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*Clé Lesger and Marco H. D. Van Leeuwen*

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## **Residential Segregation from the Sixteenth to the Nineteenth Century: Evidence from the**

**Netherlands** Spatial segregation of the rich from the poor has long attracted the attention of sociologists, geographers, and historians, as well as politicians and concerned citizens. In nineteenth-century England, people even spoke of the “Two Nations”—the spatial separation of the bourgeoisie and the lower classes into separate neighborhoods that made them complete strangers to one another. Today, the geographical concentration of the poor in certain urban neighbourhoods remains a source of concern. Segregated neighborhoods are believed to contribute to teenage pregnancy, absence from school, unemployment, and criminality. Scholars with an optimistic view, however, stress that segregated neighborhoods can foster ethnic cultural traditions and mutual support, and serve as a safe haven for minorities.<sup>1</sup>

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1 See David Ward, “Environns and Neighbours in the ‘Two Nations,’ Residential Differentiation in Mid-Nineteenth-Century Leeds,” *Journal of Historical Geography*, VI (1980), 133–162; Richard Dennis, *English Industrial Cities of the Nineteenth Century* (New York, 1984), 191–196, 214; Martin Gaskell, “Introduction,” in *idem* (ed.), *Slums* (Leicester, 1990), 1–16. For scholars with an optimistic view, see, for example, Frederick W. Boal, “Ethnic Residential Segregation,” in David T. Herbert and R. J. Johnston (eds.), *Social Areas in Cities* (London, 1976), 41–79; Gideon Bolt, Robert van Kempen, and Maarten van Ham, “Minority Ethnic Groups in the Dutch Housing Market: Spatial Segregation, Relocation Dynamics and Housing Policy,” *Urban Studies*, XLV (2008), 1359–1384; M. C. Deurloo and Sako Musterd, “Ethnic Clusters in Amsterdam, 1994–96: A Micro Area Analysis,” *ibid.*, XXV (1998), 385–396; K. M. Dunn, “Rethinking Ethnic Concentration: The Case of Cambamata, Sydney,” *ibid.*, XXXV (1998), 503–524; Wenda van der Laan Bouma-Doff, “Involuntary Isolation:

Whichever viewpoint prevails, neighborhoods are clearly more than the scenery against which social developments play out; they help to determine societal processes in the present day as they did in the past. Yet, despite the resurgence of historical research on residential segregation that geographical information systems (GIS) have stimulated, studies of patterns and processes of residential spatial segregation in the past are few and far between, probably because of the time-consuming nature of finding and processing the relevant information and the absence of land-register data and surveys before the nineteenth century. Our broad project on “Long-Term Residential Segregation” takes full account of the limitations of the early modern sources, aiming to develop an understanding of residential segregation from the sixteenth ultimately to the twentieth century. It uses evidence from the Netherlands—which even at the beginning of this period evinced relatively high levels of urbanization and a variety of small, medium-sized, and large cities—to answer the following questions: (1) Which sources permit a GIS study of residential segregation over the long term? (2) What exactly were the spatial patterns of residential segregation, and how did they change over the long haul? (3) What factors determined the spatial patterns of residential segregation, as well as the long-term changes that they underwent?<sup>2</sup>

Our datasets for Alkmaar and Delft in the years 1632, 1733, and 1832 provide a good start to answering these questions. In the future, detailed data may well become available for other cities, in-

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Ethnic Preferences and Residential Segregation,” *Journal of Urban Affairs*, XXIX (2007), 289–309; Douglas S. Massey and Nancy A. Denton, *American Apartheid: Segregation and the Making of the Underclass* (Cambridge, Mass., 1993); Musterd, *Ruimtelijke segregatie en sociale effecten* (Assen, 1996); *idem*, “Social and Ethnic Segregation in Europe: Levels, Causes, and Effects,” *Journal of Urban Studies*, XXVI (2005), 331–348; Chris Quispel, “‘Amerikaanse toestanden’ in Nederland? Het debat over de onderklasse-problematiek,” *Tijdschrift voor Sociale Geschiedenis*, XXII (1996), 327–347; Camille Z. Charles, “The Dynamics of Racial Residential Segregation,” *Annual Review of Sociology*, XXIX (2003) 167–207.

2 For historical GIS in general, see Onno Boonstra and Anton Schuurman (eds.), *Tijd en ruimte: Nieuwe toepassingen van GIS in de alfawetenschappen* (Utrecht, 2009) (and the literature cited therein); Ian N. Gregory, *A Place in History: A Guide to Using GIS in Historical Research* (Belfast, 2005); Anne K. Knowles, “Introduction: Historical GIS: The Spatial Turn in Social Science History,” *Social Science History*, XXIV (2000), 451–470; *idem*, “Emerging Trends in Historical GIS,” *Historical Geography*, XXXIII (2005), 7–13; for GIS-based historical studies of residential segregation, Jason A. Gilliland, “Modelling Residential Mobility in Montreal, 1860–1900,” *Historical Methods*, XXXI (1998), 27–42; *idem*, Sherry Olson, and Danielle Gavreau, “Did Segregation Increase as the City Expanded? Montreal, 1881–1901,” *Social Science History* (2011, forthcoming); Marlou Schrover and Jelle van Lottum, “Spatial Concentra-

cluding Amsterdam, and for other years. Although the material about Amsterdam at this point is less detailed and complete than that about Alkmaar and Delft, it nonetheless is robust enough to indicate whether our ideas are tenable for a large city that experienced rapid population growth and expansion.<sup>3</sup>

Despite the paucity of GIS-based studies of residential segregation for such a long period, certain studies of contemporary societies and even a few recent GIS studies for the nineteenth century prove to be helpful for present purposes. So do older empirical studies of patterns and determinants of residential segregation, mostly at the neighborhood level. This literature contains valuable empirical and theoretical information about residential segregation that still merits attention, even though GIS promises unprecedented analyses.<sup>4</sup>

RESIDENTIAL SEGREGATION: CLASSIC AND RECENT STUDIES This overview of residential segregation is based on studies of more than a dozen early modern European cities. All of these studies use a quantitative indicator of residential segregation and include maps. They differ greatly in sources, methods, periods, and focus. Most are mainly descriptive, providing occupational data, names of the recipients of poor relief, and tax records, including data about the rental value of houses. Sometimes sources relate to averages per district; at other times, they contain individual-level data as grouped by a particular researcher. Studies cover either an entire population or a single social group.<sup>5</sup>

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tions and Communities of Immigrants in the Netherlands, 1800–1900,” *Continuity and Change*, XXII (2007), 215–252.

3 Research on Belgian and British cities suggests a relationship between the growth and size of a city and its degree of segregation: Dominique Vanneste, *De pré-industriële Vlaamse stad: een sociaal-economische survey: Interne differentiatie te Gent en te Kortrijk op het einde van de 18e eeuw* (Leuven, 1987), 184; Colin G. Pooley, “Choice and Constraint in the Nineteenth-Century City: A Basis for Residential Differentiation,” in J. H. Johnson and *idem* (eds.), *The Structure of Nineteenth-Century Cities* (London, 1982), 199–234, 202. For background data regarding Alkmaar, see Willem van den Berg, van Leeuwen, and Lesger, “Residentiele segregatie in Hollandse steden: Theorie, methodologie en empirische bevindingen voor Alkmaar en Amsterdam, 16e–19e eeuw,” *Tijdschrift voor Sociale Geschiedenis*, XXIV (1998), 402–436; for Delft, Lesger, van Leeuwen, and George Buzing, “Residentiele segregatie in Delft: Een verkenning van ruimtelijke patronen in 1832,” in Boonstra and Schuurman (eds.), *Tijd en ruimte*, 52–61.

4 For helpful nineteenth-century studies, see Vanneste, *De pré-industriële Vlaamse stad*; Pooley, “Choice and Constraint.”

5 For early modern studies, see Elizabeth Baigent, “Assessed Taxes as Sources for the Study

*Britain* Seventeenth-century London contained three socio-economic elite quarters—one within the walled city near St. Paul's; one outside the city near Whitehall, the government center; and an intermediate quarter, the Strand, with expensive mansions near the Thames. The poor lived near the city walls or outside the walled city—for example, between St. Paul's and the Strand. Macro-segregation, the location of different social groups in different parts of town, was hardly the rule; meso-segregation—that is, “around the corner” segregation—was far more common. According to Jones, “streets of substantial houses often had lanes and alleyways of squalor immediately behind them. Lazarus was literally on Dives' doorstep.”<sup>6</sup>

The same pattern existed, more or less, before and after the Great Fire. The London socioeconomic elite preferred to live near St. Paul's Cathedral because it was the communications hub for social and political news, and it was close to the stock exchange. Whitehall attracted not only government officials but also artisans responding to the demand for luxury goods. Data about the upper quarter of population at the close of the eighteenth century also show the wealthy clustering in the inner city and near Westminster. The untaxed poor lived mostly in the northern and eastern periphery. In accord with “around the corner” segregation, the wealthy lived in the squares and on the avenues, and these

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of Urban Wealth: Bristol in the Later Eighteenth Century,” *Urban History Yearbook* (1988), 31–48; Emrys Jones, “London in the Early Seventeenth Century: An Ecological Approach,” *London Journal*, VI (1980), 123–133; John Langton, “Residential Patterns In Pre-Industrial Cities: Some Case Studies from Seventeenth-Century Britain,” *Transactions of the Institute of British Geographers*, LXV (1975) 1–27 (on Exeter, Dublin, and Newcastle); Leonard D. Schwarz, “Social Class and Social Geography: The Middle Classes in London at the End of the Eighteenth Century,” *Social History*, VII (1982) 167–185; Jean-Pierre Bardet, *Rouen aux XVIIe et XVIIIe siècles: Les mutations d'un espace social* (Paris, 1983), 2 v.; G. Désert, “Immigration et ségrégation à Caen,” in Maurice Garden and Yves Lequin (eds.), *Habiter la ville, xve–xxe siècle* (Lyon, 1984), 175–191; Pierre Deyon, *Amiens, capital provinciale: Etude sur la société urbaine au XVIIe siècle* (Paris, 1967); Garden, *Lyon et les Lyonnais au XVIIIe siècle* (Paris, 1970); Hugues Neveux, “Economische transformatie en sociale segregatie: Het voorbeeld van een Normandische stad: Caen in de 17e eeuw,” *Tijdschrift voor Geschiedenis*, XCIV (1981), 205–220; B. Bennassar, *Valladolid au siècle d'or: Une ville de Castile et sa campagne au XVIe siècle* (Paris, 1967); Linda Martz, *Poverty and Welfare in Habsburg Spain: The Example of Toledo* (New York, 1983); Etienne François, “Unterschichten und Armut in rheinischen Residenzstädten des 18. Jahrhunderts,” *Vierteljahrschrift für Sozial und Wirtschaftsgeschichte*, LXII (1975), 433–464 (on Koblenz); Johan Söderberg, Ulf Jonsson, and Christer Persson, *A Stagnating Metropolis: The Economy and Demography of Stockholm, 1750–1850* (New York, 1991).

