Global Neighborhoods in Less Diverse Metropolitan Areas, 1980-2010

Wenquan Zhang
University of Wisconsin Whitewater

John Logan
Brown University

INTRODUCTION

Stable residential integration between blacks and whites has been hitherto rare, partly because the solution to the problem is predicated on itself. The historical confrontation and traditional antagonism frequently made it difficult for even blacks and whites of comparable socioeconomic status to share the same community (Denton and Massey 1988; Logan et al. 2004); this situation, one would expect, can only be improved through steady increase of inter-group understanding; but residential segregation and the consequent lack of interaction between the groups have thus hindered such understanding to develop. This contrariety is partly responsible for the scarce lasting residential integration of blacks and whites during much of the 20th century, when blacks were the only large minority; and neighborhood change was, instead, frequently observed as a transformation from the predominance of whites to the predominance of blacks (Duncan and Duncan 1957; Guest and Zuiches 1971;Taeuber and Taeuber 1965).

New immigrants of Hispanic and Asian origin have brought hopeful solutions to this conundrum. The *buffer* hypothesis (Frey and Farley 1996) posits that it is their very presence that facilitates neighborhood sharing between blacks and whites. Indeed, they are conjectured to provide an effective social and/or physical cushion in integrated communities absorbing tensions and fostering comfort between blacks and whites, and thus to allow the neighborhood sharing of all groups while racial barriers still in place. They are expected to serve as the intermediate groups between blacks and whites, diversify racial/ethnic composition of neighborhoods, and alter inter-group dynamics (Frey and Farley 1996).

Global neighborhoods, where blacks and whites are substantially present alongside Hispanics and Asians, suggest a new pathway to stable residential integration in metropolitan America[1]. Logan and Zhang (2010) demonstrate the emergence and persistence of this phenomenon in multiethnic metropolitan areas, where new immigrants are most concentrated and group diversity is most pronounced. In this paper, we ask: How about the rest of America? Can global neighborhood emerge outside the multiethnic context? Or do alternative models of neighborhood change prevail in less diverse settings? Our purpose is to extend the research to a wider range of metropolitan areas, inquiring particularly the track and trends of neighborhood transition in varying diversity conditions.

BACKGROUND

PATHWAYS OF NEIGHBORHOOD CHANGE—FROM "INVASION-SUCCESSION" TO GLOBAL NEIGHBORHOOD

The classical model of neighborhood racial change was introduced by the Chicago School sociologists in an ecological metaphor: "invasion and succession" (Hoover and Vernon 1959). In big American cities of the early and middle part of the 20th century, it was frequently observed that the entry of black residents into previously white neighborhoods, once reaching a "tipping point" (Schilling 1971), would trigger rapid white exit and lead to the subsequent predominance of blacks (Aldrich 1975; Duncan and Duncan 1957; Schwirian 1983; Taeuber and Taeuber 1965). The dynamics of this kind of neighborhood transition is vividly captured in the expressions of "invasion" and "succession."

Since the 1965 immigration legislation, the massive and continuous influx of immigrants from Asian/pacific and Latin American regions has altered the once black and white America. The addition of new minority groups, of mostly Hispanic and Asian origin, has brought significant changes to various aspects of American life (Nyden 1998; Logan et al. 1996). In this context, there has been a growing echo among researchers calling for alternative theories on neighborhood transition in the era of mass immigration and growing diversity.

Surveying neighborhood change in the 1970s, Lee and Wood (1991) surmised a possible diversion from the thitherto prevailing pattern of "invasion-succession"—"The dominant trend," they observed, "is toward complex multiethnic neighborhoods in which all four groups are present." Denton and Massey (1991) reported the decline of white tracts and rise of the share of areas with multiple racial/ethnic groups in a separate study of the 1970s. Frey and Farley (1996) explicated the potential for a "buffering" thesis (Santiago 1991) in areas "where the combined Latino and Asian population outnumbers blacks"—the segregation between whites and blacks is mitigated by the residential "buffer" of the presence of the new minority groups, such as Hispanics. They further hypothesized that the movement of "more fully assimilated second and third generations of Latinos and Asians to higher-status, more integrated communities" provides "a push that should lead to greater integration of blacks both with more fully assimilated minority members and with whites" (Frey and Farley 1996, p. 42).

Logan and Zhang (2010) put this "buffer" hypothesis to empirical test. They examined the nation's most diverse metropolitan areas for 1980 through 2000, and constructed transition matrix to study the composition change of racial/ethnic groups in census tracts. They coined the term *global neighborhoods*, where all four major racial/ethnic groups are represented significantly, and argued that the type of transition toward global neighborhoods maps out a new path to stable residential integration in multiethnic metropolitan areas (Logan and Zhang 2010). Their key findings are:

- Global neighborhoods emerge, grow, and persist in multiethnic metropolitan areas. A large and growing share of the total population and of each group resides in these neighborhoods. Their emergence and persistence over time replace

"invasion-succession" to become the new standard of neighborhood transition and lend renewed hope to stable residential integration.

- Global neighborhoods arise via designated paths—most often, immigrant groups enter previously white-only neighborhoods, and later joined by blacks. This sequence of group entry implies that the presence of Asians and Hispanics paves the road for blacks to join diverse neighborhoods, and thus suggests a model of residential integration that is facilitated by the "buffer" effect of immigrants to bridge the still persistent racial divide.
- Yet there is a countertrend toward non-white/all-minority neighborhoods. It is the combined effect of two distinct elements: a. the continuous white exit from areas shared with minority groups; and b. the reluctance of whites to enter non-white areas. As a result, a growing share of communities in metropolitan America becomes minority-only and sees no path to future integration.

