

# Ethnic Segregation and Ghettos

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## ABSTRACT

Throughout history cities have contained separate areas where ethnic groups are concentrated. In the U.S. many older cities in the Northeast and Midwest contain large African-American ghettos. We discuss the causes and consequences of ethnic and racial segregation. We identify differences between voluntary and involuntary ghettos and we understand them using agglomeration economies, positive and negative externalities, bid rent theory, land and labor markets. We show that sharply segregated urban land use patterns can be socially efficient or inefficient depending on the nature of preferences and the externalities. Exclusionary policies often capture the economic efficiency. We observe a bewildering variety of political and public policy responses to segregation in Brazil, Cyprus, Europe, India, Israel, South Africa and the United States.

## 1. Introduction

In *The Republic*, Socrates describes income segregation in the ancient Greek *polis* and prescribes policy:

*“For, indeed any city, however small, is in fact divided into two, one the city of the poor the other of the rich; these are at war with one another; and in either there are many smaller divisions, and you would be altogether beside the mark if you treated them as a single State. But if you deal with them as many, and give the wealth or power or persons of the one to the other, you will always have a great many friends and not many enemies.”* (Jowett, pages 137-138)

In ancient Rome a spatial integration of the rich (the patricians) and the poor (the plebeians) was apparently enforced by urban design:

*“First of all is the close juxtaposition of the houses of the wealthy and the single-room high-rise apartment dwellings of the poor. As this and many other plan fragments show, there was no significant economic segregation in Rome... ..In our present example of imperial Rome, it is interesting to consider the reality of close physical mixing of social classes against the literary image of the distinct separation of those classes in many social practices.”* (Reynolds (1997), page 16).

Although segregation by income need not imply ethnic segregation, the two are strongly correlated and evidence of this abounds from later periods. For example, in Constantinople, the capital of the Eastern Roman Empire for eleven centuries and the world's largest city for a long time, the majority of the population was Hellenic but certain areas were settled by European traders and Jews. After the conquest by the Ottoman Turks in 1453, Greeks, Armenians, Jews, and Levantines dominated parts of the city and were wealthier and higher taxed than the ruling Turks.

The causes of ethnic segregation in contemporary cities are variable. Many large central cities on all continents have vibrant Chinatowns. Under South African apartheid blacks and whites were required by law to live in separate areas. Black ghettos in the large cities of the American Midwest and Northeast emerged as freed slaves moved north to seek a new life within a white majority that was racially prejudiced. Although there were no laws restricting location by race, privately initiated racial and religious restrictive covenants operated well into the 1950s (Plotkin, 1999). In today's Europe, Algerian ghettos in France or Turkish ghettos in Germany have emerged much like black ghettos have in the United States as immigrants were injected into a society with a different culture, language or religion. In third world countries, ghettos are often informal squatter settlements in the outskirts of large cities because poor migrants from the rural areas cannot find affordable formal urban housing. Such are the *favelas* of Brazil, the *gecekondu* settlements around Turkey's large cities,<sup>1</sup> or the ghettos of large Asian cities. The impoverished settlers in these areas are often of distinct regional or ethnic origin. Asia's largest slum, Dharavi, sits on 427 acres (0.67 square miles) sandwiched between two major north-south railways, near the center of Bombay. Estimates of Dharavi's population range from one half to one million people (Sharma, 2000) "*crammed into rows of makeshift shanties, cobbled together with nothing more than asbestos sheets, plastics, bamboo sticks, discarded canvas bags, wooden planks and old car tires*" (Katyal and Lengade, 2004). Dharavi's implied gross population density is 1171 people per acre or higher, or at most 37 square feet of land per person. The chief occupations are leatherworking, embroidering and pickle-making. The land is swampy, lacking toilets and water supply. Although many ethnicities mix in Dharavi, 37% of the population, the largest group, is Tamil-speaking (Mohite, 2003).

I will use *ghetto* to mean not a *slum* but any significant and contiguous ethnic concentration including an economically vibrant one. The politically correct definition has evolved. A 1979

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<sup>1</sup> *Gecekondu* translates as "night-perched" referring to an informal dwelling inconspicuously constructed on public land by the squatter in one night. In most cases, this is sufficient to afford the squatter a legality of tenure unless the government decides otherwise.

dictionary gives two.<sup>2</sup> The first echoes Europe's anti-Semitic past: a ghetto is "*a section of a city in which in former times, in most European countries, all Jews were required to live.*" The Warsaw ghetto of World War II is the last example of this. The second definition reflects U.S. reality. Accordingly, a ghetto is "*a section of a city, especially a thickly populated slum area, inhabited predominantly by Negroes, Puerto Ricans, or any other minority group, often as a result of social or economic restrictions.*" By contrast a dictionary published in 1995 reiterates the first definition but adjusts the second as "*any section of a city in which many members of a minority group live.*"<sup>3</sup>

Does ethnic segregation emerge from voluntary decisions or from social restrictions? Often both aspects are present and may be difficult to distinguish. Chinatowns may be largely voluntary, while the African-American ghettos of the United States and the Muslim ghettos of India are thought to have been caused, in part, by exclusion. We will see that ghettos that emerge due to external coercion and those that self-organize have observable differences.

Segregation can be measured at many levels of resolution. No matter what the level, it exhibits enormous variation among urban areas. Table 1 lists 43 U.S. Primary Metropolitan Statistical Areas (PMSAs), with over one million population in 1980. I compare the spatial segregation of non-Hispanic African Americans by dividing their percentage of the central city population by their percentage of the suburban population.<sup>4</sup> I refer to this ratio as the *ghettoization index*. This index, for the year-2000, varies from a high of 21.5 for the Milwaukee-Waukesha MSA to a low of 0.8 for Miami. The year-2000 index for the United States is 2.6. Virtually all of the 23 PMSAs that score higher are in the Northeast or the Midwest and almost all that score lower are in the South or the West. The index has come down in each of the 43 PMSAs since 1980, as the percent-black of the suburbs has increased faster than the percent-black of the central city. In Milwaukee, the most ghettoized PMSA, the index came down from 42 in 1980 to 21.5 as the suburbs changed from 0.5% to 1.5% black. For virtually all PMSAs that are more ghettoized than the nation, the percentage of central city population that is black has increased, while for PMSAs less ghettoized than the nation, central cities are stable or becoming less black.

[ TABLE 1 ABOUT HERE ]

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<sup>2</sup> The unabridged edition of *The Random House Dictionary of the English Language*, Random House, New York 1973. According to the dictionary, ghetto derives from the medieval *borghetto*, meaning a "settlement outside the city walls" more like today's suburbs than an American ghetto in an inner city.

<sup>3</sup> Paperback pocket edition of *Webster's New World Dictionary*, Simon and Schuster, New York, 1995.

<sup>4</sup> Nationwide, about 55% of blacks and 22% of whites reside in central cities, while 55% of whites and 31% of blacks live in the suburbs.