6 Jones, “London in the Early Seventeenth Century,” 126.

“wealthy areas . . . generated their own poor hinterlands. The wealthy required servants, porters, cooks, and washwomen in abundance; their presence attracted retailers, craftsmen, prostitutes, writers, criminals and many others.” Hence, the wealthy were a minority in every district in London.<sup>7</sup>

Tax assessments for Exeter, Dublin, and Newcastle in the late seventeenth century show a similar pattern, but they also stress that the elite did not live in the center for only political and cultural reasons. Economic factors were influential, too: “A merchant clique was pre-eminent in wealth and municipal power. Its social dominance was expressed geographically in the existence of a mercantile quarter in that part of the city where its economic purposes were best served and where the institutions through which they dominated the city were located.” Tax data for the important harbor town of Bristol in the later eighteenth century show that the rich merchants lived in the town center, and the poorer Bristolians lived in the peripheral areas. All quarters, however, had some mix of rich and poor. By and large, this pattern had already begun to emerge two centuries earlier.<sup>8</sup>

*France* The Rouen data show that the wealthy businessmen lived mainly, but not exclusively, in the middle of town, near the harbor, in both the sixteenth and eighteenth centuries. The sixteenth-century poor inhabited each of the four quarters, but primarily the eastern district. Detailed data for the early eighteenth century confirm and expand this picture: merchants generally in the center (apart from the magistrates) and workers and artisans in the (predominantly eastern) periphery. Micro- or vertical segregation—that is, different social or ethnic groups living in the same house but on different floors—was absent in Rouen, due to small houses. Dangerous and malodorous activities were exiled to the outskirts, along with accompanying workers and artisans. But some degree of meso-segregation existed: “In the East, manufacturing oblige[d] the master linen weaver to live near the cotton workers, but even so, a fine line distinguishe[d] the producers, well housed in the principal streets, from the proletariat lodged in the inner courts and the small streets.”<sup>9</sup>

7 Schwarz, “Social Class and Social Geography,” 178.

8 Langton, “Residential Patterns,” 21; Baigent, “Assessed Taxes.”

9 Bardet, *Rouen*, I, 237–241 (quotation on 241 [our translation]); II, 57, 95–124.

In Amiens, during the first decades of the eighteenth century, the wealthy lived near the cathedral, especially in the southwest, and the paupers lived either in the western periphery near the walls or in districts north of the cathedral where much of the manufacturing occurred. Textile workers were located at the edges of town. Macro-segregation was clear: “The cartography of misery corresponds to that of the tax contributions . . . as does an [analogous] photo to its negative.”<sup>10</sup>

Residential data about Caen are available for two periods. First is a tax list from the mid-seventeenth century. Despite the fact that certain tax districts present a blurred picture because of their size, a measure of macro-segregation is apparent. Socioeconomic elites occupied the central area, together with the artisans who worked for them. Unskilled and textile workers lived in peripheral districts. Two centuries later—when Caen was not yet industrialized but was a regional center for trade and administration, as well as a place for well-to-do landowners to retire—its marriage and burial registers gave testimony to the same pattern. These records also show that the peripheral areas contained houses with the lowest rent and of the lowest quality, and that these areas suffered from the highest mortality rates. Interestingly, the data indicate that they had a lower proportion of migrants than the more central areas, since at that time, most migrants were white-collar and thus more privileged than ordinary working-class people from Caen.<sup>11</sup>

Lyon in the second half of the eighteenth century offers an interesting example of a city where new building activities gave opportunities to change long-standing residential patterns. Many new houses were built in the northwestern part of town, where rich merchants came to live and work. The old Lyonese nobility continued to live in another part of town altogether. Silk workers, whose occupation was apparently noisy, were exiled to the periphery, but, for the most part, the poor continued to live in the old houses. These dwellings were too small, and the streets too narrow, to attract rich merchants. According to Garden, the economics of new construction furthered macro-segregation; since

10 Deyon, *Amiens, capital provinciale*, 247–252, 484, 543, 566 (quotation on 358 [our translation]).

11 Neveux, “Economische transformatie en sociale segregatie”; Désert, “Immigration et ségregation à Caen.”

the financiers and architects envisioned new buildings in which substantial profits would be possible, they rented them only to those capable of paying the high rents.<sup>12</sup>

*Other European Cities* In sixteenth-century Toledo, districts with the most charity recipients were on the edge of town, and those with the wealthiest people, by number and proportion, were centrally located. No district, however, was devoid of either rich or poor inhabitants, and two of the poorest areas bordered two of the richest ones. Paupers in Valladolid, during the same period, lived predominantly in the periphery, too, as did those in Koblenz at the close of the eighteenth century. Tax data show that Stockholm displayed a similar pattern from the middle of that century to the end of it.<sup>13</sup>

Taken together, these studies permit a number of conclusions about the patterns of residential segregation and the forces that created them. On the macro-level of neighborhoods and districts, lower-income groups often occupied the peripheries of cities, whereas the well-to-do concentrated in the centers. But on the meso-level, the well-to-do settled into the main streets and squares, whereas middle-class and lower-income groups took the side- and backstreets. The cited studies do not provide much information about micro-segregation within the same house, but this type of segregation occurred only in densely populated cities that offered plentiful accommodation in the form of flats, or apartments.

A number of conditions were responsible for determining the patterns of residential segregation:

**Physical Environment.** Harbors were natural places for merchants who operated at long distances to live, and spas were highly attractive to the wealthy.

**Occupational Structure.** Malodorous tanneries and noisy textile industries usually ended up in remote sections of town, regardless of their resources.

**Access to Transportation.** Primitive means of transportation, which were costly, time consuming, and otherwise unpleasant, placed a premium on living near the workplace, though only

12 Garden, *Lyon et les Lyonnais*, 204–210, 690–701.

13 Martz, *Poverty and Welfare in Habsburg Spain*, 101–106, 134; Bennassar, *Valladolid au siècle d'or*, 439; François, “Unterschichten und Armut,” 439–441; Söderberg, Jonsson, and Persson, *Stagnating Metropolis*, 93–122.

a relatively small proportion of a city's inhabitants could afford to pay for this privilege.

**Social Distance.** The greater was the social distance between groups—as measured by wealth and ethnic status—whether real or perceived, the greater was the spatial distance between them.

**City Size and Building History.** Large cities presented ample opportunity for segregation. More significantly, segregation processes were “path-dependent.” A segregation pattern could persist even though the factors that shaped it had long since changed. Once mansions and slums had come into existence, personal resources thenceforth determined who would live in them. Not even the wealthy could change residential patterns easily. The financial or social costs of remodeling a group of houses or a whole quarter could be prohibitive. Territorial expansions and catastrophic fires that resulted in new construction, however, also created new possibilities for segregation—either via the real-estate market (prices or rental values of houses) or through planning (official stipulations about residential eligibility).

**Politics.** Sometimes socioeconomic elites or middle classes could influence decision makers about the development of new areas, and sometimes poorer groups could effectively oppose those plans.

*Sjoberg's Pre-Industrial City* These observations contain elements of Sjoberg's and Vance's interpretations of the sociospatial structure of pre-industrial cities. According to Sjoberg, in pre-industrial cities, “[a] small privileged upper class commands the key positions in the political, religious, and educational structures and exercises rather autocratic rule.” This elite class “sets the pace for the total society,” which includes the “bulk of the populace consist[ing] of the lower class and outcaste groups.” In Sjoberg's pre-industrial city, economic activities lacked prestige. Merchants, for example, had low social status because of “[their] preoccupation with money-making and other mundane pursuits that run counter to the religious-philosophical value system of the dominant group.”<sup>14</sup>

Sjoberg's understanding of social stratification is reflected in the clearly segmented physical layout of his pre-industrial city. All

14 Gideon Sjoberg, *The Pre-Industrial City, Past and Present* (New York, 1960), 11, 183.

of the important public functions and institutions, associated mainly with the religious and political-governmental activities of the elite, were concentrated within the center of town. Sometimes elements of the economic infrastructure, such as exchanges and market squares, were located there as well, but in a morphological respect, these structures are clearly subordinate to those with religious or political significance. The socioeconomic elite often established their homes there “to ensure ready access to the headquarters of the governmental, religious, and educational organisations,” as well as to transport facilities. Furthermore, these elite members were in far less danger from bombardment and military attack than were the outcast groups closest to the city walls or their abutters. According to Sjoberg, the broad zone between the center and the periphery contained clusters of residents that differed in ethnicity, profession, or religion, but otherwise shared the fact that they were not part of, or heir to the advantages of, the socio-economic elite.<sup>15</sup>

*Vance's Capitalist City* Vance's notions differ drastically from Sjoberg's. Sjoberg viewed industrialization in the nineteenth and twentieth centuries as the watershed between old and contemporary segregation patterns. Vance dated this watershed for Western Europe considerably earlier, in the sixteenth century, with the transition from precapitalist to capitalist societies and cities. He characterized the precapitalist city as a place dominated by the guilds where “order, proportion, and the maintenance of well-proven traditional practices were urban virtues.” Well-to-do merchants often occupied attractive locations bordering the market square, but in the rest of the town, location was the result of occupational accident rather than rent-paying ability.<sup>16</sup>

Vance claimed that the high levels of competition, the “appraisal of the rent-productivity of land[,] and . . . ranking of location in economic terms” within the capitalist city had important consequences. First, the city center increasingly became the domain of commercial parties, given its accessibility to the masses. Hence, merchants were willing to pay more to be located there.

15 *Ibid.*, 95–107. See also Langton, “Residential Patterns,” for a summary and a comparison with the ideas of James E. Vance, Jr.

16 Vance, “Land Assignment in the Pre-Capitalist, Capitalist and Post-Capitalist City,” *Economic Geography*, XLVII (1971), 101–120, 115–116 (quotation on 105). Vance does not cite Sjoberg. See also Langton, “Residential Patterns.”