This study employs similar strategy to expand the investigation of global neighborhoods beyond the nation's most diverse metropolitan areas, where the conditions for emergence and sustainment of global neighborhoods are most favorable, to examine the process of neighborhood transition in broader metropolitan America. We raise the following questions:

- What's the pattern of neighborhood change outside the most diverse parts of the country?
- Will we see global neighborhoods in less diverse contexts? Or will we observe the classical model of "invasion-succession?" Or will we discover other models of neighborhood change?
- Does the "immigrant buffer" still exist and facilitate neighborhood transition in metropolitan areas with small immigrant population?
- What factors affect the patterns of neighborhood changes in less diverse metropolitan areas?

The answers to these questions will: (1) advance our knowledge of the basic assumptions, dynamics, and interactions of the transition process of global neighborhoods; and (2) shed light on the effect and potential of global neighborhoods, and thereby anticipate the direction and path of future residential integration in this country.

EXPAND TO BROADER AMERICA

The salient effect of the transition to global neighborhoods on residential integration in multiethnic metropolitan areas compels us to look further. The strength of the process in diverse setting lends theoretical necessity to expand this line of research—there is a need to assess its true potential; there is a need to study its requisite conditions; there is a need to learn factors that influence its development. We want to know whether this promise is only limited to the multiethnic context; we want to know whether this path to stable integration is still available elsewhere; we want to know how this phenomenon fares in the broader metropolitan America.

Immigrants make immigrant buffer. It is reasonable to expect that in "melting pot metros" (Frey 2011), where more immigrants are present, it is more likely to observe immigrant buffer. More than a mere numerical effect, this expectation may also imply wider social conditions with historical and cultural roots; for example, metro areas with more immigrants also tend to be located along the coasts, with longer history of immigration, and established ethnic enclaves or communities; conversely, areas with fewer immigrants tend to be inland, with more homogeneous population, and less experience with immigration or minority groups.

The general hypothesis:

> We hypothesize that the scope, the pace, and the path of global neighborhoods, a micro level process, will vary in accordance with the group composition in metropolitan areas, the macro condition.

Four Types of Diversity Contexts and A Typology of Metro areas

We conceive four distinct diversity contexts in metropolitan areas: no-minority metros (White predominant), old minority and majority metros (White and Black), new minority and majority metros (White and immigrants but no blacks), and multiethnic metros (White and Black and immigrants).

Our typology is directly informed by the Frey and Farley (1996) metropolitan ethnic classification and the Logan and Zhang (2010) metro selection standard.

Frey and Farley (1996) introduce an ethnic classification of metropolitan areas based on the data from 1990 census. In that classification, all metropolitan areas have presence of whites; thus, the status of a metro's group composition is determined by the presence of minorities. A minority group is deemed present in a metro area if it matches the group share in the national population. The categories are: mostly white, mostly Latino-white, mostly Asian-white, mostly black-white, and multiethnic (p. 41).

We use the same criteria as Frey and Farley (1996) to identify the group presence in a metro area. In a given census year, if the share of a minority group of the population in a metropolitan area matches with its share in the nation, it is counted as present; for example, when the percent black in a metro area is equal to or greater than 9.7% in 1980, the metro is designated as black-present in 1980. We create a four-letter label for each metro area for each census year. The status of each group in a metro area is marked by one of four letters: W for non-Hispanic white, B for non-Hispanic black, H for Hispanics,

and a for non-Hispanic Asians; the combination of these letters becomes the designation of the racial/ethnic composition for that metro area; for example, a metro with black and white presence is labeled WB, and a metro area with all three minorities and white is labeled WBHA.

The possible combinations are: W (white alone), WA, WB, WH (white with a single minority group), WBA, WBH, WHA (white with two minority groups), and WBHA (white with all three minority groups).

The four categories of metropolitan areas are based on the group composition in 1980: no-minority metros—W, old minority and white metros—WB, new minority and white metros—WA, WH, WHA, and multiethnic metros—WBA or WBH or WBHA.

Why these four? Rationale and Hypotheses

1. The multiethnic metropolitan areas. We now know that in metropolitan areas of significant presence of whites, blacks and immigrants, the transition to global neighborhoods leads to relatively stable residential integration. This is the type of metropolitan areas in which global neighborhoods are examined in previous studies.

In defining their multiethnic metros, Logan and Zhang employed a "two and a half" rule, which means: for a given year, if a metropolitan area has two of the three minority groups meeting their respective national average percentage and the third meeting at least half of its national average, the metropolitan area is designated as multiethnic. They selected 24 multiethnic metro areas. (Logan and Zhang 2010).

Here we also apply national group average as the criteria, but remove the "half" component from the "rule"—in our classification, a group needs to match its national share to be counted as present. Our multiethnic category also requires significant presence of blacks and at least one immigrant group (Hispanics or Asians), so that we can examine the "buffer" effect of immigrants on the neighborhood sharing between blacks and whites.

This category comprises three subtype racial/ethnic compositions: WBA, WBH, and WBHA. These metropolitan areas have significant presence of both blacks and immigrants, thus harbor the best opportunity for the emergence of global neighborhoods and a divergence from the traditional model of neighborhood transition.

This is the reference category in our study. It refers to the type of places where a diversion from traditional invasion-succession type of neighborhood transition is suspected (Lee and Wood 1991); it is the type of places where the immigrant "buffer" is hypothesized (Frey and Farley 1996); and it is the type of places where global neighborhood is detected (Logan and Zhang 2010). It offers the benchmark for global neighborhood and new pattern of neighborhood transition.

