, the care and costs for parents were largely carried by their offspring. Children served as their primary safety net.³⁶ Our sources do not provide data on the number of surviving (under aged) children in poor households, but they do permit to calculate the percentage of children below age 14 by municipality. Table 4 shows a positive correlation between the percentage of surviving offspring and the percentage of relief recipients, and a negative correlation with the amount of distributed poor relief which might reflect intergenerational assistance (in situations of inadequate or absent poor relief). Still, the correlations were very weak and not significant. Although old age support is a plausible element that may affect the level of fertility, it does not appear as a strong mechanism in our analysis.

³⁵ J.C. CALDWELL, *Toward a Restatement of Demographic Transition Theory*, in: “Population and Development Review”, 2, 1976, n. 3-4, pp. 321–366; M. BOLDRIN, L.E. JONES, *Mortality, Fertility, and Saving in a Malthusian Economy*, in: “Review of Economic Dynamics”, 5, 2002, n. 4, pp. 775–814.

³⁶ Evidence for England however suggests that impoverished aging parents did not rely on familial assistance. S. HINDLE, *On the Parish: The Micro-Politics of Poor Relief in Rural England c.1550-1750*, Oxford 2004; M. PELLING, R.M. SMITH, *Life, Death and the Elderly: Historical Perspectives*, London 1991.

Tab. 4. Correlations coefficients comparing poor relief and demographic estimates

	Crude death rate (‰)	Crude birth rate (‰)	Coale If index	Coale Im index	Migrants (%)	Natural growth rate (‰)	Annual population growth (%)	Children aged 0-14 (%)
Relief recipients(%)	,113*	0,08	0,02	,130*	-0,04	-0,05	-0,05	0,11
Relief income per capita (fr.)	,278**	,306**	,187**	0,04	,307**	,147**	-,200**	-0,05
Relief income per relief recipient (fr.)	,156**	,199**	,163**	-0,07	,348**	,145**	-,226**	-0,06

** . Correlation is significant at the 0.01 level.

* . Correlation is significant at the 0.05 level.

The observed correlations between population change and poor relief could of course also be produced by distinct interactions with the local economic structure, which – as we showed earlier – was significantly correlated with poor relief practices and population components. Direct correlations between population change and basic proxies for economic structure – on the basis of landholding and occupational distribution – were however weak.³⁷ There was no significant correlation with the most important variables pertaining to occupational structure (the proportion of farmers, labourers and textile workers respectively among male household heads in 1796).

However, the picture is very different again, when looking at the population components separately. The correlation tests for each component show positive and significant correlations with the main indicators of the levels of poor relief (Table 4). Fertility levels were correlated positively and significantly with relief income per inhabitant and income per relief recipient, while the correlation with the proportion of relief recipients was positive but not significant. Likewise, the proportion of migrants was correlated positively and significantly with relief income per inhabitant and income per relief recipient, while the correlation with the proportion of relief recipients was positive but not significant. Lastly, also the crude death rate showed positive and significant correlations, this time with the three indicators for poor relief: relief income per capita, proportion of relief recipients and income per relief recipient.

At first sight, the positive correlations between fertility and migration levels on the one hand and poor relief levels in the other hand, suggest a more positive verdict on the Malthusian hypothesis – although it is complicated by the correlation of high relief levels with high levels of mortality. However, at second sight, a more complex interplay of demographic and economic factors appears to have been at work here. Overall, the one-on-one correlations suggest an underlying connection between a high-pressure demographic regime – relatively high levels of fertility, mortality and migration – and more expansive relief provisions. Both high-pressure demographic regimes and relatively well-developed

³⁷ We ran correlations with the same proxies for local economic structure used in N. VAN DEN BROECK et al., *Preindustrial Welfare*, which were derived from the occupational data for male household heads from the 1796 population census collected via STREAM.

relief provisions, as we saw earlier, were present most outspoken in the coastal regions that were also characterized by the advance of agrarian capitalism, with high levels of landlessness and wage dependency. Hence, the seemingly positive correlation between the demographic components and relief provisions, might be the result of a mutual correlation with agrarian capitalism – and high levels of wage dependence in particular – rather than of any direct correlation, let alone causal relationship. To test for the interfering effect of proletarianization, we calculated partial correlations controlling for the proportion of servants in the total population – which can arguably be taken as an indicative proxy for the level of wage dependence. The ensuing results show that controlling for the proportion of servants substantially reduces the strength of the observed relationships between demographic components on the one hand and levels of poor relief on the other hand. The correlations between relief income per capita and the percentage of migrants drops to 0.191 ($p < 0.05$) and the crude birth rate to 0.265 ($p < 0.05$). Likewise, the correlations between income per relief recipient and the percentage of migrants declines to 0.219 whereas the relation with the birth rate becomes non-significant. Hence, a large part of the observed one-on-one correlations can be attributed to the effect of local labour relations.

While the partial correlations still leave room for a direct positive and significant correlation between levels of poor relief income on the one hand and levels of fertility and migration on the other hand, it is unlikely that this was the result of a direct causal connection at the individual level as envisaged in a crude Malthusian hypothesis. As our analysis is based on municipal cross-sectional data, a correlation at this level obviously does not imply that the same association applies at the individual level. In fact, ecological fallacy makes it difficult to draw conclusions about the individual behaviours that make up these patterns. Only micro research at the individual and household level can reveal to what extent the demographic behaviour of relief recipients was shaped by poor relief distribution practices.

CONCLUSIONS

The results in this chapter provide mixed support to the purported Malthusian causality between social spending and population growth. Whereas the components of population change, in particular migration and fertility, suggest an apparent positive relationship with poor relief, this was clearly not the case for population growth as such.

Still, population growth might in this case be misleading. First, the anachronistic nature of some of the data may have distorted our analysis. Whereas population growth – due to source issues – pertains to the years c. 1750-1806, the poor relief survey relates to the year 1807, the crude rates to 1806-1808 and the marriage and migration data to 1796. Second, correlations patterns found at the aggregate municipal level may reflect the size and weight of the municipal units rather than the underlying populations. Finally, population growth as an aggregate measure does not always convey the complicated structure of the underlying populations and the very distinct interactions between the different population components. At this point we have explored the relationships between poor relief and population involving two, or at the most three, variables simultaneously. In the future, we aim to analyse the population determinants in Flanders with more complex (clus-

ter and regression) models in order to examine the regional and local differences in more detail.

Indeed, our observation that levels of wage dependence – by the imperfect proxy of proportion of servants in total population – significantly reduced the strength of the observed correlations, suggests that any true understanding of interactions between demographic behaviour and poor relief provisions needs to be situated in and analysed in interaction with the local socio-economic context. Given that local socio-economic variation was in turn tied in with regional patterns associated with soil types (the so-called agro-systems), this suggests that the regional level – or at least clusters of municipalities – is probably the most relevant unit of analysis to study these interactions in depth. The maps presented in this chapter already demonstrated the importance of *spatial* patterns in all of the variables studied. While the coastal areas were characterized by capitalistic relations of production, high-pressure demographic regimes and well-developed relief provisions, the inland areas displayed lower levels of wage dependence, lower-pressure demographic regimes and less developed relief provisions. This indicates that a contextualised spatial approach that takes into account interactions between geography, ecology, production relations, demography and relief provisions at the local and regional level, is probably the best way forward to gain better insight into the complex causalities that tied these factors together.