Second, the locus of work became separated from the home. The propertied classes in the capitalist cities went to live in newly built residential zones in the periphery (a phenomenon incidentally similar to the one that Vance must have observed in the cities of the United States) where they could obtain large tracts of land that suited their living preferences better than old buildings could. The exodus of the rich eventually drew the middle and laboring classes to the vacuum in the center. The end result, according to Vance, was a pattern completely reversed from that sketched by Sjoberg, though both Vance and Sjoberg made a case for ethnic minorities having their own districts (like the Jewish quarter) within the city.<sup>17</sup>

The historical studies surveyed above do not support Vance's notion of an exodus of elites from the core to the periphery of early modern cities; nor is there evidence for a sixteenth-century watershed between precapitalist and capitalist cities. But Sjoberg's claims about the low status of economic activities in European cities are also untenable. Merchants could not only belong to the urban elite; they sometimes dominated it. Economic functions occupied more of the available space in the center than Sjoberg thought possible. Elites may well have left the center to escape from the daily economic grind and to build large residences in an expansive neighborhood at reasonable prices. They certainly did so in seventeenth-century Amsterdam. Although the weight of historical evidence suggests that Vance's theory is in need of revision, its central element—the pivotal role of location, with prices determined on a real estate market—has merit.

**THE PROBLEM OF SOURCES AND METHODS** Much of the vagueness and conflict in the theories regarding residential segregation could be rectified by long-term empirical study. The rarity of such empirical research is undoubtedly a consequence of its time-consuming nature, as well as the uncertainty about which sources to use and how to analyze them. Nonetheless, the factors that influenced the development of residential patterns clearly include the subjective preferences and objective characteristics of those looking for housing; the policies of government, banks, and real estate agents; and urban development in a particular city. Research of the recent past usually turns on such socioeconomic features as

17 Vance, "Land Assignment," 107, 111–113.

income, wealth, and occupation. This study, however, treats the rental value of a residence as an indicator of the socioeconomic position of the household. This is a matter of pragmatic choice rather than principle. In segregation studies, it is desirable to have all households—or at least a random sample of them—represented in the dataset since selective incompleteness can dramatically influence the outcome of a study. In the nineteenth century, sources with occupational information became available to fulfil this demand. For earlier periods, the source situation is much more limited.

Generally, historians have referred to sources of a fiscal origin. Since early modern governments usually had no insight into the income and actual wealth of their citizens, most taxes were based on external signs of wealth, including the residence rented or owned. Hence, a relatively large amount of information about rental prices is available for early periods. The nature of the taxation required that this information often be recorded topographically, which is a condition for segregation research. The reasons for using rental information to do so, however, have other merits as well. The choice of a specific residence represented both social and economic considerations. A residence demonstrated social status, either achieved or desired; members of a household presented themselves to the outside world through their residence. In addition, rent expressed an inhabitant's economic position—the price that he was able and prepared to pay for a specific location. But considerations of social status were not the sole determinants; in the case of shopkeepers, merchants, and many others, accessibility to production and trade within the urban grid was also important, as were subjective preferences. Hence, rental information is definitely a strong indicator of residential segregation based on social status and economic position, assuming that no redistribution mechanisms complicated the relationship between economic position and rent. The present-day Netherlands has individual rental subsidies; in the past, almshouses served a similar function, though they are outside the scope of the study. Apart from almshouses, Dutch rental prices were determined by the free market according to the laws of supply and demand, justifying their use in this study.<sup>18</sup>

Since the study of residential segregation is primarily about

18 For rental prices, see Lesger, *Huur en conjunctuur: De woningmarkt in Amsterdam, 1550–1850* (Amsterdam, 1986).

the spatial distribution of households according to specific characteristics, the location of householders' residences must be ascertained as precisely as possible. Since 1832, the land register has been the most useful tool for such matters in the Netherlands. The Land Registry administers a large number of registers and maps, of which two are of special importance for this study—the *Oorspronkelijke Aanwijzende Tafels* (OAT) and the *Minuutplans*, both from 1832.<sup>19</sup>

The OAT provide a property statement for every piece of land in the country—information about owner and type of building, as well as surface area, class, and taxable income as of October 1, 1832, when the land register opened in the Netherlands. The registration of taxable income leads directly to the original purpose of establishing a land register—a uniform imposition of land tax. Rental value was not recorded, but it is easily calculated from the taxable income.<sup>20</sup>

The *Minuutplans*, which are based on a detailed survey of the Dutch territory, are essential for determining a plot's location. These maps, like the OAT, reflect conditions on October 1, 1832. The integrity of the the OAT and the *Minuutplans* is maintained through the stipulation that neither can be altered. The OAT and the *Minuutplans* are linked through the property statement (cadastral district and section and plot number). The *Minuutplans* served as the basis for stylized maps of Alkmaar and Delft produced in 1832. The houses in these cities are joined in blocks that nearly always correspond to the smallest group of properties not divided by streets or canals. To test our earlier assumption that pre-industrial cities were characterized by mixing on the neighborhood level and segregation on the street level, analysis at the block level will not suffice; instead, each block was divided into “faces.”<sup>21</sup>

19 Lesger, Van Leeuwen, and Buzing, “Residentieële segregatie in Delft.” See also F. Keverling Buisman and E. Muller, “Kadaster-Gids”: *Gids voor de raadpleging van hypothecaire en kadastrale archieven uit de 19e en de eerste helft van de 20e eeuw* (The Hague, 1979); *idem*, *Op goede gronden: Een bundel opstellen ter gelegenheid van het 150-jarige bestaan van de dienst van het Kadaster en de Openbare Registers (Dienst van het Kadaster en de Openbare Registers)* (The Hague, 1982).

20 Public buildings and publicly run almshouses were tax-exempt. Van den Berg and Buzing graciously offered digital files for Alkmaar and Delft, respectively, and helped with their interpretation. The original registers and maps for Alkmaar are located at the Rijksarchief Noord-Holland (North Holland Public Records Office) in Haarlem, and for Delft at the Nationaal Archief (National Archive) in The Hague.

21 The GIS program MapInfo was used to present and analyze the material. A block did not represent the smallest division wherever it was divided by a lane or alley without property en-

During the Ancien Régime, real estate was also a natural source for taxation. In the west of Holland, the *verponding*, a tax based on the rental value of houses and land, was instituted during the early days of the Republic. But the years 1632 and 1733, when it was “redressed” or adjusted, are of particular importance, since they provide up-to-date tax information based on changes in rents not previously recorded.<sup>22</sup>

Unfortunately, the adjustments to the *verponding* of 1632 have not been preserved for any place in Holland, but those of 1733 have. They are arranged topographically, reporting type of building, name of owner, rent according to the rental contract, and the assessment of the old and new *verponding* for each piece of property. Because they list both the old and new rental values, they offer a reasonable image of the rental amounts fixed in 1632—certainly in Alkmaar where the urban developmental structure did not change much in the intervening period.<sup>23</sup>

Van den Berg succeeded in matching three-quarters of the property statements in the 1733 register of Alkmaar with the property statements in the 1832 land register. A nearly complete match was attainable at the level of block faces—the most detailed research unit in this study. Despite the high quality of the data, however, a number of specific problems remain. The reliability of the data is weakest for 1632; we must be satisfied with the information about tax values in 1632 as recorded in the readjustment of 1733. In 1632, however, Alkmaar had more residences, and more people, than it had a century later. Practically no houses were demolished in the period between the readjustment of 1632 and that of 1733. The roughly 4,000 more inhabitants of the city in 1632 must have lived in spaces that the adjustment of 1733 designated as

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trances and wherever multiple noncontinuous plots (mostly business buildings) were combined into a single block.

22 The rental value of housing in Amsterdam varied significantly over time (Lesger, *Huur en conjunctuur*, 181–182 [graphs 1 and 2]).

23 See the Nationaal Archief, Financie Holland, inv.nr. 515, for the Alkmaar register and inv.nr. 492, for Delft. In cases without a rental contract because the resident was also the owner, we estimated rental value to serve as a base for the tax. In shared housing, rental value was usually reported for each individual residence within a property. For a reasonable idea of rental amounts, see also van den Berg and Jan Luiten van Zanden, “Vier eeuwen welstand-songelijkheid in Alkmaar, ca 1530–1930,” *Tijdschrift voor Sociale Geschiedenis*, XX (1993), 193–215, 207–208. The four neighborhoods into which Alkmaar was then divided reported almost identical amounts of *verponding* tax in 1632, 1718, and 1730 (just before the readjustment).

sheds, stables, carriage houses, warehouses, rooms, and kitchens. In 1733, these structures were generally registered as part of a residence; a century earlier, a large number of them were independent living quarters. The decrease in population resulted in an increased use of space per household. This article's reconstruction of Alkmaar's sociospatial structure in 1632 assumes that all of those small buildings registered in the readjustment of 1733 as attached to residences served as residences themselves in 1632.<sup>24</sup>

The research method used in this study is simple and easily replicable. The first step in the analysis for each reference year was the selection of assessable units—residences with known rents, excluding almshouses. The rental values of these residences were then arranged in order of size and divided into four equal groups—quartiles. Once quartile parameters for the year in question were determined, each block and block face could be assigned to one of the quartiles based on average rent. The first quartile comprises blocks and block faces with average low rents; the second and third quartiles comprise blocks and block faces with average mean rents; and the fourth quartile comprises blocks and block faces with average high rents.

Since the division into quartiles involved relative measurements—that is, the same ratio holding for the total population of rental values—the outcomes for the three reference years (1632, 1733, and 1832) were easily compared. This strategy allowed us to evaluate the importance of path dependency: Did the large lots and costly buildings define and reinforce the location of elite residences over time, while the cellars, garrets, and small buildings were relegated to everyone else? Were subsequent generations forced into this stable segregation, regardless of their preferences, because no major technological advance or catastrophe ever forced the city to begin anew as a *tabula rasa*? To uncover possible subtle changes that our indicator, rental value, does not reveal, we also consulted a few additional sources—formal addresses of the political elite in Alkmaar and of the wealthy elite in Amsterdam, as well as scattered, anecdotal remarks by contemporaries.<sup>25</sup>

24 The final sentence is an overestimate. However, an analysis of the situation in 1632 with the extreme assumption that none of these buildings was used as housing made little observable difference in the maps.