For metros in this category, we expect to observe similar transition patterns as previous studies: similar scope of global neighborhoods, similar route (gateways) to global neighborhoods, similar rate of persistence, and similar tendency of expanding non-white areas (Logan and Zhang 2010).

Hypothesis 1.

> In multiethnic metropolitan areas, where immigrants are added to the traditional two-group relations (between blacks and whites) and generate new inter-group dynamics, we expect to replicate the findings of previous studies of global neighborhoods: residential integration is mainly through the transition toward global neighborhood, integrating process mainly consists of sequential stages of transition (immigrant entry into previously white neighborhoods before blacks), via designated gateway path (WHA neighborhoods), where both Hispanics and Asians are already present with whites. We expect clear evidence of the *immigrant buffer* effect.

Other Types of Metros Besides Multiethnic Metropolitan Areas

The other three categories represent less diverse context.

Global neighborhoods need multiethnic contexts. Multiethnic metropolitan areas provides demographic basis for such context, therefore, it is natural to expect to a more readily available micro level conditions for the creation of global neighborhoods; conversely, less diverse metropolitan areas do not have balanced group presence at metropolitan level, thus global neighborhood is less expected if the micro level condition in neighborhood resembles the macro level condition of metro area.

Therefore, it is possible that there may not be global neighborhood outside multiethnic metropolitan areas at all. Maybe, only in the most multiethnic setting blacks enter white neighborhoods in a stable way.

However, there is another possibility for global neighborhood to occur in less diverse metropolitan areas. It would take a sharp departure between the micro and macro level processes for this to happen. That means the small minority group presence of a metro is disproportionately concentrated to limited territory, enough to form a small-scale environment that is greatly different from the metropolitan average and thus most other parts of the metro area, but similar to the average conditions in multiethnic metropolitan areas.

In such case, we could see some form of the *buffer* effect and certain level of global neighborhoods; however, we expect to see significant difference in scope, pace, path, and sustainment of global neighborhoods in different types of metropolitan areas.

2. The WB metropolitan areas represent a stark contrast to the multiethnic category. In them, blacks are the only large minority group, which resembles the condition in big cities of much of the 20th century, when racial relation is dominated by the confrontation between blacks and whites, and when "invasion-succession" type of neighborhood change is most widely observed. Thus, these metropolitan areas provide the most favorable conditions for the "old" model of neighborhood transition.

We expect to see many predominant white neighborhoods as well as many predominant black neighborhoods in WB areas. We expect to see "invasion and succession" in the process of neighborhood change.

On the other hand, global neighborhoods can emerge in WB areas if the Hispanics and Asians in these areas are disproportionately concentrated to a small number of neighborhoods, and thereby form pockets of multiethnic context for global neighborhoods to develop, and for the *buffer* effect to function. (In such case, there are two things to keep in mind: 1. these pockets should be few and small; 2. these pockets should be very different from other parts within these WB areas.)

It could be a process similar to that of multiethnic metropolitan areas, but happens in a much more confined and concentrated way. The direct neighborhood level confrontations between blacks and whites are alleviated thanks to the presence of new minorities in the same neighborhoods.

But it remains to be seen whether blacks are still the last to enter the mixed neighborhoods, which is most common scenario in multiethnic metros; or blacks may have entered white areas first, but immigrants joined in before the tipping point is reached and thereby slow down or avoid the turnover of the neighborhood.

Hypothesis 2.

> In metros of blacks and whites, where immigrants are largely absent, and racial relation mainly resembles that traditional black and white relation, we expect to see examples of the "classical" transition model: "invasion and succession," which anticipates the high level of isolation and concentration of whites and blacks in their respective neighborhoods, and very low level of integration, few integrated neighborhoods between whites and blacks, high residential segregation, and over time, we expect neighborhoods "change hands": transform from white predominance to black predominance. In general, we do not expect to see the *immigrant buffer* effect.

3. The next category of metropolitan areas is white-with-immigrant. This category consists of three subtype compositions: WA, WH, and WHA. These metros are newer metros mostly located in the West and Southwest regions of the country, where the black presence is historically low, black-white antagonism is less entrenched, and the impact of the mass immigration of recent decades is most strongly felt. Without significant presence of blacks, these metropolitan areas feature a new kind of minority-majority relation.

In comparison with blacks, the new minority groups (Hispanics and Asians) are generally less discriminated by or segregated from whites, which might suggest a smoother process of integration. We might find an easy path of change as these groups become residentially assimilated (Farley and Frey 1994; Iceland 2004; Logan et al. 2004; Massey and Denton 1987).

Alternatively, there may be a different picture of stratification within the immigrant groups: while Asians may generally fare better than Hispanics, it is unclear whether the Hispanics will follow the "model minority" route to become residentially assimilated; or some Latinos, especially the darker-skinned members, may go with the segmented path (Portes and Zhou 1991) to become the new blacks in this context, owing

to their various general disadvantages in terms of socioeconomic traits in contrast to Whites and Asians.

In addition, in these areas of very few blacks, "invasion and succession" may not be the black experience. Perhaps they are more easily integrated regardless of what happens with Asians or Hispanics. Or perhaps they still benefit from buffering at the neighborhood level – it could be that they enter only after another group.

We may see only limited presence of global neighborhoods, if the blacks in these metropolitan areas are concentrated in a few neighborhoods to provide multiethnic context for the emergence of global neighborhoods.

There should not be many global neighborhoods, because there may not be enough black presence. Integrated neighborhoods are most likely to be shared by whites and immigrant groups, such as WHA.

Hypothesis 3.