According to the Bureau of the Census, among the same 43 PMSAs in 2000 with at least one million people and at least three percent African American population, the most segregated was Milwaukee-Waukesha, Wisconsin (Figure 1) and the least segregated was Orange County, California (Figure 2).<sup>5</sup> In each figure, a dark gray dot is a concentration of 200 African Americans while a light gray dot a concentration of 200 white Americans. In Milwaukee, the dark gray dots are thickly clustered and cover a large section of the inner city signifying a ghetto. In Orange County the dark gray dots appear randomly dispersed among the light gray dots: there is no ghetto. Concentrations of African Americans are much smaller and isolated.

What accounts for the sharp contrast between Milwaukee-Waukesha and Orange County? Perhaps the most *cliché* and *passé* explanation is that Midwesterners are far more racially prejudiced than Californians. Accordingly, Milwaukee blacks reside in a more hostile environment than do Californian blacks and would find it too costly to relocate out of the ghetto. But Los Angeles and San Francisco, two other California PMSAs, contain swaths of African Americans and Hispanic neighborhoods. Why then is Orange County different? Midwestern blacks not whites may be prejudiced. Then the Milwaukee ghetto is one of *self-segregation*: not exclusionary prejudice by whites, but inclusionary prejudice by blacks. A third explanation, the one I favor, is that the racial segregation is driven by income differences inducing self-selection in residential locations. Choices depend on a durable land use and housing pattern that is inherited from the past. Residential densities in Orange County are lower and housing values higher than in Los Angeles and much higher than in the Milwaukee ghetto. Higher income African Americans can afford to live in Orange County.<sup>6</sup> If, for blacks, living in a ghetto is an inferior good and living in the suburbs a normal good, then those who move to Orange County have no interest in forming a ghetto. Whites are also probably less prejudiced against blacks of similar incomes. Higher income blacks who move to the suburbs are rarely clustered in ghettos and are accepted in predominantly white neighborhoods.<sup>7</sup> The dispersion of Orange County blacks reflects this.

[ FIGURES 1 AND 2 ABOUT HERE ]

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<sup>5</sup> For additional maps and extensive documentation of various spatial measures of ethnic segregation, the reader is referred to Iceland and Weinberg (2002). The full report can be seen on the Internet at <http://www.census.gov/prod/2002pubs/censr-3.pdf>

<sup>6</sup> Income differences between white and black Americans have diminished and about 30% of African-Americans now live in the suburbs (Mills and Lubuele, 1997).

<sup>7</sup> There are, however, suburban ghettos where middle or lower income blacks reside. A part of the growing suburbanization of blacks seen in Table 1 is, in fact, due to growing black ghettos in some older suburbs of large cities. In Atlanta, for example, 25.6% of the suburbs are black who are concentrated in the inner southern suburbs.

I will show how urban economic theory *can explain* ghettos and ethnic segregation. In section 2 I use agglomeration and externalities to explain the formation of voluntary ghettos, Chinatowns being examples. In section 3, we see how involuntary ghettos form due to prejudice, discrimination or exclusionary policies targeting an ethnic minority. In section 4, I turn to bid rent theory and ghettos. What is the pattern of land rent within a ghetto and across the ghetto boundary and how is it different for voluntary and involuntary ghettos? In section 5 the central question is whether ghettos are efficient. The answer need not be that involuntary ghettos are inefficient. The organization of ethnic populations in voluntary or involuntary ghettos can generate net social benefits. In section 6 we briefly see how policy and politics in the world has responded to racial and ethnic segregation.

## **2. The voluntary ghetto**

Spatial agglomeration explains how virtuous ghettos can form by voluntary atomistic decisions. But although the concept of agglomeration has been used to explain the spatial concentration of firms, it has not been used to explain ethnic or racial concentrations of people. An agglomeration economy exists when the proximity of economic agents reduces costs. Suppose that members of an ethnic group have a strong taste for sharing a church or temple, preserving customs, trading with each other, borrowing from or lending to each other, speaking their language, teaching it to their children or enjoying each other's company in day-to-day affairs. Then, many costs are reduced when a sufficiently large number of individuals, families and businesses locate in a contiguous area, forming a ghetto.

In a Chinatown, businessmen find it more profitable to set up Chinese food markets, families feel secure that their children will speak Chinese and business dealings can be conducted in the native tongue avoiding the less familiar customs of the majority. Tourists come to enjoy authentic Chinese food or to view Chinese New Year parades. Such exportable cultural activities are made possible by the scale of the ghetto. The ethnic ghetto is an entry point for immigrants, easing their cost of transition. After living or working in the ghetto, the immigrant becomes adjusted. At a later stage in the life-cycle he moves out to set up a suburban business or, with some luck and perseverance, becomes a CEO. Ghettos also generate negative intra-ethnic externalities. Growing up in a purely ethnic environment may slow down assimilation putting the residents at a disadvantage. Positive peer effects may be absent in segregated schooling. Spatial isolation can have adverse economic effects such as difficulty in acquiring jobs. Ethnic organized crime

networks may flourish in large ghettos but become inoperable when the ethnic population is dispersed.

The rise and fall of vibrant ethnic ghettos was an ongoing backdrop in American cities in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. Jewish parts of town, Little Italys and Little Dublins were quite common. Eventually, as American-born and English-speaking generations replaced the old, these ethnic gems all but vanished as populations became assimilated and affluent, dispersing to the suburbs. Unless there is a continuing influx of new immigrants, the ghetto is depopulated or filtered-down to another less-affluent ethnic group. The once vibrant Greektown near downtown Chicago has lost most of its Greek population. Suburban Greeks still maintain some businesses there. Some cater to ethnic Greeks and others to tourists. But with increasing assimilation and fewer immigrants, it becomes harder to save costs by clustering together. Meanwhile, Greek churches with dispersed congregations were built in Chicago's suburbs. Astoria in Queens continues to have a considerable but reduced residential and commercial presence by ethnic Greeks. Other ethnic groups of Hispanic and Asian origin are now equally dominant. Today's Astoria has the character of a *multiethnic ghetto*: an agglomeration of diverse groups and immigrants who find it cheaper to deal and live with each other than to disperse into the broader society.

### **3. The involuntary ghetto**

A major driver of involuntary ghettoization is that individuals join a ghetto to find safety. After the anti-Muslim riots of Gujarat in 2002<sup>8</sup>, India's 13% Muslim minority of about 150 million, swarmed to existing Muslim ghettos at an accelerated rate. This is induced by growing animosity toward Muslims by the Hindu majority as well as by the Muslim's need for safety. Kawaja (2002) claims that ethnic violence against Muslims is highest where they are least concentrated. According to some reports, Muslims in Ahmedabad, Delhi and other cities have flooded to ghettos, complete segregation being prevented only by skyrocketing ghetto rents (Times News Network, 2002).