25 We are grateful to the *JIH* referee for a concise formulation of this issue.

## RESIDENTIAL SEGREGATION IN ALKMAAR AND DELFT

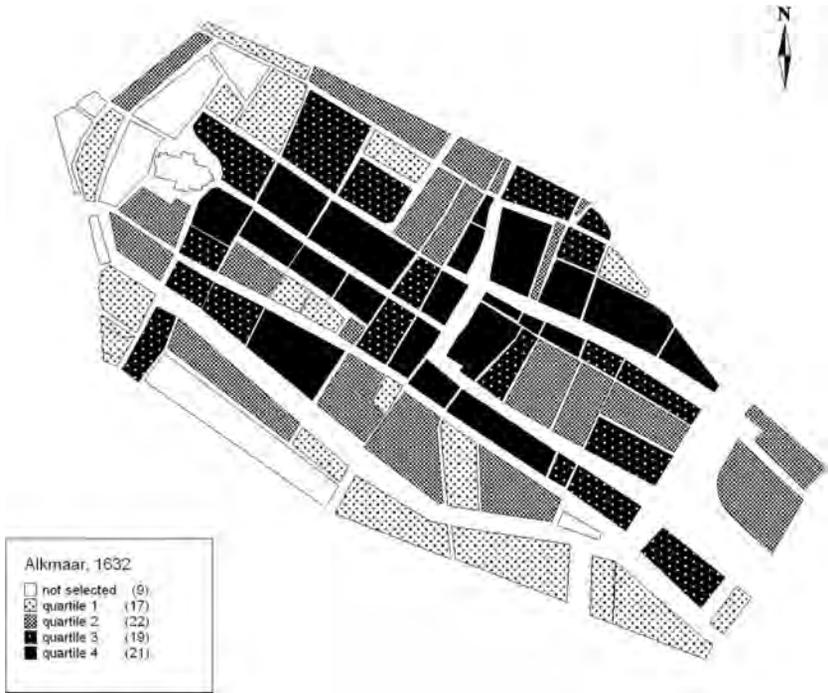
*Alkmaar* After mapping rental values for the whole city according to the procedure just presented, we discovered that nine blocks (including the Grote Kerk, or Great Church) do not meet the criteria for inclusion in the analysis of residential segregation for 1632. The problem is greatest in the northwestern corner of the city where the social-services institutions—not assessed in the verponding—are concentrated. A number of the blocks there were also more commercial than residential.<sup>26</sup>

Figure 1 summarizes information about the estimated rental value of 2,392 residences in Alkmaar c. 1632. The lowest yearly single rent for a residence was four guilders, and the highest was 488 guilders. Though obviously less extreme, the differences in average rent per block are still palpable, and they are clearly expressed on the map. A single glance reveals that blocks with an average high rent (dark colored on the map = fourth quartile) are not randomly spread around the city but instead form an unmistakable pattern. A band of average-high-rent blocks moves from the Grote Kerk in a southeasterly direction to the Mient, which also features high rental values. From the Mient, the expensive buildings continue in a southeasterly direction along two axes—Luttik Oudorp in the north and, to a lesser extent, Verdrongen Oord in the south. Extending from the Mient, another short axis runs along the Waagplein in a northerly direction. This pattern is even more pronounced in the blocks of average rents in the third quartile: The highest rents fall along the long axes in the city, connected by a north–south band in the geographical center of Alkmaar. The blocks with average low rents are largely—but not exclusively—found primarily in the northwestern and southeastern peripheries.

A broad consideration of Figure 1 reveals that an analysis of larger-scale neighborhoods rather than smaller blocks would have missed a finer pattern of segregation. In fact, an analysis conducted at the deeper level of block faces reveals fine-grained patterns of segmentation hidden behind what at first glance appear to be homogeneous blocks (Figure 2). Most of the blocks evince consider-

26 Among the requirements for inclusion was the condition that half of the lots within a block be made up of residences. The blocks in the northwestern corner were largely occupied by a horse market, stables, and roperies. The city carpenter's yard was in the southeastern corner of Alkmaar.

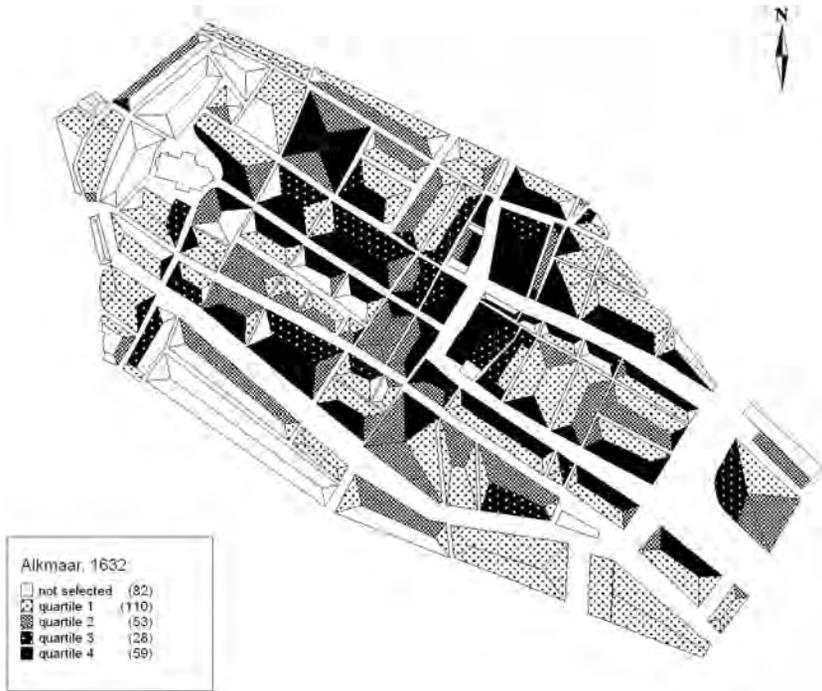
Fig. 1 Average Rents per Block in Alkmaar, 1632



able differences in the average rental values on each side. This phenomenon of internal segmentation is especially noticeable in the distribution of the highest rental values, which congeal along the main streets and primary canals of the city—the facing sides of Langestraat and the north side of Oudegracht; both sides of the Mient, with offshoots in a northerly direction; and finally Luttk Oudorp and the Verdrongen Oord, again on both sides. Average rents in the third quartile fit this pattern in their primary location along the less important long streets. The lowest rents seem to be reserved for peripheral parts of the city and side streets. This last point is of great importance; it means that according to the average rental values per block face, the rich and poor literally lived around the corner from one another. This observation, however, does not imply that the two groups mingled either intimately or happily.<sup>27</sup>

27 There is sufficient relevant information available for 250 of the 332 block faces into which Alkmaar is divided.

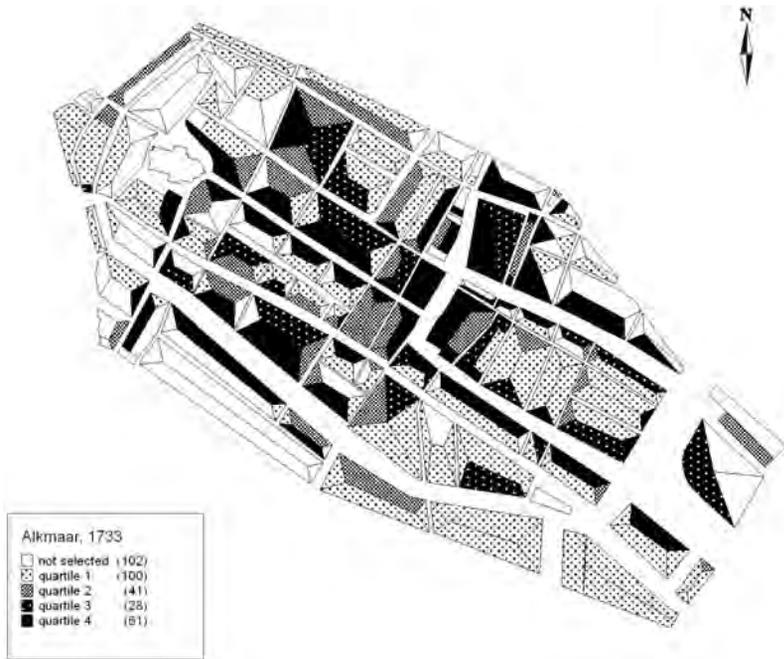
Fig 2 Average Rents per Block Face in Alkmaar, 1632



Figures 3 and 4 contain information about the rental values of 2,200 of the city's residences in 1733 and 1,883 of them in 1832. The rich and the poor continued to live in close proximity to each other at these junctures, and the segmentation evident in 1632 on the street level remained, though still invisible at a higher level. Yet, the picture is not completely static. High-value buildings along Luttik Oudorp and the Verdrongen Oord had clearly retreated further west. Indeed, residences with the greatest rental value disappeared from a large section of the eastern side of the city. Only residences on the north side of Luttik Oudorp and on the Bierkade maintained their status. Judging from the buildings around the Waag and the northern city gate, the top socio-economic stratum seemed to have withdrawn from the periphery, though no sign of increased homogeneity in the center of town is evident.<sup>28</sup>

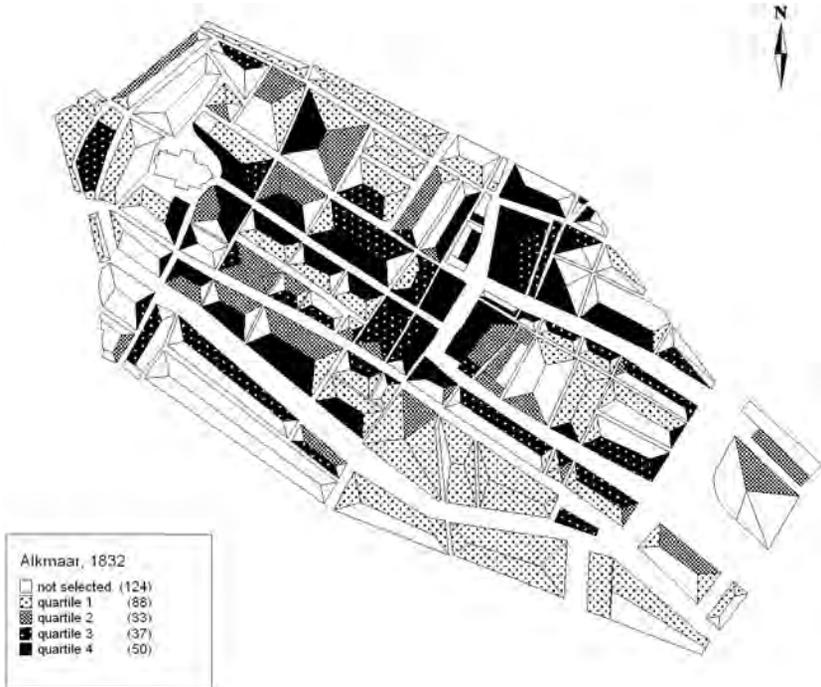
28 Again, certain blocks and block faces did not qualify for the analysis because of the prominence of social-service institutions and commercial spaces.