> In new minority/majority metros, where immigrants are significantly present, and blacks are not significantly present, we expect different scenarios: it could be a high level of integration between the new minority groups and whites—because it is observed that these new minority groups are subject to less discrimination than blacks, and thus experience less residential segregation from whites; on the other hand, certain Latino groups, particularly the darker-skinned groups, may face more difficulty in integration because of their socioeconomic disadvantages comparing with whites and Asians, (it is interesting to see how the Hispanics fare against the few blacks in these areas) so: a) there may be in general a higher level of integration in these areas than in old minority and whites areas, and b) there may be a higher level of integration between Asians and whites than between Hispanics and whites. In the absence of significant black presence, we do not expect many global neighborhoods; the integrated neighborhoods will most likely take a different form in WHA, instead of WBHA. We expect to see very limited, and maybe a different kind of, *buffer* effect, that is based on differences between the two immigrant groups: in the sense that Asians may enter the previously white neighborhood to set stage for the entry of Hispanics, which manifest as WA neighborhoods as the most important gateway to integrated neighborhoods WHA.

4. The last category contains white-predominant metropolitan areas.

What should we expect in conditions of overall low diversity and small presence of minority?

The metros in this category are unique in the sense that they have few minority members, old or new. The pattern and trajectory of change in these metropolitan areas may shed light on the onset of the diversification process.

This type of places are interesting because they might represent the preceding situation for many today's more diverse metropolitan areas, which are white predominant at some point before the population of minority groups becomes significant from either growth or through immigration.

These areas are overwhelmingly white—over 90% white, and none of the minority group reaches its national share; neighborhood transition under this white predominance should be different, but in what way?

Based on the Power and Threat Theory by Blalock (1957, 1967), one may argue that inter-group tension should be less where the minority presence is small and does not have much control of political and economic resources; therefore, the majority members do not feel the threat or competition, thus, the discrimination is less fierce, which could result in a higher level of integration.

A counter-argument is that the development in communication, transportation, technology, and mass media, internet, and social media makes today's world smaller and more inter-connected. Whites may be able to feel the potential threat and competition from minorities even without large number of minority groups around; in addition, the lack previous interaction and experience of dealing with minority may lead to lower level of tolerance by the majority members.

Hypothesis 4.

> In no-minority areas, where none of the minority group is significantly present, the pattern is difficult to predict. On the one hand, the small presence of the minority groups might translate into less threat felt by the majority group, thus foster residential integration. On the other hand, the lack of interaction and understanding and the experience of dealing with minority group members may create barriers for integration. We do not expect large scale emergence of global neighborhoods, instead, we expect a large proportion of white predominant neighborhoods and high rate of retention over time.

In sum, all four categories are substantively important. There are specific reasons to examine them separately. There are distinct hypothesis associated with each of them. It is self-evident that global neighborhood needs multiethnic context. Part of the study of global neighborhood in less diverse metropolitan areas is to explore the possible spatial heterogeneity within a metro; to see to what degree the micro condition of a neighborhood diverges from the macro condition of the metro area.

In this study we examine data for 170 most populous metropolitan areas for 1980-2010. The steps of analysis are: first, we examine the transition of racial/ethnic group composition for metropolitan areas; second, we introduce a typology to divide the metropolitan areas into four conceptually representative groups to highlight their substantive distinctions in diversity context and their conjectured patterns of neighborhood change; then, we construct transition matrices for each group of metropolitan areas; and lastly, we examine the transition matrices in terms of the relationship between micro level change—neighborhood transition patterns, and the macro level conditions—racial/ethnic composition of metropolitan areas.

DATA AND METHODS

Census Tracts and *Data Sources*

Consistent with literature, we examine the composition of four major racial/ethnic groups—non-Hispanic whites, non-Hispanic blacks, Hispanics, and Asians in census tracts. Following conventional wisdom, census tract is considered as a proxy for residential neighborhood. With about 4,000 inhabitants on average, census tracts are designed to be "relatively homogeneous units with respect to population characteristics, economic status, and living conditions." (Iceland and Steinmetz 2003, p. 2)

We use Longitudinal Tract Data Base (LTDB) prepared by S4 at Brown University. It provides "public-use tools to create estimates within 2010 tract boundaries for any tract-level data (from the census or other sources) that are available for prior years as early as 1970." (http://www.s4.brown.edu/us2010/Researcher/Bridging.htm)

The consistent tract geography provided by LTDB is crucial for our purpose of comparing the racial/ethnic change at different points in time, because it ensures that the group compositions are directly comparable by referencing the same geography at different times.

Metro Selection

We select metropolitan areas with total population at least 200,000 in each year of 1980-2010[3]. It yields a total of 170 metropolitan areas. Here metropolitan areas include both metropolitan areas and metropolitan divisions based on the 2009 metropolitan definition by Office of Management and Budget (OMB), which was created for Census 2010.

Why a subset of metropolitan areas? We decide to exclude metropolitan areas of small population. The main reason is: we do not feel that it is appropriate to mix them with metropolitan areas of much larger size in one analysis of neighborhood transition. We are concerned that these small metropolitan areas may not have sufficient number of geographic units (census tracts) to sustain the same kind of examination of segregation patterns as large metropolitan areas. In addition, small metropolitan areas may have very different macro and micro socioeconomic conditions, such as economic base and industrial infrastructure, and the inter-relations between neighbors and families, from large metropolitan areas; and these differences may affect the underlying dynamics of group relations and, in turn, the processes of neighborhood change. We constrain our sample to alleviate the potential confounding effects resulted from inherently different transition dynamics in places of very different population size.