While ghettos may offer safety, they may also facilitate wholesale destruction by accident or design. In 1929 a huge fire destroyed the centuries old and exclusively Greek Tatavla district of Istanbul, known for its ethnic vibrancy. The Greeks of Tatavla were known for the efficiency of their volunteer firefighting force. Was the fire set by the Turkish authorities as is widely claimed in the folklore of survivors, and did the Turkish police prevent the Greek firefighters from

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<sup>8</sup> Amartya Sen, the 2001 Nobel Laureate in economics, points to evidence of State involvement in the riots that started after the Gohdra carnage in which Hindu worshippers were burned inside a railroad car. (The Hindu, 2004).

operating, while the public firefighters arrived too late? (Yilmaz,1998).<sup>9</sup> In contrast, twenty six years later during the pogrom of 6-7 September 1955, the Turkish authorities had to organize numerous mobs that rampaged and sowed destruction through scores of large and small Greek residential neighborhoods and business districts dispersed within Istanbul (Ioannides, 1991). The direct cost of this, including the blow to Turkey's reputation, was enormously higher than that of the deliberate or accidental fire of 1929. The pogrom of 1955 targeted only Greeks but could not distinguish between Greeks, Armenians or Jews where they were spatially mixed. Hence, these other groups suffered "collateral damage" (Sachar, 1995).

Why are large concentrations of African Americans persisting in many American cities? And why are African-American ghettos less vibrant than the ethnic ghettos of the past? One view is that the African-American ghetto is not voluntary but results from *prejudice, racism, discrimination* and *exclusion* on the part of the white majority. *Prejudice* refers to a negative externality a member of a group feels when it is residentially mixed with members of another. *Other things equal*, a prejudiced white prefers an all white neighborhood rather than one where some are black. Similarly, a prejudiced black prefers the ghetto. We already argued that a Chinese immigrant would rather locate in Chinatown than outside, because the ghetto offers economic advantages. The prejudiced immigrant prefers the ghetto even if the same or better economic advantages existed outside.

Many authors use residential prejudice as implying *racism*. Racists believe that other races are inferior. A prejudiced person may dislike interacting with members of another ethnic group, without implying racism. If a Christian does not like to hear Muslim prayers voiced from minarets or a Muslim does not like to hear church bells, these prejudices do not mean that they hate each other or view each other as inferior only that they may prefer to live separately. Some white Americans may prefer neighborhoods that have no blacks because they perceive that if blacks moved in, property values would fall. During previous decades, as poorer blacks moved into predominantly white areas, white flight ensued and values fell. A few who flee initially can spark a wave of white flight. This could occur even if no one white were a racist but many falsely believed that there were some among them who are and *will* flee. With such beliefs a cumulative process ensues as a vicious self-fulfilling prophecy.

*Discrimination* means treating other groups differentially. American real estate brokers have, for decades, discriminated against blacks by not showing them houses in white neighborhoods or urging whites to sell when blacks moved in. There has been evidence that some mortgage bankers

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<sup>9</sup> The surviving Greek population became dispersed and the Turkish authorities renamed the district "Kurtulush" (liberation) allegedly to signify "liberation" from Greeks.

are less likely to approve home loans to African Americans. The term *redlining* refers to refusing loans to people in certain neighborhoods because they are perceived as risky borrowers. Discrimination in labor markets (Becker, 1957) can also indirectly affect residential location. Prejudice or racism, is not necessary for discrimination to occur. Yinger (1995) has suggested that discrimination by brokers was economically motivated. Such agents feared that should they not discriminate, they might be penalized by lower pay or job loss.

*Exclusion* is an institutionalized policy that prevents minorities from locating in specific places. South African apartheid and the Warsaw ghetto are legalized exclusion. Ethnic segregation in Cyprus was imposed in 1974 by the invading Turkish army. Prior to the invasion, the 80% Greek majority and 18% Turkish minority were mixed in all cities and most villages. The invading army ethnically cleansed nearly 200,000 Greek Cypriots (a third of the total Cypriots) from their homes in northern Cyprus, and later distributed their properties to Turkish Cypriots who moved north voluntarily and to many illegal settlers from Turkey. Israeli settlements inserted into the West Bank and Gaza are another example of exclusionary policies. Since the 1967 war, the occupied territories have become more integrated by the insertion of Israeli Jews while becoming extremely segregated at the micro level as each such settlement is purely Jewish.

Exclusionary policies abound in both North America and Europe. Western European governments build housing projects in the suburbs that often house minorities or immigrants. These are, in effect, small ghettos. U.S. suburbs often institute large-lot zoning: houses must sit on private lots of at least a certain size. This results in only expensive homes being built, which remain unaffordable for many minorities. One view is that these ordinances are the result of residents' preferences for low densities. Another view is that poorer residents share the schools offered by the suburban community but pay less by residing in a smaller house, since schools are funded by *ad-valorem* property taxes. This *free-riding* by lower income residents is prevented by disallowing smaller houses. The policy seeks to exclude by income, not race or ethnicity which is illegal. But, African or Hispanic Americans are on average poorer and are indirectly excluded. Suburban schools are segregated and schooling benefits of integration remain unrealized.

Back in 1968 John Kain provided a forceful argument that African-American ghettos are involuntary. He observed that whites controlling hiring excluded blacks from suburban jobs. Because suburban residential zoning also excludes blacks, many don't apply for suburban jobs or cannot commute to them. Kain argued that the resulting exclusion cloisters blacks in inner city ghettos and is responsible for the high rates of black unemployment. This is exacerbated by many

blue collar jobs having moved out of central cities to suburban and exurban areas.<sup>10</sup> A vicious cycle ensues. As the ghetto economy becomes isolated, unemployment, poverty, crime and social problems increase, while political power and public expenditures decline. This feeds the perception that the ethnic group is dysfunctional, increasing prejudice.

A questionable aspect of Kain's 1968 argument was that the exclusion of minorities from the white areas caused a land limitation, preventing ghetto expansion while population grew. If this were true, rents and densities in the ghetto would rise and blacks, on average, would pay a higher quality-adjusted unit price for housing than would whites. This observation jars with prejudiced whites fleeing expanding ghettos. That would cause a demand reduction, expanding the housing stock that filters down to blacks. Blacks in ghettos would then pay a lower not higher price for housing. Which version is true? It may be conjectured that in the initial stages of white flight, blacks benefit from lowered inner city housing prices. Later, if the ghettos population increases but blacks are excluded from surrounding neighborhoods and suburbs, the land limitation may become binding.<sup>11</sup> Using my model of city and suburban land and labor markets (Anas, 2002), I can show that white prejudice lowers ghetto rents paid by blacks and benefits blacks in the housing market, while exclusion raises rents and hurts blacks.

#### **4. Ghettos and rents**

Martin Bailey (1959) thought about how equilibrium rents must vary across the ghetto border. Figures 3a and 3b depict his analysis. Assume a narrow linear city of unit width. All locations are a priori identical. Land must be divided between blacks and whites. Bailey assumed that whites are prejudiced and would regard proximity to the border of a black ghetto as a bad, while blacks would like to reside with whites, regarding proximity to the border as a good. Suppose that distance to the border becomes unimportant beyond one mile. Assuming that blacks and whites are identical in income and in other-than-racial preferences, land rent around the ghetto border of a segregated city would be as in Figure 3a.<sup>12</sup> If each piece of land is owned by a different landlord, the pattern of Figure 3a is unstable. *Blockbusting* ensues where arbitrageurs buy houses from whites just to the right of 0, renting or selling them to blacks. Equivalently, white owners sell to blacks and flee. The border moves to the right expanding the ghetto. For arbitrage to be

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<sup>10</sup> This condition is known as *spatial mismatch*. For a review of the literature that has accumulated, see Kain (1992).