Fig. 3 Average Rents per Block Face in Alkmaar, 1733



*Delft* Can the situation in pre-industrial Alkmaar be transposed elsewhere? Delft, like most towns in Holland, showed rapid economic and demographic growth during most of the seventeenth century, decline from the latter part of the seventeenth to the mid-eighteenth century, stabilization or a slight upturn after 1750, severe distress during the French era, and cautious recovery during the first half of the nineteenth century. The city probably achieved its peak population of 24,000 c. 1680. In 1749, the population decreased to about 14,000, the number registered in the first real census of 1795, and in 1815, to 12,300, before rising to more than 15,000 in 1832. By 1830, however, the city had lost much of its industrial luster (its beer brewery and ceramics industry). At that time, Delft functioned primarily as a center of government and social services for the surrounding countryside. Artisans, shopkeepers, traders, and service personnel dominated the urban labor force. A considerable number of other people found work in the department of war's artillery factories. Delft's reputation as a

Fig. 4 Average Rents per Block Face in Alkmaar, 1832

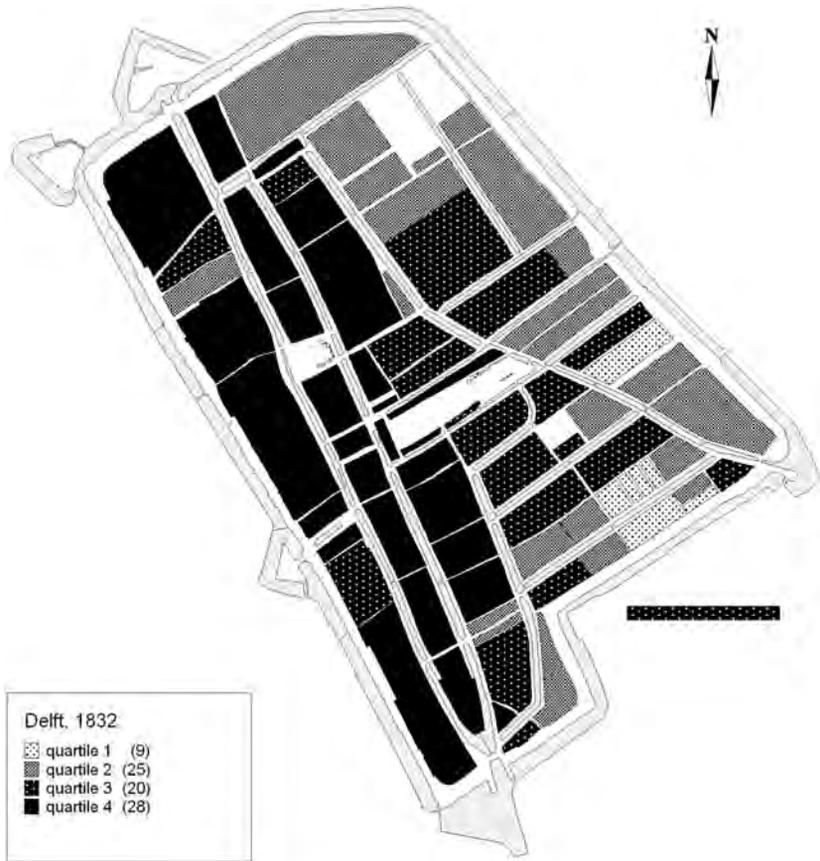


sleepy, stagnant town persisted at least until the middle of the nineteenth century.<sup>29</sup>

In 1832, Delft's roughly 2,500 residences were divided into blocks and block faces, as in Alkmaar. Again, the highest rents (and most well-to-do residents) were placed in the fourth quartile and the lowest rents (and poorest fourth of households) placed in the

29 Population numbers for Delft in the early modern period come from Thera Wijsenbeek-Olthuis, *Achter de gevels van Delft: Bezit en bestaan van rijk en arm in een periode van achteruitgang (1700–1800)* (Hilversum, 1987), 27 (Table 1.1), and for Delft in the nineteenth century from M. Claessens and R. F. Wybrands Marcussen, *Kadastrale Atlas Delft* (Utrecht, 1998), 17–18. For a comparison with population numbers of other towns in Holland, see Ad M. van der Woude, *Het Noorderkwartier: Een regionaal historisch onderzoek in de demografische en economische geschiedenis van westelijk Nederland van de late middeleeuwen tot het begin van de negentiende eeuw* (Utrecht, 1983; orig. pub. 1972), 114 (Table 2.22). For an extensive treatment of the economic, social, and political developments in nineteenth-century Delft, see Johan A. de Jonge, "Delft in de negentiende eeuw: Van 'stille nette' plaats tot centrum van industrie: Enkele facetten van de omslag in een locale sociaal-economische evolutie," *Economisch- en Sociaal-Historisch Jaarboek*, XXXVII (1974), 145–247 (for the impression of Delft as a sleepy town, 239).

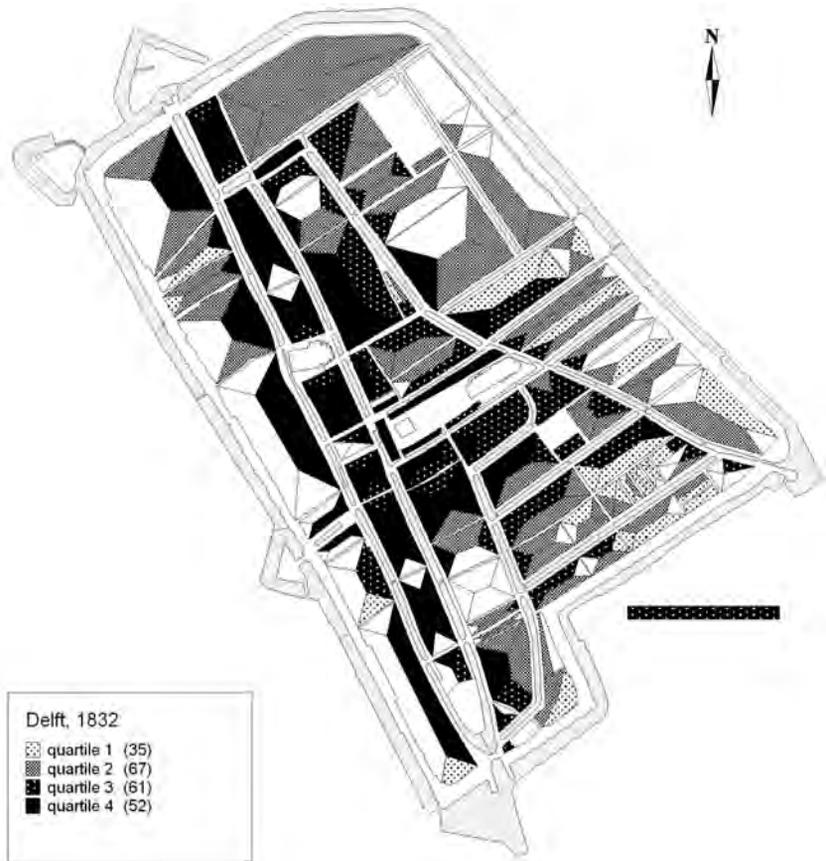
Fig. 5 Average Rents per Block in Delft, 1832



first quartile. The result of this procedure can be seen in Figure 5. To simplify orientation, canals and streets have been indicated. The houses along town ramparts have been combined and their average rental value is presented in the horizontal bar in the lower right side of the figure, just outside Delft's defenses.

The figure clearly shows the blocks with the highest average rent (quartile 4) not to be spread randomly throughout the city but concentrated in the western part. In essence, the high-rent housing blocks were on either side of the two canals that cut through Delft from north to south—the Oude Delft and the Noordeinde west of the Oude Kerk (Old Church) and the Voorstraat-Koornmarkt stretch east of the church. Residential blocks with

Fig. 6 Average Rents per Block Face in Delft, 1832



high average rents were also situated along the Grote Markt. The blocks of the third quartile appear to have penetrated from the rich part of town into the poorer eastern part. The lower and lowest averaged rents were mostly, but not exclusively, in the eastern and southeastern periphery.

The information from the register also permits a distinction at the level of block faces (Figure 6). This “change in scale” confirms what we already established for Alkmaar—that the blocks conceal a considerable amount of variation. Although no block featured the highest category of average rents on each of its four sides, the distribution of wealthy block faces across the city had a distinct pattern. The fourth-quartile block faces followed the two main

canals in the western part of the city, along the Grote Markt, also cropping up in other parts of the city, particularly near canals. The block faces with an average rent in the third quartile also conformed to this pattern, hugging the canals and also appearing in the side streets that cut through the well-to-do main canals. The rents were also relatively high in the areas surrounding the major city gates. The block faces with average rents in the lowest quartile were more widely distributed than an analysis at the block level would suggest. Relatively cheap housing abounded primarily in the eastern and southeastern parts of the city. The shallow depth of the blocks suggests that the houses therein were small. Southeastern Delft, in particular, featured a series of narrow streets and small residences. Small houses could also be found in the enclosed areas reachable from the street through narrow alleys. However, the wealthy western part of the city also contained block faces with average rents from the lowest quartile—for example, the side streets between the west end of Oude Delft and the city ramparts.<sup>30</sup>

This examination of the residential patterns in Alkmaar and Delft establishes four main points: (1) In researching residential patterns in pre-industrial towns, the analysis must take place at the level of the block face. Such analysis shows that Alkmaar and Delft had no wealthy neighborhoods or wealthy blocks, only wealthy block faces, though the lowest rental class shows some homogeneity at the block level, primarily on the periphery of town. Nonetheless, an analysis of the cheap residences at the level of the neighborhood or block is susceptible to erroneous conclusions. Only at the block-face level is it clear that the poor were also distributed widely in areas outside of the peripheral neighborhoods. In both Alkmaar and Delft, they even lived in the immediate vicinity of the wealthy. Scholars have often surmised that a great degree of residential mixing occurred in pre-industrial cities, but this study demonstrates it concretely.

(2) With regard to the previous point, neither Alkmaar nor Delft ever had a compact elite quarter. Residents with an elevated socioeconomic status were dispersed along axes that were formed through linked series of block faces, each with (average) high-value buildings.

30 A minimum of three distinct divisions per block face was required for inclusion on the map.

(3) Research on Alkmaar suggests that the residential patterns mentioned above persisted for the entire pre-industrial period. Notwithstanding minor contingencies, segregation at the street level, which largely saw the wealthy occupying specific main streets and the poor occupying side streets and alleys, remained in full force throughout the period.

(4) Finally, the well-to-do segment of Alkmaar's population eventually withdrew from the eastern part of the city. The center of town, however, did not thereby acquire a more homogeneous character due to the influx of wealthy residents.