We feel that our selection strikes the right balance for the purpose of this study. On the one hand, we achieve a near complete coverage of the metropolitan population in the US (close to 90% of total population, and over 90% of minorities); on the other hand, the removal of very small metro/micro areas helps alleviate the possible confounding effects of mixing in very small places.

Table 1. Population Coverage of in the Selected Metros

	Total	W	B	H	A
1980	88.0%	86.8%	91.7%	93.0%	95.6%
1990	87.8%	86.2%	91.3%	93.2%	95.4%
2000	87.8%	85.7%	91.3%	92.6%	95.1%
2010	87.8%	85.2%	91.0%	92.0%	95.0%

Population covered in the selection. Table 1 shows the percentage of the total population covered in our sample. This coverage is stable over time—a steady 88% of the total US metropolitan population in each year of 1980-2010; though the absolute count rose significantly from 174 million in 1980 to 252 million in 2010, or by 44.8%.

The coverage for each main racial/ethnic group in our selected metropolitan areas is also consistent throughout the period. The share of total white population dropped only slightly from 86.8% in 1980 to 85.2% in 2010, while the number of whites increased by 17 million or 12.3%—the slowest growth of all groups. In contrast, minorities recorded much faster growth: black population rose by 63% (14 million), Hispanics by 352.7% (33 million), and Asians by 458.0% (12 million). The group coverage for all three minorities is above 90% in the sample: around 91% for non-Hispanic blacks, 92-93% for Hispanics, and around 95% for Asians. As expected, the very different pace of growth results in significant rebalance in the racial/ethnic compositions in these metros.

Classify Neighborhoods

How to classify group presence in a census tract?

We modify the method of neighborhood threshold definition established in Logan and Zhang (2010). They introduced the "Quarter Rule"—compute the group shares of the four groups across this type of metropolitan areas, and use 25% of these shares as the base thresholds of group presence for a neighborhood. In their paper, Logan and Zhang detailed the rationale for this choice and presented comparisons with other alternatives, and concluded that this method yielded the most desirable results that were consistent with the intended group compositions for each type of neighborhood.

The classification has two steps. First, we adopt the "Quarter Rule" to define group presence for the first type of metropolitan areas: the multiethnic metropolitan areas. Then, we apply the set of cutoff points obtained from multiethnic metropolitan areas to the other three types of metropolitan areas. This ensures that the group presence in any neighborhood is defined according to the same set of cutoff points. Hence, at any given point in time, global neighborhoods and all other types of neighborhoods are consistently identified according to the same set of standards regardless of its location.

We recognize the possibility that the standard set in multiethnic metropolitan areas may be hard to meet in other types of metropolitan areas because of their more skewed group distribution. But we feel that the benefit outweighs the cost, as a consistent standard is conducive to our purpose to compare neighborhood transition patterns across different parts of the nation with less ambiguity and arbitrariness.

We have obtained desired group composition in different types of neighborhoods.

Matrix Approach

We adopt the matrix approach (Alba et al. 1995; Denton and Massey 1991; Logan and Zhang 2010) to categorize racial/ethnic composition of census tracts (neighborhoods) and examine their transition during 1980-2010. A series of matrices, 7x7 in dimension (a simplification from the original 15x15 matrix), are presented to describe the patterns of transition over three decades. (Along the x axis tracts are categorized by their composition in 2010; their 1980 composition is shown on the y axis. Cell entries are the number of tracts.)

Neighborhood classification yields 15 possible combinations of neighborhoods from the four racial/ethnic groups, thus a full-scale transition matrix has 15 rows and 15 columns to constitute 225 intersect cells.

A comprehensive discussion of such matrix across various types of metropolitan areas is beyond the scope of a single paper, so here we combine some of the original 15 categories in order to focus our analysis on several themes that directly correspond to the key findings reported in earlier works.

Specifically, we merge the seven non-white categories into NW (non-white)—(as a result, the transition quadrants 1, 2, 3 are now in a cell each); we also join the two white and single immigrant group categories (WH and WA) into W+H/A (white with Hispanics or Asians); lastly, we combine two neighborhood types of whites and blacks with single immigrant group (WBH and WBA) into WB+H/A (whites and blacks with Hispanics or Asians).

These steps reduce the original 15 categories to seven: NW, W, W+H/A, WHA, WB, WB+H/A, and WBHA; and the transition matrices are simplified to 7x7 in dimension. The simplification greatly assists the ease of detecting the patterns and discussing the results, and reader understanding. (Footer: The full-scale transition matrices can be found in the appendices).

(This decision to simplify the transition matrices reflects our desire to focus on what we think is the main trend of neighborhood transition, i.e., the key source type and pathways to the formation of global neighborhoods, which predominantly occur in the white-present neighborhoods, i.e., the remain-white quadrant of the original 15x15 transition matrix.

This decision by no means implies that the distinctions between different types of non-white neighborhoods are unimportant or less interesting, or all immigrant groups behave the same way or have the same effect on neighborhood transition. To the contrary, we strongly believe that there are very good reasons to investigate such distinctions and contrast Hispanics and Asians in their effect on the formation and sustainment of global neighborhoods. For example, the “absorbing” nature of the non-white quadrant—very low rate of white entry into non-white areas, their high retention rate, and significant pace of expansion—raises intriguing questions, such as: What is the difference between black only neighborhoods versus neighborhoods shared by blacks and Hispanics? Is this diversification a result from the changing demographic makeup of the

nation an improvement to the neighborhood conditions and the living standards of their residents, despite the absence of whites?

Or what is the transition pattern between the all-minority neighborhoods? Is there a certain direction that these areas to moving toward? Will they likely to become single group concentrated areas as the “succession” theory anticipated for white-black transition? Or will we see a more stable co-existence between minority groups? We saw evidence of Asian flight in white-present neighborhoods, does it also exist in minority-only areas?