<sup>11</sup> Kain and Quigley (1972), King and Mieszkowski (1973) and Galster (1977) have found some statistical evidence that blacks pay more for comparable housing, although not necessarily a lot more.

<sup>12</sup> The slopes of the rent lines within a mile of the border need not be the same since they reflect how much blacks value marginal distance to the border and how much whites value marginal distance from the border.

unprofitable, black and white bids on a unit amount of land must be equal at the border or, if housing conversion is required, then black and white bids on land will differ by the cost of conversion per acre. Equilibrium is as in Figure 3b where conversion costs are ignored. Whites pay a premium for being prejudiced, thus keeping the ghetto from expanding. This motivates whites to institute exclusion. If whites exclude blacks from locating on the white side of the border either by discrimination or by zoning, then Figure 3a is sustained because arbitrageurs cannot operate. Rents in the white area fall. Without arbitrage, rent at the border is discontinuous.

Figures 3c and 3d depict how prejudice and exclusion affect the equilibrium rents on land in voluntary ghettos and involuntary slums. The length of the city is fixed at  $2a$ . This allows us to see how land rents might be altered by the demands induced by prejudice or exclusion. Figure 3c is the voluntary ghetto. The ghetto is  $2b$  long. The ghetto center is the most attractive location. Imagine that the ethnic temple, shops or schools are there. The two groups are identical in income and preferences. Curve 1 is the profile of land rent assuming no prejudice by either group. What would happen if the host group were prejudiced and regarded distance to the border as a bad? This is the case of curve 2. Host residents flee away from the border and the ghetto expands to  $2b'$ . Ghetto rents are lowered with the arbitrage condition holding anew at  $b'$ . Population density within the ghetto falls. Outside, the same people squeeze into less land raising average densities and rents. The prejudiced group pays for its prejudice in higher average rents and densities, while the ethnic group benefits. Curve 3 shows what happens if the population in the ghetto increases but the border cannot expand beyond  $b'$  due to exclusion. Then, ghetto rents rise and ethnic residents pay more for land than the host group, as was assumed by Kain (1968).

**[ FIGURE 3 ABOUT HERE ]**

Figure 3d is the case of a slum. The ethnic amenities of the voluntary ghetto are not present. As in Bailey, residents prefer to be interspersed with the majority, regarding distance to the ghetto border as a good or distance to the ghetto center as a bad. As in Bailey, the majority is prejudiced and regards distance to the border as a bad. Curve 1 depicts the equilibrium rent profile. Curve 2 shows an increase in ghetto rents if ghetto population increased but the border could not expand due to zoning. At the border, the ethnic group pays more for land than does the majority. But this may not be true on average when rents throughout the ghetto are considered.

Figure 3d (curve 1) leaves one thing unanswered. Rents in the ghetto are lower than outside. The border is established by arbitrage in the intensive margin (the areas just by the border). Why is there no arbitrage at the extensive margin (throughout the ghetto) also? A developer could buy all the ghetto land by paying a little more than the equilibrium price of land and sell it to members of the majority that would come in from other cities. The developer would make a windfall gain

on each parcel of ghetto land. Ghetto residents would have to move out to other cities. Such a giant land assembly would take so long to complete as to yield a subnormal investment return. If ghetto residents who are bought out can only relocate to the ghettos of other cities, then there would be no place for them to go on the net. This brings up the interesting question of why blacks and whites are not completely segregated in different cities. The complementarities between low and high skills in production may be an important reason for the co-location of rich and poor and, indirectly, of ethnic groups.

### 5. The efficiency of segregation

Are ghettos and ethnic segregation efficient? Since voluntary ghettos exploit concentration, it follows that ghetto formation has socially desirable aspects. But the question of how big and how many ghettos requires balancing the complex positive and negative externalities from ethnic concentration. An optimal ghetto size implies that the ethnic population should be organized into a number of ghettos, possibly in the same city. Optimal ghetto size is reached when adding one more person to the ghetto creates social marginal benefits and costs that are equal. In considering the benefits and the costs we must account those of the majority and those of the ghetto population. But since the negative and positive externalities are unpriced, it is doubtful that real ghettos are optimally sized.

Hoyt (1939) noted that most ghettos are not centered on downtowns in a roughly circular or *concentric* pattern, but tend to jut out toward the suburbs, looking like a roughly cut pie slice, a *sectoral* pattern.<sup>13</sup> I will present a simple model encapsulating Hoyt's idea. Imagine that the ghetto is designed by a racist planner who minimizes the points of contact between whites and blacks, known as the *minimum border-length hypothesis*.<sup>14</sup> Since contacts happen along the border, the objective is achieved by minimizing the border's length. For a concentric ghetto (Figure 4a) the border length is the perimeter  $2\pi r_c$ . For the sectoral ghetto, it is  $2r_s$ , twice the radius (Figure 4b). Each person is allocated one unit of land.<sup>15</sup> There are  $N_b$  blacks and  $N_w$  whites. In the concentric case, the length of the border will be  $B_c = 2(\pi N_b)^{1/2}$ . Suppose that the pie-shape covers a fraction  $\phi$  of the circle extending to the rural fringe. The ghetto land is  $N_b = \phi\pi r_s^2$  and  $N_w = (1-\phi)\pi r_s^2$  remains for whites. Solve for  $\phi$  from the first equation and substitute this in the second. Then, solve the second for  $r_s$  and multiply that by two. The length of

<sup>13</sup> The Millwaukee ghetto of Figure 1 roughly conforms to such a pattern.

<sup>14</sup> Lory (1978) developed a more complex model of the shape of the ghetto.

<sup>15</sup> I ignore the possibility that the racist planner allocates smaller lots to blacks.

the border is  $B_s = 2 \left( \frac{N_b + N_w}{\pi} \right)^{1/2}$ . The sectoral ghetto is preferred if  $B_s < B_c$ . Doing the algebra, this requires

$$\frac{N_b}{N_w} > \frac{1}{\pi^2 - 1} \approx 0.113.$$

The racist planner will prefer a sectoral ghetto if the blacks are more than 11.3% of the whites. Otherwise he will prefer a circular ghetto. Real ghettos are not the work of racist planners but of a myriad of actions by individuals, developers and local governments. It is not clear why the sectoral shape emerges.