AN EXPLANATION OF PATTERNS AND DEVELOPMENTS DURING THE ERA Which of the earlier-mentioned theories of residential segregation fit the situation in relatively small Dutch cities like Alkmaar and Delft? Clearly, the internal segmentation of blocks and the mix of the wealthy and poor at the street level does not fit Sjöberg's fixed model of segregation in the pre-industrial city. Nor is one common explanation for the high degree of social-spatial mixing in pre-industrial cities—the friction of distance—especially cogent. Since an early modern city like Alkmaar or Delft could be crossed by foot from north to south or from east to west in just half an hour, the daunting prospect of long-distance interaction could not be responsible for the mixing of social classes there.<sup>31</sup>

According to real-estate economists, location is almost the only thing that matters in real estate. Many of them view location as the driving force behind segmentation in Western cities during the late nineteenth and twentieth century. Vance is one of the few scholars who emphasizes the utility value of land and the operation of the real-estate market in early modern cities, too. City real estate typically evinces sharp differences in price at short distances. Accessibility via through-streets and arterial roads—and the price that users of the land are prepared to pay for it—always came at a premium. The peace and quiet and the aura of status that certain canals and streets could offer also generated high prices. Side and back streets—sometimes only a few meters from the more prized

31 According to some scholars, many early modern cities were “walking cities” only; the lack of cheap and efficient transport severely limited the distances that people were able and willing to travel. Because the middle and lower classes were dependent on the rich for work, and the rich were dependent on the services and consumer goods that the middle and lower classes provided, the mixing of social classes was inevitable.

locations—lacked the advantages of prime location and its attendant high cost. Thus, the housing there was usually within reach of the middle groups and lower strata of society, even though not geographically distant from that of the elite. In other words, the market for real estate, not the friction of distance, allowed the various groups to live in proximity to each other.

The importance of accessibility via thoroughfares and connecting roads offers an explanation for a second finding of this study—the lack of a compact elite quarter. Those whose livelihoods required such accessibility tended to settle in places where many people either gathered (Alkmaar's Waagplein and the Grote Markt in Delft) or passed (along streets leading to the center or near the city gates—that is, along certain luxury axes within the city). Other city dwellers, who had to be content with a less optimal location, lived around the corner on side and back streets.

Well-to-do residents who preferred a more peaceful residential setting away from the crowds would conceivably have benefited from a compact elite quarter. Those in Alkmaar and Delft, and in other Dutch cities like them, however, had no such quarter because of their relatively small numbers and the geographical circumstances under which they lived. The canals that stretched across much of the full length and breadth of Dutch cities were vital to water management, both inside and outside the city. The well-to-do traditionally chose the large plots of land, with their panoramic views, along these broad canals. Given such an environment and enough luxury buildings to satisfy their demand, they had no need for a small neighborhood of their own, which not only would have required considerable investment but also would have led to the destruction of capital along the already existing luxury axes. Continuity of the existing pattern was the most natural course, creating path dependency—the reason for the remarkable continuity of residential patterns.

What still requires explanation is the fact that well-to-do Alkmaar residents gradually withdrew from the eastern part of the city. The explanation begins in the Middle Ages when the city was not yet half the size that it reached in 1632, and only the western part of the city was constructed. Situated on high ground and facing the Voormeer Lake, Alkmaar in the Middle Ages served as a military base for the counts of Holland in their struggles against opponents from West Friesland. It was also the northern entrance

to the heart of Holland. Pending further research, the defeat and pacification of the West Frisians probably offered new commercial possibilities for Alkmaar at the spot where land and water met—the banks of the Voormeer Lake.

The commercial center remained in the area near the Voormeer Lake as the city spread out geographically. At the end of the fifteenth century, people began to move into the eastern part of the city: The canals Luttik Oudorp and Verdrongen Oord stretched in an easterly direction until, at the end of the sixteenth century, Alkmaar reached the size and structure that it would maintain for three centuries. Due to large-scale land reclamation in the first half of the seventeenth century, however, Luttik Oudorp and Verdrongen Oord were no longer access points to open water but instead opened onto spacious farm land in the new polders. The sociospatial map of Alkmaar in 1632 provides a snapshot from this dynamic period. The city became more and more economically focused on the rich surrounding farm land, as reflected in the settlement patterns of the elite. The old commercial center of the Mient and Waagplein and the access roads to this center were long, linked stretches of block faces with high average rents. The old religious and political center of the city occupied the high ground around the Grote Kerk and the Langestraat, which connected it with the newer economic center.<sup>32</sup>

However, starting in the second half of the seventeenth century, Alkmaar showed a downward demographic trend—a population drop of at least 40 percent, to fewer than 10,000 inhabitants—closely linked to the economic and demographic crises taking place in the countryside in North Holland. Agricultural products at that time were in short supply in Alkmaar, and the demand for manufactured products and services in the surrounding area decreased. At a time of economic and geographical expansion, Luttik Oudorp and Verdrongen Oord, which had acquired some of the functions associated with the old commercial center around Mient and Waag, were the first arms of the urban organism to suffer degeneration during the crisis. The canals lost their prestige as top locations. Thus did the size of Alkmaar's commer-

32 Notwithstanding Sjøberg's relatively simple concentric model, the city's sociospatial structure was not always solely determined by an exclusive political-religious elite. In the eastern part of Alkmaar, economic considerations influenced the locational decisions of the well-to-do, manifested in the geographical structure of the city.

cial center adjust in response to the decreased supply and demand from surrounding area.<sup>33</sup>

The political-governmental function of the city remained unaffected, however. Although the population in the city and its environs dramatically decreased, the size of the bureaucracy remained at the level of the first half of the seventeenth century—roughly 270 positions. In the second half of the eighteenth and the first half of the nineteenth century, this bureaucracy even increased to 288 and 356 positions, respectively, and, as a consequence, the political-governmental center around the Grote Kerk and in the Langestraat did not lose its significance. This center also remained the favored living quarters of the political-governmental elite. Thirty of the thirty-seven addresses of mayors and city-council members from 1730 to 1740 were in the western part of the city, and only seven were in the eastern part (mainly in the Verdrongen Oord and along the Bierkade).<sup>34</sup>

Incidentally, the political elite had a decided preference for the Langestraat. Six of the eight mayors and twelve of the twenty-nine city-council members lived there. Given the assumption that the Oudegracht and Koorstraat were part of the old political-religious center of the city, all of the mayors and nineteen of the twenty-nine city councilors lived there. Around 1830, the political elite were still largely concentrated in the center of town: Twenty-two of the thirty-one men who served as mayors, aldermen, and city councilors from 1830 to 1840 lived there. Luttik Oudorp, Verdrongen Oord, and Bierkade were rarely the domain of the political elite; the Langestraat, which boasted eighteen dignitaries' addresses, had become even more popular.

FINDINGS AND SPECULATIONS ABOUT RESIDENTIAL SEGREGATION IN AMSTERDAM Considering the fact that most early modern cities

33 See van der Woude, "De contractiefase van de seculaire trend in het Noorderkwartier nader beschouwd," *Bijdragen en Mededelingen betreffende de Geschiedenis der Nederlanden* (1988), 373–398; Jan de Vries and *idem*, *The First Modern Economy: Success, Failure, and Perseverance of the Dutch Economy, 1500–1815* (New York, 1997), 673–687; van Zanden, "De economie van Holland in de periode 1650–1805: groei of achteruitgang? Een overzicht van bronnen, problemen en resultaten," *Bijdragen en Mededelingen betreffende de Geschiedenis der Nederlanden*, CII (1987) 562–609; Piet Boon, *Bouwers van de zee: zeevarenden van het Westfriesse platteland, c.1680–1720* (The Hague, 1996); Lesger, *Hoorn als stedelijk knooppunt: Stedensystemen tijdens de late middeleeuwen en vroegmoderne tijd* (Hilversum, 1990), 122–177.

34 The number of positions in the bureaucracy was calculated on the basis of Jos C. N.

in Holland were fairly small, our choice of Alkmaar and Delft to represent long-term residential segregation there is justified. However, the image is not complete without a look at Amsterdam, a much larger city, which experienced population growth in the pre-industrial period comparable to that of cities in the nineteenth century. In 1580, Amsterdam, with roughly 30,000 inhabitants, was a mid-sized European city. In the next century, however, the city grew to more than 100,000 inhabitants in 1622 and more than 200,000 in 1680. From the middle of the seventeenth century, Amsterdam belonged to the select group of large European cities. Its demographic growth could not be confined within its old, medieval configuration. At the end of the sixteenth century, the town began several phases of intense expansion that make it an ideal place to study the processes of residential segregation in a town substantially larger than Alkmaar and Delft.<sup>35</sup>

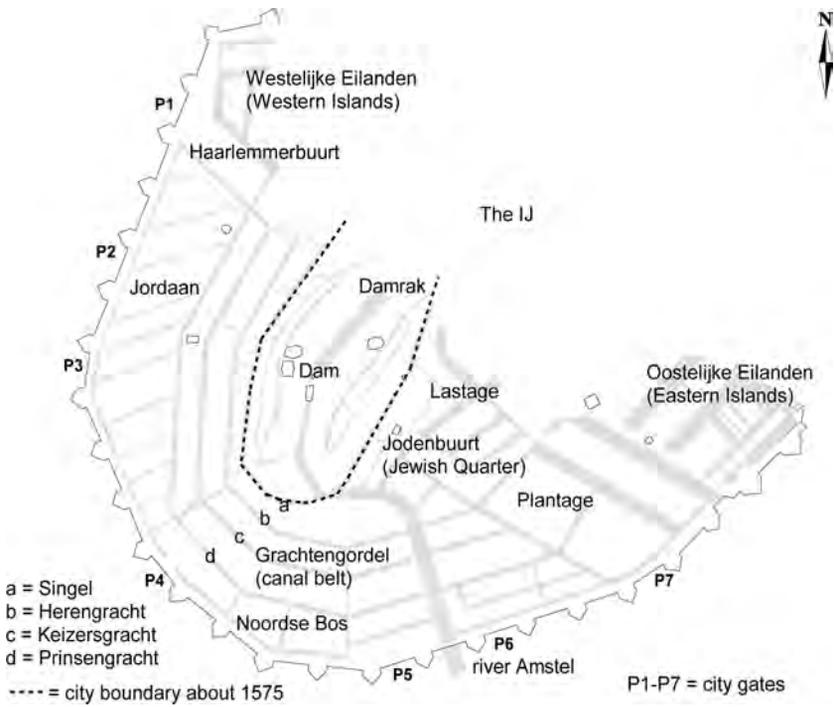
Although our maps of Amsterdam are as yet unfinished, we can identify a number of major trends based on current research, beginning with the city's medieval and sixteenth-century segregation pattern. At that time, the primary axes in Amsterdam were two river embankments—Warmoesstraat and Nieuwendijk that not only provided access to the surrounding countryside but also, along with the Dam, formed the border of the old inner harbor of the city (Damrak). Until the end of the sixteenth century, Warmoesstraat remained one of the city's most important streets and the home of the economic elite who dominated the city's government at the time. Middle and poor groups occupied the immediate surroundings of the well-to-do in the side streets and alleys off the main arteries, but not exclusively in these areas. Like Alkmaar and Delft, Amsterdam had a disproportionate number of poor residents on its peripheries, many of them at or near the city wall—an area that was far more dangerous during attack than the better locations in the harbor and the access roads to the countryside. Around 1560, Amsterdam had a sociospatial structure similar to that of Alkmaar c. 1632. What happened, then, at the end of the sixteenth century when the economy experienced a phase of un-

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Raadschelders, *Plaatselijke bestuurlijke ontwikkelingen 1600–1980: een historisch-bestuurskundig onderzoek in vier Noord-Hollandse gemeenten 1600–1980* (The Hague, 1990), 295 (Table 2).