These are all important topics that deserve careful treatment in their own rights. We plan to address them in separate efforts.)

RESULTS

1. *Metropolitan Transition*

Table 2. Average group percent by type of metropolitan areas 1980 and 2010

	1980				2010			
	W	B	H	A	W	B	H	A
W	91.6	5.1	2.0	0.7	78.5	8.2	8.4	3.5
WB	77.1	20.3	1.7	0.7	64.0	23.9	7.9	3.3
W+H/A	75.4	4.5	14.7	4.7	52.6	5.7	29.7	10.2
ME	63.5	18.4	14.7	3.1	42.1	17.4	29.8	9.8
All	82.6	9.7	5.8	1.2	71.0	11.4	12.6	3.4

Table 2 shows the average group presence in different types of metros in 1980 and 2010. First observation: the group distributions in 1980 match the expectations of each category. About 92% of residents in the no-minority areas are white; the black presence in WB areas is twice that of national average, and with whites, they make up 97% of the total population; the black share in new-minority areas is half of the national average, while Hispanic and Asian presence is near 3 and 4 times their national average, respectively; noticeably, the Hispanic presence in multiethnic metros is just as high as that of the new-minority areas, and both blacks and Asians have about twice their national share.

Second observation: all types of metros report significant changes toward diversity. On pace with the national share, Hispanics and Asians in new-minority and multiethnic areas more than doubled their presence, even in W and WB areas, they record significant increase in share. In contrast, the share increase of blacks is much slower, and it even reports a drop of one percentage point for the multiethnic areas. Whites report decrease of share across the board: by about 13 points for W and WB areas, but over 20 points for the new-minority and multiethnic areas, where they have lost the majority status.

In summary, the patterns of group shares and changes in different types of metropolitan areas show no surprise. The group makeup in each type of metropolitan areas is consistent with its designation of the racial/ethnic composition. The percentage change of individual group over time indicates significant demographic rebalance in metropolitan America; for example, the white share in multiethnic areas dropped by a third from 63.5% in 1980 to 42.1% in 2010, while the immigrants share more than doubled in the period.