**[ FIGURE 4 ABOUT HERE ]**

Complete segregation can be Pareto optimal though it is repugnant to many. Schelling (1969) proposed a simple but fascinating way of thinking about the relocation behavior of prejudiced individuals acting independently and myopically. I will show here that his idea extends to optimal segregation. Figure 5 illustrates Schelling's model for a linear array of an arbitrary seven locations. Imagine them to be seven adjacent houses on a street. Other locations are not available. There are four persons denoted as  $\oplus$ . Three others are shown by a  $\ominus$ . Each is prejudiced in the sense that his utility is highest if both neighbors are of his type. Utility is lower if only one neighbor is of one's own type and lowest if one is surrounded by the opposite type. Suppose that an agent wants to relocate if he is so surrounded. If at least one agent wants to relocate the arrangement is not in equilibrium. Arrangement (a) is not in equilibrium because 5 and 6 want to move. If they swap places, they improve their own utilities and those of 4 and 7. Swapping results in (b), an equilibrium in which the  $\ominus$  are ghettoized. (b) Pareto dominates (a). The highest social welfare occurs under the Pareto efficient arrangement (c). This minimizes the points of contact between the two types so that there is only one individual of each type experiencing an externality and no swaps will improve welfare. A planner is needed to achieve (c), since (b) is in equilibrium and no voluntary swaps will be initiated between a  $\oplus$  and a  $\ominus$ . The racist planner would insure that the socially optimal pattern (c) emerged. Another mechanism for transitioning from pattern (b) to (c) is for persons 1 and 2 to form a coalition and persuade the pair 4 and 5 to swap places with them. Only one person in each pair improves his utility, therefore the coalitions will work only if the gainer in each pair gains enough to compensate his partner. The reader is invited to make up some numbers and work out an example where this is possible.

**[ FIGURE 5 ABOUT HERE ]**

What if prejudice varies with the fraction of persons of the opposite type in one's neighborhood? Assume  $N_b$  blacks and  $N_w$  whites. Land consists of two islands. Coincidentally, one island has  $N_b$  units of land and the other  $N_w$ . Each person's demand for land is unity. The utilities are  $U_b = k_b a_w^\theta$  for a black and  $U_w = k_w a_b^\theta$  for a white.  $a_b$  is the fraction of an island's resident that is black and  $a_w$  the fraction of an island's resident that is white. Assume  $0 < \theta \leq 1$ . Assume that populations *within* an island contact randomly. Then, the higher the proportion of the other type on one's island is, the higher is the probability of contact. The parameters  $k_b$  and  $k_w$  measure prejudice toward the presence of the other group on one's island. If  $k_b = k_w = 0$ , persons could be allocated to islands in any way one pleased without any detriment. Consider  $k_b \geq 0$  and  $k_w < 0$ . This, as in Bailey's model, means that blacks like having more whites on their island while whites dislike having more blacks on theirs. Suppose that people are allocated to the islands according to their proportion in the total population. Hence,  $a_b = \frac{N_b}{N_b + N_w}$  and  $a_w = \frac{N_w}{N_b + N_w}$ . This is the *perfectly integrated allocation*. Another is the *perfectly segregated allocation* under which all whites are allocated to island two and all blacks to island one. Then  $a_b = a_w = 0$ . Under complete segregation welfare is zero since there are no externalities. Under integration, aggregate welfare is  $W_I = N_b k_b a_w^\theta + N_w k_w a_b^\theta$ . If  $W_I < 0$ , segregation is socially preferable to integration. This reduces to:

$$\frac{k_b}{|k_w|} < \left( \frac{1 - a_b}{a_b} \right)^{1-\theta}$$

If blacks are indifferent toward whites ( $k_b = 0$ ) but whites are prejudiced ( $k_w < 0$ ), then segregation is preferable. For any positive  $k_b$ , segregation is preferable if whites are sufficiently prejudiced, namely  $|k_w|$  is sufficiently large. The larger the percentage of blacks in society the more prejudiced whites would have to be for segregation to be preferable. That is because the per-person utility gains from segregation accruing to whites need to be balanced against the per-person gains from integration accruing to a larger number of blacks. In South Africa whites were a minority but imposed apartheid on blacks. In the United States blacks are a minority but have been largely segregated in ghettos. The above inequality implies that both outcomes may be

preferable to integration. The inequality would hold for both cases as long as South African whites are much more racially prejudiced than are American whites.

Socially optimal segregation is rendered more complex if intra-ethnic and inter-ethnic externalities are intergenerational. For example, it is arguable that growing up segregated and attending segregated schools causes new generations to remain prejudiced whereas integration improves interethnic understanding and cross cultural fertilization. Fostering more integration may impose costs on prejudiced current generations who dislike it but should have benefits for future generations since children will be less prejudiced as adults. Ghetto children can be educated more cheaply when mixed with children of the majority who may be better learners, while the cost of educating the majority increases when they share schools with the children of ghetto residents. Still, integration by income and ethnic background can increase average school performance through peer effects, and boost human capital accumulation. Benabou (1993) showed that spatial segregation with separate schools is often the equilibrium outcome, while residential and school integration often the optimal outcome.

## **6. Public policy and politics**

Socrates' advice [see Introduction] was to deal with inequality and segregation, by some form of redistribution. It has been particularly hard to heed such advice. The public policy response to ethnic segregation has varied enormously and has gone to bewildering extremes. Recently, *"the government of Rio de Janeiro State proposed to build a [3 meter tall concrete] wall around its sprawling favelas in an effort to help control rampant crime in the picture postcard city."* (Colitt, 2004). Similarly, Israel is walling off the Palestinian Arabs to protect itself from terrorist attacks. Recently, the wall was endorsed by Israel's highest court provided its alignment considered Palestinian rights. The International Court of Justice declared the wall illegal.

India's recent policy toward Dharavi, Asia's largest slum [see Introduction], is to rehabilitate it with multistory buildings at a cost of \$1.3 billion (Katyal and Lengade, 2004). This contrasts with India's slum removal policies of the 1970s and 1980s in which demolitions were, in some cases, followed by residents being packed into buses, driven to city fringes and told to return to their rural homes. Indian police is often accused of harassing Muslims. Perry (2003) claims that the *"Gujarat authorities even went so far as to price Muslim lives below those of Hindus, offering \$ 2,050 in state compensation for Muslims killed but double that for the riot's 58 Hindu victims."*

Despite countless United Nations resolutions calling for the withdrawal of troops and the restoration of the free movements of people, Kofi Annan, the secretary general of the United Nations, recently proposed a system of governance that would legitimize the military-imposed territorial and ethnic partition of Cyprus, with only partial rights to Greeks to resettle and reclaim

their looted properties (United Nations, 2004), and would allow illegal Turkish settlers to remain. The Turkish government demanded that these apartheid measures become part of the primary law of the European Union in advance of Cyprus's admission into Europe on May 1, 2004. While some (Rotberg, 2004) have naively defended the Annan Plan, others (Avineri, 2004) have pointed out that it ghettoizes Greek Cypriots in violation of the European laws of free settlement. The Annan Plan required its ratification through separate referenda by both Greek and Turkish Cypriots including the illegally imported Turkish settlers. Not surprisingly, 76% of Greeks voted against while 60% of Turks voted in favor.