35 Van Leeuwen and James E. Oeppen, "Reconstructing the Demographic Regime of Amsterdam 1681–1920," *Economic and Social History in the Netherlands*, V (1993), 61–102.

Fig. 7 Map of Amsterdam after the Seventeenth-Century Expansions and before ca.1850



precedented growth, masses of migrants settled in the city, and the population curve rose steeply?

The economic and migratory boom that transpired at the end of the sixteenth century put enormous pressure on Amsterdam's available space, especially in the heart of the city where economic, political, and religious life was concentrated. This section of the city contained the inner harbor, the exchange, the weigh house, and markets, as well as the primary shopping streets, the inns for visitors, and the offices of the many merchants who hoped to make their fortune in trade. The congestion of people and activities in an area that was just barely 250 by 500 meters must have seriously affected the quality of life of those privileged few, who, as the city expanded, could impose their vision on the organization of urban space and society.<sup>36</sup>

36 Lesger, *The Rise of the Amsterdam Market and Information Exchange: Merchants, Commercial*

Not even in medieval Amsterdam, which had grown more or less organically, had economic activities and social groups randomly been scattered throughout the city, but at the end of the sixteenth century, a spatial division of functions and people was deliberately undertaken—certain parts of the expanded city zoned for large-scale industry and harbor-related enterprises and other parts for homes. The elite tended to prefer the spacious and tree-lined canals (Figure 7). The lower social classes, including craftsmen, found accommodation in the side and back streets.<sup>37</sup>

Because of the growing demand for residential and business space, Amsterdam underwent two more expansions in the seventeenth century, resulting in the famous belt of canals around the city that gave Amsterdam its shape until late in the nineteenth century. The spatial arrangement of economic activities and social groups took effect on a much larger scale this time. The success of spacious canals as living areas for the elite served as a starting point for establishing residential areas. A broad belt of canals was placed around the old city expressly to create a residential quarter for the elite. This purpose is evident in the anomalous urban development of the area, especially the generous sizes of the properties on the Herengracht and Keizersgracht, the breadth of the canals, and the purchasing conditions that forbade, among other things, cluttering the inner spaces with alleys and buildings. In 1615, the city authorities decreed “that the properties on the Herengracht should be built with nice residences and houses for people of private means and other wealthy people.” In 1618, they banned harmful and dangerous businesses from this canal and the other canals in the belt. The intent was clearly to ensure a peaceful and attractive living environment for Amsterdam’s leading citizens.<sup>38</sup>

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*Expansion and Change in the Spatial Economy of the Low Countries, c.1550–1630* (Aldershot, 2006), 243–249.

37 Boudewijn Bakker, “De zichtbare stad 1578–1813,” in Willem Frijhoff and Maarten Prak (eds.), *Geschiedenis van Amsterdam: Centrum van de wereld 1578–1650* (Amsterdam, 2004), 17–101, 28–30, 36–37; Jaap Evert Abrahamse, *De grote uitleg van Amsterdam: Stadsontwikkeling in de zeventiende eeuw* (Bussum, 2010), 246–248; S. A. C. Dudok van Heel, “Regent Families and Urban Development in Amsterdam,” in Peter van Kessel and Elisja Schulte (eds.), *Rome—Amsterdam: Two growing Cities in Seventeenth-Century Europe* (Amsterdam, 1997) 124–145.

38 The most important and recent work about the expansions in seventeenth-century Amsterdam is Abrahamse, *De grote uitleg van Amsterdam*. For more on the third expansion, see Lenna Jansen, “De derde vergroting van Amsterdam,” *Jaarboek Amstelodamum*, LII (1960), 42–89; Ed Taverne, *In’t land van belofte: in de nieuwe stad: Ideaal en werkelijkheid van de stadsuitleg in de*

The elite, however, were not the only ones to benefit from the canal belt. The pattern of wide canals and narrow connecting streets naturally created differentiation among the residents. The well-to-do lived on the canals, and the middle groups—comprised of shopkeepers, craftsmen, the occasional barber-surgeon, and anyone else of private means who could not afford a house on one of the primary canals—lived on the cross-streets. The poor, however, were not likely to be found in the canal belt. The fact that a separate neighborhood was created for the upper echelon implies that other neighborhoods would devolve to the rest of the population. Both the established population and the immigrants included tradesmen, sailors, and semischooled or unschooled workers. They took up residence on the edges of the city—in the Jordaan, on man-made islands in the west and east of the city, and elsewhere on the periphery—where residential crowding and loud, malodorous industry were the norm.<sup>39</sup>

Nonetheless, the contrast between the canal belt and the periphery should not blind us to the further patterns of segregation within the Jordaan, for instance. A number of canals in the middle of this neighborhood (Egelantiersgracht, Bloemgracht, Rozengracht, and Lauriergracht) were intended for the middle class. The famous Blaeu cartographers lived in this area, as did the mayor's son and, later, Mayor Joan Huydecoper himself. This middle area of the Jordaan, and especially Nieuwe Leliestraat, served an important traffic function, connecting the polders to the west of the city with the old city center. The remaining longitudinal streets between the town ramparts and the Prinsengracht, which had practically no passing traffic, housed the lower social classes. The cross-streets (north-south), the most important traffic connections within the Jordaan itself, housed the lower-middle-class shopkeepers. From the outset, the poorest segment of the Jordaan's population inhabited the walled-in houses in the inner courtyards.

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*Republiek 1580-1680* (Maarssen, 1978), 165-168 (for the ban of 1618). Abrahamse, *De grote uitleg van Amsterdam*, 62.

39 For living conditions, see Willem F. H. Oldewelt (ed.), *Kohier van de Personeele Quotisatie te Amsterdam over het jaar 1742* (Amsterdam, 1945). The narrow Kerkstraat is a possible exception to the exclusion of the poor from the canal belt. This street contained the stables and carriage houses belonging to the expensive properties on the canal, but the few beggars in this area lived on the Kerkstraat too.

The prevalence of the poor increased with distance from the middle section of the Jordaan.<sup>40</sup>

Hence, in the Jordaan, as in other urban areas, rent could vary greatly over short distances. In consequence, poor and wealthier residents lived in each other's immediate vicinity, without intensive mixing on individual streets. Thus, like Alkmaar and Delft, Amsterdam experienced "around the corner" segregation.

In the long term, the old inner city lost status to the newly established canal belt. However, the elite did not move from Warmoesstraat to the canals in one fell swoop. The hundredth-penny tax imposed on properties in 1631 reveals that a considerable portion of the wealthiest Amsterdammers still lived in the old city. Another tax record, the *Personeele Quotisatie* of 1742, reveals that more than a century later, the canal belt housed eighty-four of the one-hundred highest-taxed individuals, primarily on the Herengracht. The relative decrease in status of the inner city is unmistakable, but it does not imply that the center fell victim to impoverishment and homogenization. Many of the most prosperous Amsterdammers still lived there, amid a largely persisting pattern of segregation. The socioeconomic positions of those who lived along the primary canals and streets and those dwelling in cross-streets, alleys, and lanes remained conspicuously distinct.<sup>41</sup>

Yet, the separation of social groups was less pronounced in the old inner city than in the newer neighborhoods. The old city housed a larger segment of the social pyramid. Everyone from the extremely wealthy to the extremely poor lived there. In the new areas, only one neighborhood had a comparable distribution of social groups—the Jodenbuurt (the Jewish Quarter). Amsterdam had no laws requiring Jews to live in a specific part of the city, but almost all of Amsterdam's Jews lived near their synagogues in the

40 Isabella H. van Eeghen, "Een burgemeestershuis in de Jordaan," *Maandblad Amstelodamum*, LXII (1975), 127–130; for Huydecoper and family, Luuc Kooijmans, *Vriendschap en de kunst van het overleven in de zeventiende en achttiende eeuw* (Amsterdam, 1997). For the spatial structure of the Jordaan, see H. Tj. Dijkhuis, "De Jordaan: De ontwikkeling van een volkswijk in een grote stad," *Economisch-Historisch Jaarboek*, XXI (1940), 1–90; for location patterns in the retailing industry, Lesger, "Patterns of Retail Location and Urban Form in Amsterdam in the Eighteenth Century," *Urban History*, XXXVIII (2011), 24–47.

41 Johannes G. Frederiks and Pieter J. Frederiks, *Kohier van den tweehondersten penning voor Amsterdam en onderhoorige plaatsen over 1631* (Amsterdam, 1890); Lesger, "Migranten in Amsterdam in de achttiende eeuw: Residentiële spreiding en positie in de samenleving," *Jaarboek Amstelodamum*, LXXXIX (1997), 43–68, Table 2 (47).

eastern part of the city. This relatively small area had merchants and bankers as well as penniless street hawkers and beggars. The laws of the real-estate market and the spatial structure of Amsterdam exerted their influence just as much in the Jodenbuurt, resulting in meso-segregation—spatial segregation at the street level. Prosperous Jews lived mostly on the Nieuwe Herengracht; middle groups lived primarily on streets and less attractive canals; and the poor lived in alleys and lanes.<sup>42</sup>

#### *Models for Explaining Ethnic Segregation*

The Spatial-Assimilation Model. The complicating influence of ethnic factors on wealth/income stratification (in our case, measured via rental values) is apparent in the work of Sjoberg and Vance, as well as in the explanatory models that geographers often use to explain residential segregation. The first such model is the Chicago-school, or spatial-assimilation model. It concedes that, upon entering their new country, migrants usually have less money and status than native-born residents, and they are usually less fluent in the language of the new country. Even when good housing is available to them, they often cannot afford it or communicate well enough to secure it, relegating them to less desirable neighborhoods. The model also maintains, however, that migrants can overcome their initial disadvantages and move to better and mixed neighborhoods. Like Vance's model, it eventually allows for the rich and poor to be distributed spatially according to the real-estate market. Yet, given the tenacity of the spatial concentration of Jews, it does not seem wholly adequate to the situation in early modern Amsterdam.<sup>43</sup>

42 Exceptions to this predominant pattern of living arrangements included a few large houses on St. Antoniesbreestraat (the house of Isaac de Pinto) and on Jodenbreestraat, where primarily (upper) middle-class residents lived.