Figure 1. Four types of metropolitan areas in the US 1980

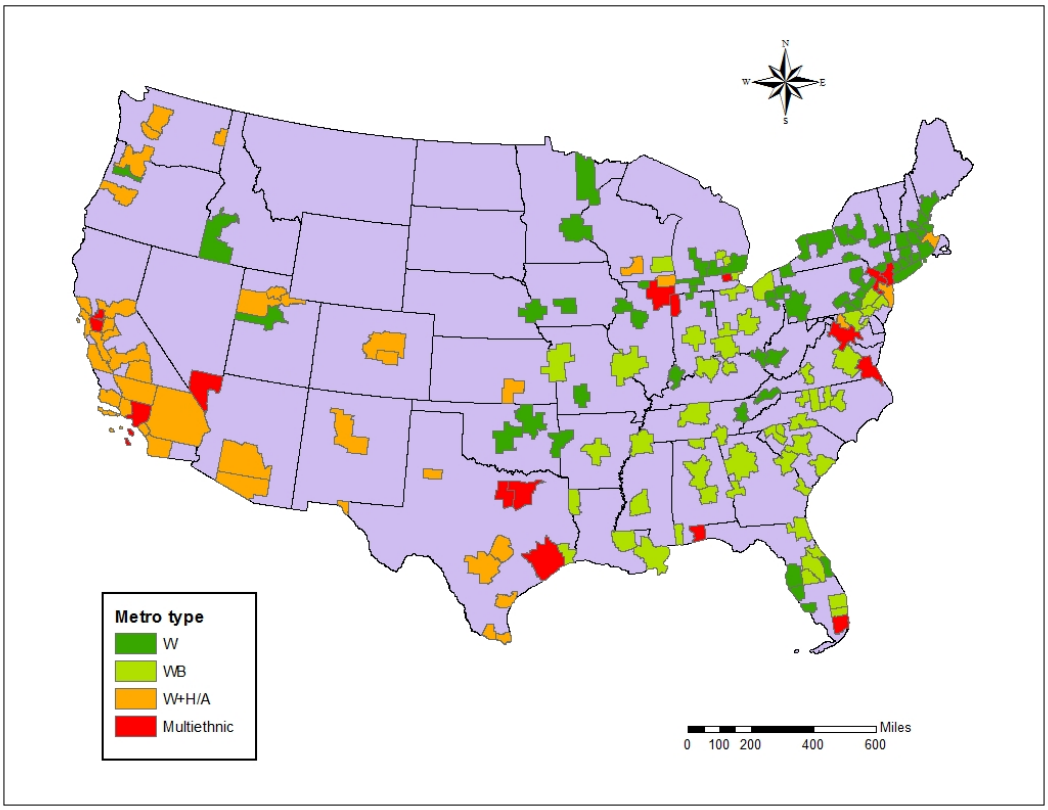

Figure 2. Four types of metropolitan areas in the US 2010

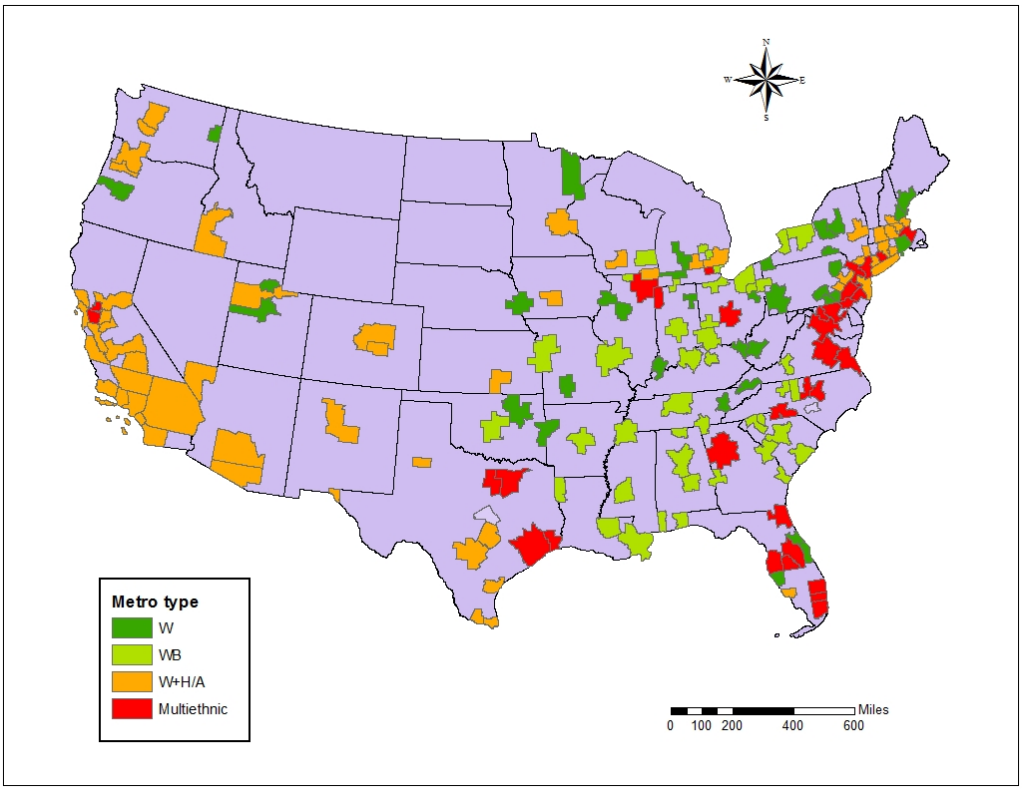

Table 3. Population (in millions) distribution across different metros in 1980 and 2010

		1980		2010	
	N	Population	%	Population	%
W	60	37.8	24.6%	47.3	21.4%
WB	52	43.0	28.0%	61.0	27.5%
W+H/A	41	30.9	20.2%	54.1	24.4%
ME	17	41.7	27.2%	59.1	26.7%
Total	170	153.3		221.4	

Of the selected metropolitan areas, 60 are no-minority (W), 52 are old-minority/majority (WB), 41 are new-minority/majority (W+H/A), and 17 are multiethnic.

Location, size, and growth. Figure 1 show the locations of different types of metropolitan areas in continental United States. Table 3 reports the population distribution across different metros and their growth over time.

There is a clear pattern of geographic distribution: most of the no-minority metropolitan areas (in 1980) are located in the Northeast (28) and the Midwest (18); in contrast, only 3 in the West. In 1980, these metros host about 38 million residents (24.6% of total). Over three decades, the population in these metros grows from 38 million to 47 million, but its share of total drops to 21.4%.

A clear minority of the old-minority/majority metros is in the South—38 of the 52 metropolitan areas, and the Midwest has 12. There were hardly any WB metros in the Northeast and the West. The 1980 population in these areas were about 43 million and about 28% of the total. Over time, these areas record growth of about 18 million; however, its share of total population dropped by about half of a per cent.

The majority of the 41 new-minority/majority metropolitan areas is in the West (28) and Texas (5). The population in these metropolitan areas records the fastest growth of the four types of metros over time by about 23 million (or 75%); and its share of total population rose from 20.2% to 24.4%.

In comparison, multiethnic metros are more evenly distributed across regions, three in the Northeast, three in the Midwest, four in the West, and 7 in the South (five in Texas and two in Florida). These metropolitan areas, including the mega metro divisions of New York and Los Angeles, and Miami, also tend to be much larger than the ones in other categories; at the count of 17, they host about 42 million residents in 1980 and 59 million in 2010, but the share of total drops slightly by a half percentage point.

In sum, the four types of metros have a clear regional pattern; the average metro size of different categories varies significantly from about 600,000 for the no-minority areas to the 2.5 million in multiethnic areas; and over time, the population shrinks in no-minority category and expands in new-minority/majority areas, which record the fastest growth at 75%.

Table 4. Metropolitan transition of racial/ethnic composition, 1980-2010

		2010				
		W	WB	W+H/A	ME	Total
1980	W	31	7	20	2	60
	WB	1	35	0	16	52
	W+H/A	3	0	36	2	41
	ME	0	1	2	14	17
	Total	35	43	58	34	170

Table 4 shows the transition matrix of the four types of metropolitan areas during 1980 and 2010. Rows of the matrix represent the metro status in 1980, and columns give their end status in 2010.

Key findings:

1. Overall, the trend of diversification is clear at metropolitan level. Fifty-two metropolitan areas changed status over the period, of which 45 (or 87%) experience increase of diversity, while 7 become less diverse.

2. no-minority metropolitan areas shrink. The number of W areas decreases from 60 to 35. Thirty-one of the 1980 W metros retain the status after three decades, a retention rate of 52%. Near half of the original 60 no-minority metropolitan areas in 1980 added significant minority presence by 2010; 20 of them added immigrants, seven added blacks, and two added both new and old minority groups.