The right to locate freely wherever one wants within a country is fundamental to all modern societies. Free movement of people among member countries is one of the most basic tenets of the European Union. A Europe with a low fertility rate and high wages induces immigration from the poorer countries in the Union and elsewhere to the richer ones causing international ethnic integration while, at the same time, ethnic ghettos emerge and grow within European cities causing intra-urban ethnic segregation. A trend of growing segregation and social exclusion in European cities is already established (Madanipur et.al., 1998; Roche and Berkel, 1997). In the new post Cold War era of civilizational tensions (Huntington, 1993) the growth of ghettos, especially Muslim ghettos, is becoming an issue. As Johnson (2004) puts it *“Germany has an estimated three million Muslim immigrants. Elsewhere in Europe are millions more. Many live in large cities’ immigrant ghettos, speaking the local language poorly, dropping out of school at high rates and making up an outsized share of prison populations. So the broader issues... are who represents these people, and how – or whether – they are to be fully integrated into European society.”*

Immigration can also be controlled indirectly. Becker (2000) has advocated that immigrants to the United States not be given public assistance for a number of years after entry. This amounts to the imposition of a tax on immigrants because they add to social costs. The policy would slow immigration toward its optimal level. Subsidizing Mexican economic development, would also slow immigration (Anas, 2002). In the spirit of the Coase Theorem (Coase,1960) the two approaches should yield roughly equivalent outcomes: the externality imposed by an immigrant can be mitigated either by admitting him and taxing him for the marginal social costs he imposes or subsidizing him to stay out by paying him the marginal benefit of foregoing to immigrate.

Slowing immigration aside, what should public policy do about ghettos where the racial or ethnic concentration appears to have detrimental effects? American social policy has experimented with a variety of measures with minor effects. These include the busing of children to achieve racially balanced schools, and the Section 8 and other housing subsidies to increase the

supply of low cost housing outside low income areas and ghettos. In the historic Mt. Laurel decisions in New Jersey in the 1970s and 1980s, the courts concluded that suburban land use controls violated the state's constitution, but these decisions had only some effect in New Jersey. Although suburban zoning remains the chief obstacle to the suburbanization of ghettoized black and Hispanic minorities, current public policy is limited to subsidizing inner cities. Although such income redistribution is not spatially targeted, it may be politically justified as compensation to ghetto residents for the prevailing exclusion.

The growing concentration of black voters in central cities (see Table 1) has resulted in the election of more black mayors and local politicians (McWirther, 2000). Increased control over central city politics may provide blacks an incentive to stay ghettoized. Some black politicians are among the loudest opponents of metropolitan governance or low cost housing programs that would scatter blacks in the suburbs, since this dilutes their base of voters. It would also stand to reason that the growing proportion of minorities in central cities helps extract a bigger stream of subsidies from Washington and the state governments. But it is unclear whether these political economies of scale have improved the welfare of African and Hispanic Americans.