43 Charles, "Dynamics of Racial Residential Segregation," 170. See also Bolt, Kempen, and Ham, "Minority Ethnic Groups"; Milton M. Gordon, *Assimilation in American Life: The Role of Race, Religion, and National Origins* (New York, 1964); Massey and Denton, *American Apartheid*; Laan Bouma-Doff, "Involuntary Isolation"; Stanley Lieberson, "The Impact of Residential Segregation on Ethnic Assimilation," *Social Forces*, XL (1961), 52–57; John R. Logan and Richard D. Alba, "Locational Returns on Human Capital: Minority Access to Suburban Community Resources," *Demography*, XXX (1993), 243–267; Massey, "Ethnic Residential Segregation: A Theoretical Synthesis and Empirical Review," *Sociology and Social Research*, LXIX (1985), 315–350. For Jewish assimilation and segregation, see, for example, Jacqueline Vijgen, "Joden In Amsterdam: Assimilatie en segregatie van een ethnische minderheid 1600–1933," unpub. M.A. thesis (Univ. of Amsterdam, 1983); Hetty Berg (ed.), *De Gelykstaat der Joden: Inburgering van een minderheid* (Amsterdam, 1996); van Leeuwen, *The Logic of Charity: Amsterdam, 1800–1850* (Houndmills, 2000), 38–39, 44–45, 111–161.

The Place-Stratification Model. Contrary to the spatial-assimilation model, the place-stratification, or discrimination, model, denies that segregated ethnic groups can ever achieve full-scale spatial assimilation, regardless of any improvement in their objective characteristics. Not even high incomes can guarantee them access to better neighborhoods or spare them from the prejudice of real-estate agents et al. Although Amsterdam was not called the Jerusalem of the North without reason, the obvious disdain directed toward Jews by Amsterdammers gives this model some credence, despite the conspicuous presence of affluent Jewish merchants and the absence of pogroms and Jewish ghettos. More pertinent, however, was the power that Amsterdam's civic authorities had conferred on the Jewish elites to govern the city's Ashkenazi and Sephardic Jews. This self-rule was probably more responsible for keeping the Jewish communities together—spatially and socially—than discrimination in the real-estate market was. The ban on marriages between Jews and non-Jews, the language barrier, and, in the case of poor Ashkenazi Jews, differences in clothing compared to non-Jews, were also important.<sup>44</sup>

The In-Group Model. The in-group, or ethnic-preferences, model, states that “all groups have a ‘strong desire’ for neighborhoods with substantial numbers of co-ethnics that reflect a simple, natural ethnocentrism rather than outgroup hostility or an effort to preserve relative status advantage.” Members of an ethnic group, such as the Amsterdam Jews, tend to live in the same neighborhoods not only because of a sense of familiarity but also because of the existence of a local ethnic infrastructure of shops and, in our case, synagogues.<sup>45</sup>

In addition to segregation at the neighborhood level (macro) and the street level (meso), Amsterdam was segregated through floors of houses (micro). It is hardly surprising that Amsterdam

44 Charles, “Dynamics of Racial Residential Segregation,” 170. See also Bolt, Kempen, and Ham, “Minority Ethnic Groups”; Logan and Alba, “Locational Returns”; Laan Bouma-Doff, “Involuntary Isolation.”

45 Charles, “Dynamics of Racial Residential Segregation,” 182. See also Bolt, Kempen, and Ham, “Minority Ethnic Groups”; Boal, “Ethnic Residential Segregation,” 41–79; William A. V. Clark, “Residential Preferences and Neighborhood Racial Segregation: A Test of the Schelling Segregation Model,” *Demography*, XXVIII (1991), 1–19, 451; Orlando Patterson, *The Ordeal of Integration: Progress and Resentment in America's Racial Crisis* (Washington, D.C., 1997); Stephan Thernstrom and Abigail Thernstrom, *America in Black and White: One Nation, Indivisible* (New York, 1997); Laan Bouma-Doff, “Involuntary Isolation.”

(and cities like it), with a dense population and an abundance of poor people, would have houses divided into multiple apartments and rented separately. In 1665, van Domselaer reported that around the middle of the seventeenth century, certain streets had apartments built exclusively for the petty bourgeoisie in the manner of independent homes. That is not to say, however, that micro-segregation was nonexistent elsewhere in the city. On the contrary, the rooms, cellars and outbuildings of existing houses were frequently rented separately, particularly in lower-class neighborhoods. Van Domselaer wrote that in the crowded neighborhood east of the old inner city, where many craftsmen and sailors lived, four families sometimes occupied a single house. The adjustment of the *verponding* in 1733 reveals that housing of this type was not uncommon and that renting on the street level was generally much more expensive than renting basements, outbuildings, and upstairs rooms. Further research is needed, but in view of the differences in rental value, the economic position and social status of inhabitants in the same house could vary considerably, allowing for segregation at close quarters.<sup>46</sup>

Like Alkmaar and Delft, Amsterdam also lacked a compact elite quarter. The canal belt stretched around the medieval city, as it does now. Unlike the elite class in Alkmaar and Delft, however, Amsterdam's privileged class was actually large enough to drive construction of a compact elite quarter. Why it never happened is not easy to ascertain. No surviving documents indicate that such a living area was ever under consideration. The city simply continued to expand as it always had expanded—creating more circles around the oldest core of Amsterdam on the banks of the Amstel River as necessary. Well-to-do Amsterdammers' preferences for spacious and tree-lined canals must have also played a role, along with the fact that Amsterdam lacked a clear focal point. Unlike many European capitals, Amsterdam always lacked a princely court to attract nobility, which would have been a likely focal point for a compact luxury quarter.

Because the Amsterdam elite largely acquired their wealth through economic activities rather than through land ownership or the privileges of an aristocracy, the center of town—with its market, exchange, weigh-house, auction houses, and other

46 Tobias van Domselaer, *Beschryvinge van Amsterdam, haar eerste oorspronk . . . tot dezen tegenwoordige jare 1665, is voorgevallen* (Amsterdam, 1665), III, 254; Abrahamse, *De grote uitleg van Amsterdam*, 106–108.

facilities—remained the locus of their daily routine. A shell of luxury buildings around the city center made sense in this context because of its proximity to the center and its air of quiet distinction. Given Amsterdam’s persisting infrastructure, its elite was able literally to push the lower social classes and the noisy, smelly industrial activities out of the area that was to become the canal belt to the edges of urban society and thus largely out of contact. Since the Herengracht and Keizersgracht had no direct connection with the harbor, these luxury areas could enjoy peace and calm both on land and on the water.<sup>47</sup>

The prevailing image of residential segregation derives from research on the nineteenth and twentieth century, since most of the surviving sources pertain to these times. Yet, the lack of direct knowledge about early modern sociospatial conditions leads to a truncated perspective. Unfortunately, the scarcity of data from this period and the problems associated with mapping it are daunting. Moreover, little is known about people’s subjective preferences and socioeconomic characteristics at the time, as well as about the influence of governments, financiers, and real-estate agents on patterns of residential segregation. This study benefits from the relative availability of rental prices for early modern cities in Holland. Although the limitations of these records are undeniable, requiring the collection of considerable supplementary source material, we now draw conclusions and make provisional statements about residential patterns over the long term.

Detailed reconstructions for Alkmaar and Delft, two smaller cities in Holland, make clear that the level of detail greatly influences the results. Research in Alkmaar suggests that in addition to macro-segregation, “around the corner” segregation (meso) was typical from the seventeenth to the middle of the nineteenth century. This continuity is compatible with the fact that residential patterns adjusted to changing dynamics in an urban environment. In the case of Alkmaar, economic decline led to a reduction of high-value (commercial) buildings in the eastern part of the city, but due to political and governmental continuity, existing patterns were retained in the western part of the city, which contained the town hall and other important public buildings.

In explaining these residential patterns, Sjöberg’s static model

47 Abrahamse, *De grote uitleg van Amsterdam*, 71–77, 265–267.

is of limited utility. The degree of mixing was much greater than Sjöberg suggests. Moreover, the town center was certainly not the exclusive domain of the elite, and economic activities had much more prestige than Sjöberg's model can accommodate. Vance's model, with its watershed between the precapitalist and capitalist city, allows for too much social change, though a core element of his theory—the value of land and the operation of the real-estate market—finds support in the Dutch data. Residential patterns are best explained by differences in the price of land based on location. In short, the well-to-do and middle classes had the means to realize their location preferences, and the less fortunate had to be satisfied with less attractive options—side and back streets, and the alleys and lanes that led to them—“around the corner” from the more desirable spots. The precise location of the attractive and less attractive locations depended on local context and the existing city structure. In low-lying Dutch towns, the well-to-do gravitated toward broad canals; elsewhere in Europe, differences in altitude or the site of a princely palace were important considerations.

The example of Amsterdam lends more insight into the effect of demographic growth and city expansion on residential patterns. Amsterdam began a period of rapid growth at the end of the sixteenth century; by the middle of the seventeenth century, it had become one of Europe's largest cities. Even though detailed information is not yet available, expansion in Amsterdam (much like large-scale reconstruction after fires and other disasters elsewhere) greatly influenced residential patterns. The city government deliberately strove for a division of social groups and economic functions. Although the exodus of elites from the increasingly congested city center to new districts was decidedly less drastic than Vance's model assumes, a sizable fraction of the social and economic elite relocated to an exclusive living environment just outside the old city. The commercial facilities of the center, however, remained easily accessible to Amsterdam's merchant elite. The (lower) middle class and craftsmen, along with their economic activities, were relegated to new neighborhoods on the outskirts of the city.<sup>48</sup>

Compared to the old medieval city, the new neighborhoods

48 Nor did sixteenth-century Amsterdam witness a transition from a guild-dominated society to one dominated by merchants, as Vance claims. Merchants continued to be incorporated in the oligopoly of ruling families. Guilds never exercised significant, direct political authority,

were considerably more socially homogeneous. The wealthiest and poorest people no longer shared the same living space. But even in the new neighborhoods, location and related rental prices resulted in differentiation at street level and even at the level of houses and floors on a particular street. Hence, the new neighborhoods were mixed, though they did not all house the same segments of the social pyramid.

The spatial patterns identified herein exhibit considerable durability; location preferences tend to solidify. These preferences are embodied in long-lasting constructions like houses and public buildings. For this reason, municipal and sociospatial developments coalesce into a morphological structure with a great degree of historical continuity and path dependency. What exists now greatly depends on what preceded it. Even in more recent, large-scale changes to the urban landscape, old structures continue to exert their influence.

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though they controlled the organization of production and secured the welfare of their members. See van Leeuwen, "Guilds and Middle-Class Welfare 1550–1800: Provisions for Burial, Sickness, Old Age, and Widowhood," *Economic History Review* (forthcoming).