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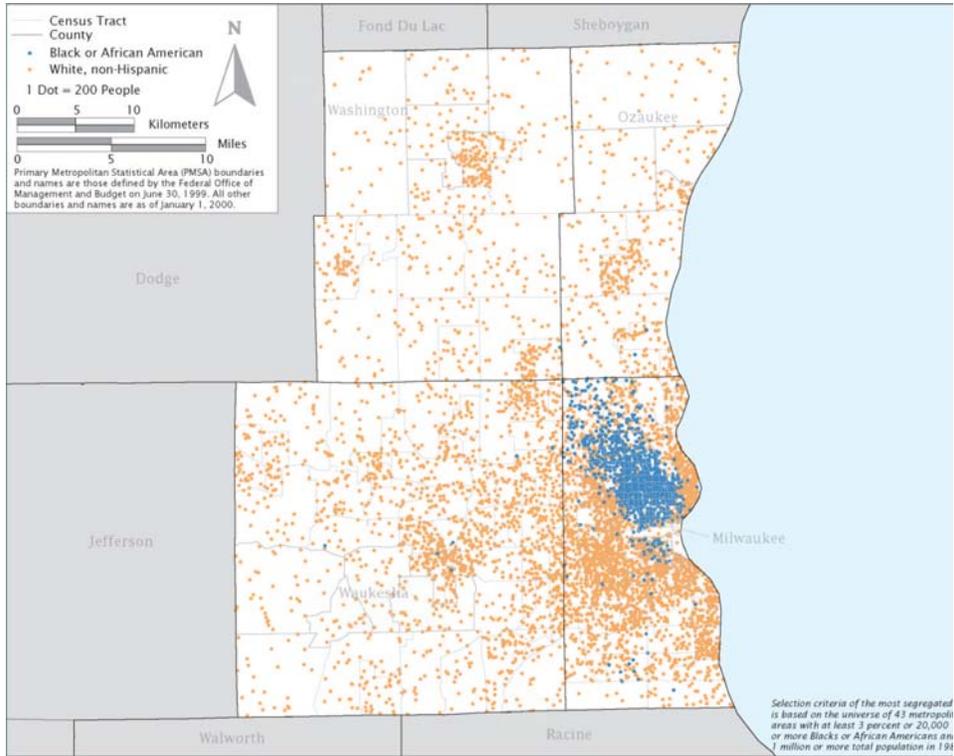
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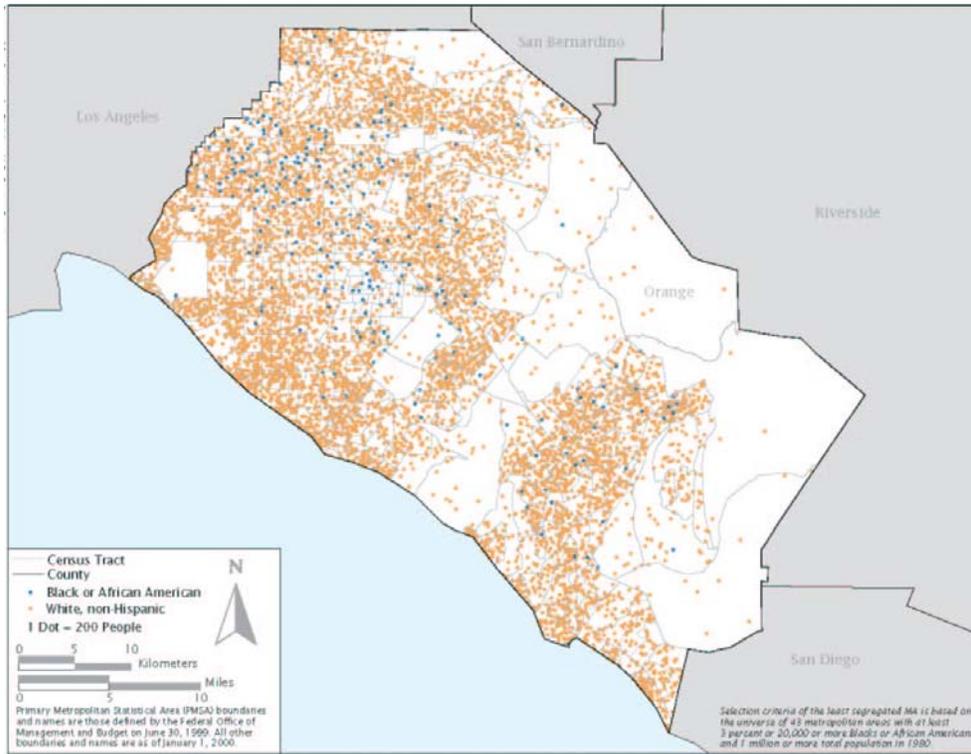
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Primary MSA	Percent non-Hispanic Blacks						Ghettoization index		
	Central city			Suburbs			1980	1990	2000
	1980	1990	2000	1980	1990	2000	1980	1990	2000
Milwaukee-Waukesha, WI	21.0	27.7	34.4	0.5	0.7	1.6	42.0	39.6	21.5
Buffalo-Niagara Falls, NY	24.1	27.9	34.8	1.2	1.4	2.4	20.0	19.9	14.5
Indianapolis, IN	20.9	22.0	25.4	1.0	1.4	2.2	20.9	15.7	11.5
Rochester, NY	25.4	30.7	39.1	2.1	2.5	3.5	12.1	12.3	11.2
Detroit, MI	55.9	66.0	71.4	3.4	4.3	6.6	16.4	15.3	10.8
Cincinnati, OH-KY-IN	33.4	37.8	43.5	4.2	4.5	5.7	7.9	8.4	7.6
Kansas City, MO-KS	24.6	26.1	27.4	1.5	2.2	3.7	16.4	11.9	7.4
Boston, MA-NA	16.5	18.6	20.3	1.0	1.8	2.8	16.5	10.3	7.3
Minneapolis-St. Paul, MN-WI	6.4	10.4	17.0	0.5	1.1	2.9	12.8	9.5	5.9
Columbus, OH	19.1	20.2	23.4	1.8	3.0	4.4	10.6	6.7	5.3
Pittsburgh, PA	5.5	6.2	6.6	3.8	4.1	5.3	6.3	6.2	5.2
Hartford, CT	27.9	30.1	31.4	2.5	3.6	6.1	11.2	8.4	5.1
Portland-Vancouver, OR-WA	5.5	6.2	6.6	0.4	0.6	1.3	13.8	10.3	5.1
Cleveland-Lorain-Elmyra, OH	37.5	39.6	44.1	6.4	8.0	9.7	5.9	5.0	4.5
Philadelphia, PA-NJ	38.3	40.1	43.8	6.9	7.8	9.7	5.6	5.1	4.5
Baltimore, MD	53.7	57.8	63.1	8.4	10.4	14.9	6.4	5.6	4.2
Providence-Fall River-Warwick, RI-MA	4.2	5.2	7.5	0.6	1.1	1.9	7.0	4.7	3.9
Chicago, IL	36.8	35.8	33.8	4.6	6.4	8.8	8.0	5.6	3.8
Oakland, CA	35.7	33.2	29.0	6.4	7.4	8.4	5.6	4.5	3.5
St. Louis, MO-IL	39.8	40.0	42.1	8.1	9.7	12.5	4.9	4.1	3.4
New Orleans, LA	52.6	59.0	64.6	13.9	17.7	21.0	3.8	3.3	3.0
Newark, NJ	57.3	55.8	53.0	13.1	15.6	17.8	4.4	3.6	2.9
Denver, CO	11.9	12.4	11.6	1.8	3.0	3.9	6.6	4.1	2.9
<b>USA</b>	<b>22.5</b>	<b>22.1</b>	<b>22.8</b>	<b>6.1</b>	<b>6.9</b>	<b>8.8</b>	<b>3.7</b>	<b>3.2</b>	<b>2.6</b>
Atlanta, GA.	66.0	66.8	61.6	13.8	18.7	25.6	4.8	3.4	2.4
Dallas, TX	25.4	25.1	23.1	5.3	7.3	9.7	4.8	3.4	2.4
Houston, TX	26.3	26.2	24.7	6.1	8.9	10.7	4.3	2.9	2.3
San Francisco, CA	12.5	10.5	8.2	5.0	4.7	3.7	2.5	2.2	2.2
Seattle-Bellevue-Everett, WA	7.6	8.1	7.9	1.0	2.0	3.9	7.6	4.0	2.0
New York, NY (excl. suburbs in Long Island, New Jersey and Connecticut)	23.9	25.2	25.5	9.6	11.0	12.6	2.5	2.3	2.0
Washington, DC	55.8	50.4	45.2	16.2	18.8	22.9	3.4	2.7	1.9
Tampa-St. Petersburg-Clearwater, FL	9.1	8.8	10.4	3.4	4.0	5.8	2.7	2.2	1.8
San Diego, CA	7.9	8.3	7.8	2.7	3.7	4.6	2.9	2.2	1.7
Norfolk-Virginia Beach., VA-NC	29.5	30.0	35.2	23.7	21.3	21.1	1.2	1.4	1.7
San Jose, CA	3.7	3.9	3.4	2.1	2.5	2.2	1.8	1.6	1.5
Fort Lauderdale, FL	20.4	27.3	31.0	9.2	13.2	20.6	2.2	2.1	1.5
Los Angeles-Long Beach, CA	16.1	13.1	12.1	9.1	8.3	8.2	1.8	1.6	1.5
Phoenix-Mesa, AZ	3.6	3.8	4.4	2.0	2.2	3.1	1.8	1.7	1.4
Orange County, CA	2.3	2.2	2.0	0.9	1.4	1.7	2.6	1.6	1.2
Riverside-San Bernadino, CA	8.2	8.3	9.0	3.9	6.1	7.9	2.1	1.4	1.1
San Antonio, TX	7.0	6.7	6.7	5.2	5.8	6.7	1.3	1.2	1.0
Miami, FL	18.7	20.4	17.8	15.8	18.7	20.4	1.2	1.1	0.8

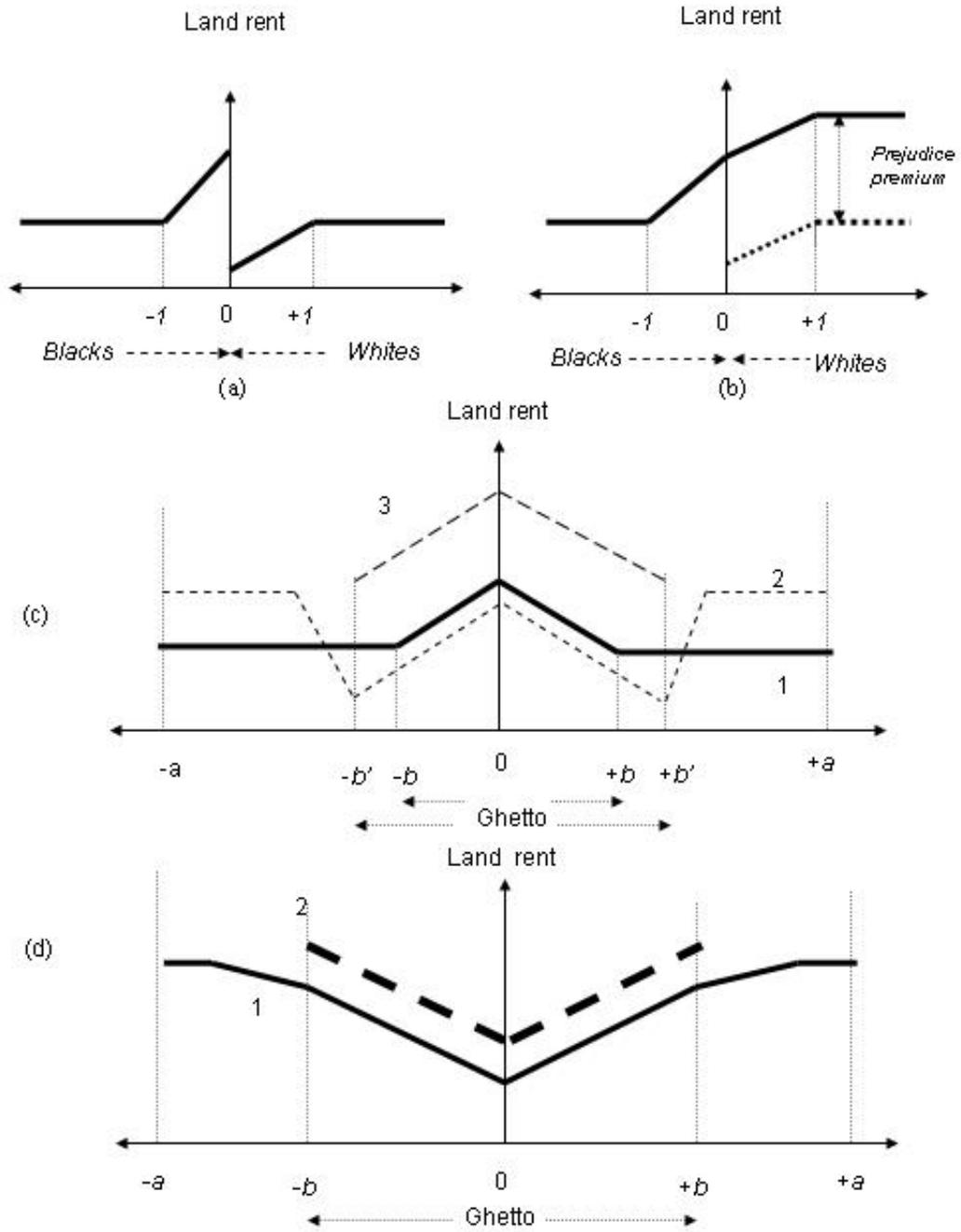
**TABLE 1: Ghettoization trends for non-Hispanic blacks in the 43 PMSAs with more than 1 million population in 1980, ranked by year 2000 ghettoization index**



**FIGURE 1: Milwaukee-Waukesha, WI. The most segregated large metropolitan area for African Americans in 2000. Source: Iceland and Weinberg (2002)**



**FIGURE 2: Orange County, CA. The least segregated large metropolitan area for African Americans in 2000. Source: Iceland and Weinberg (2002)**



**FIGURE 3: Rents and ghettos: (a), (b) Bailey's model; (c) Voluntary ghetto; (d) Slum**

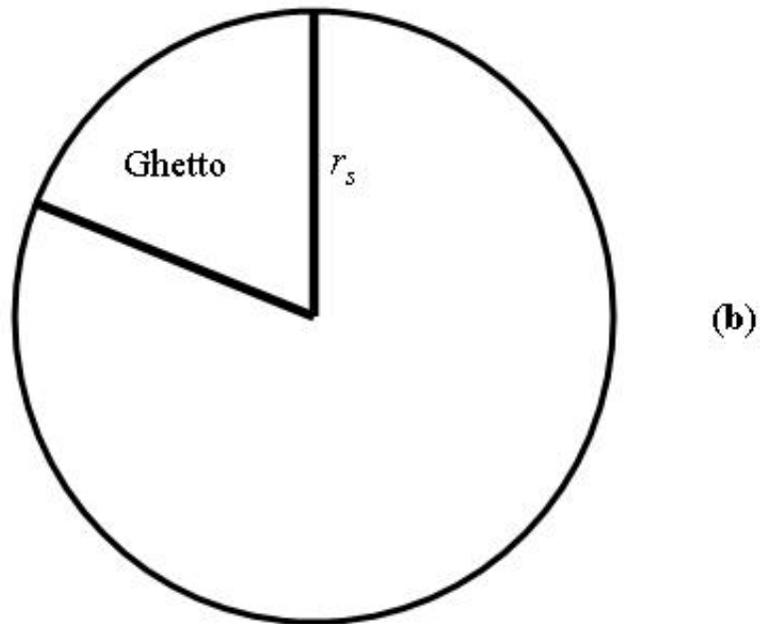
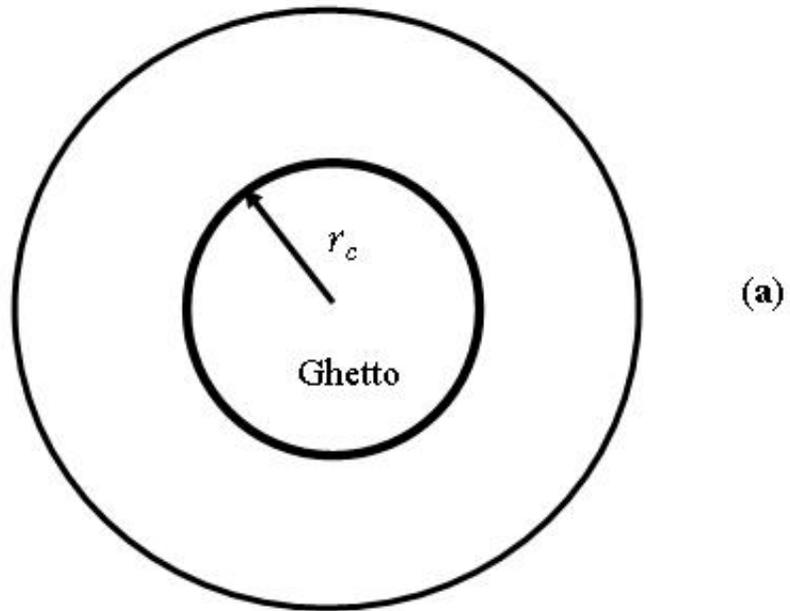
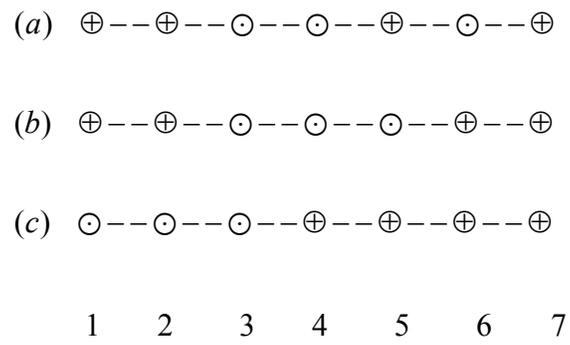


FIGURE 4: Concentric and sectoral ghettos



**FIGURE 5: (a) Unstable allocation; (b) ghettoized equilibrium; and (c) Pareto efficient ghetto in a Schelling-type model.**