3. old-minority/majority metropolitan areas decrease. The total of WB areas is reduced from 52 to 43. About 2/3 of the original old-minority/majority metros remain in the category, and most of the rest added immigrants to become multiethnic; it is noted that one metro lose black presence and no metro lose black and add immigrants.

4. new-minority metropolitan areas expand. The number of new-minority/majority metros increase from 41 to 58. This type has the highest retention rate of all at 88%. Of those which changed status, three lose immigrants to become no-minority, and two added blacks to become multiethnic metros. Of the new W+H/A metros, 20 were W and two were multiethnic and lost blacks.

5. multiethnic metropolitan areas double. There are 17 multiethnic metros in 1980, but 34 in 2010. Of the original multiethnic areas, the absolute majority of them stay (a retention rate of 82.4%), but two become W+H/A after losing old minority and one becomes WB after losing new minority. There are eighteen new multiethnic metropolitan areas, of which absolute majority (16) were areas shared by blacks and whites (WB) after adding immigrants; in contrast, only two new-minority areas added blacks to become multiethnic.

In sum, there is a clear trend of diversification; a clear expansion of multiethnic and new-minority metros; a clear trend of shrink of no-minority and old-minority metros; and most of the newly multiethnic metropolitan areas were old-minority/majority areas.

2. Neighborhood Transition Patterns in 4 Metro Types

We will discuss three aspects of transition patterns: 1. the neighborhood distributions and their change over time; 2. the pathways to global neighborhoods; 3. the trends of diversification and its reversal.

1). Multiethnic Metropolitan areas.

This type of metropolitan areas most closely resembles the metropolitan areas examined by Logan and Zhang (2010). They all have significant presence of whites, blacks, and immigrants—though some have either Asians or Hispanics while others have both. Many of them are large, coastal, traditional immigrant port-of-entry. A natural question is: Do we see similar transition dynamics? Do we see significant global neighborhoods expansion? Do we see designated pathways, such as the WHA type, to global neighborhoods? Can we conclude the presence of significant "immigrant buffer" effect?

Table 5. Diverse metropolitan areas (wbha, wba, wbh) transition matrix for tract racial/ethnic composition, 1980-2010

	2010							
1980	NW	W	W+H/A	WHA	W+B	W+B+H/A	WBHA	Total
NW	1630	0	8	11	15	69	144	1877
W	21	178	393	202	21	161	304	1280
W+H/A	212	51	830	599	21	352	734	2799
WHA	554	3	317	1264	2	126	1202	3468
W+B	40	9	25	5	133	157	138	507
W+B+H/A	348	8	38	15	63	432	422	1326
WBHA	585	1	42	71	3	151	1058	1911
Total	3390	250	1653	2167	258	1448	4002	13168

The above table shows the neighborhood transition (of simplified categories) in multiethnic metropolitan areas. (There are 17 such metropolitan areas in our sample.)

Overall distributions. Comparing the marginals of the table, we see significant changes in neighborhood distributions during the intervening decades. Two types of neighborhoods expand significantly while three others shrink.

Global neighborhoods (WBHA) grow significantly. The number of tracts with all four groups significantly present more than doubled from 1911 in 1980 to 4002 in 2010; in relative terms, the share of global neighborhoods rose from 14.5% of total number of census tracts in 1980 to 30.4% in 2010, and became the most populous neighborhood type in 2010.

Non-white areas (NW) also expanded. In 1980, 1877 tracts (14.3%) did not have significant presence of white residents; and 3 decades later, the number rose to 3390 (25.7%)—in 2010, more than a quarter of these multiethnic metropolitan areas were occupied only by minority groups. The well-known social and economic disadvantage of white absence makes this an alarming development. (This is a potentially alarming trend as it will manifest its implication when we examine the stability and probable transition paths of this type of neighborhoods.)

Among the three shrinking neighborhood types, areas of white with both immigrant groups (WHA) reported the biggest decrease. In 1980, this type of neighborhoods was the most populous—numbered near 3500 making up 26.3%; by 2010, only 16.5% of tracts fit this category. This change may have significant implications to the future of neighborhood transition in these multiethnic metropolitan areas, because this type of neighborhoods was been the single most important source to global neighborhoods. Its shrinkage may result in change of diverse pathways in this type of metropolitan areas or significant slow down of the process.

Areas shared by whites and one immigrant group are also shrinking. Neighborhoods of W+h/a numbered near 2800 (21.3%) in 1980, but dropped by over 1100 (8.7%) during the period. What's become of them?

The share of white-only neighborhoods in these multiethnic metropolitan areas was not big even at the beginning of the transition period and became significant smaller over time. They made up 9.7% of total tracts in 1980, but dropped to only 1.9% thirty years later to become the rarest neighborhood type in 2010. It is clear the white dominated areas is quickly becoming a thing of past.

In contrast, we observe a steady presence of areas shared by whites, blacks, and one of the immigrant groups (W+B+h/a) at about 10%. Its number increased by 122 (less than 1%). The areas shared by white and blacks (WB) were the smallest at the beginning of the transition period, and further decreased from 3.9% to 2%.

Path to global neighborhoods. WHA neighborhood is the most important gateway to global neighborhoods. Of the 4002 global neighborhoods in 2010, 26.4% of them were already mixed in 1980; that means that about 3 quarters these neighborhoods became "global" over the period. And 2 of every 5 new global neighborhoods (over 1200) already had significant presence of whites, Asians, and Hispanics (WHA) in 1980—they added blacks in the period. The next largest source type is w+h/a (neighborhoods shared by whites and one of the immigrant groups) makes up 24.9% of new global neighborhoods. Together, these two categories, where neighborhoods were already shared by whites and immigrants in 1980, accounted for about 2/3 of new global neighborhoods. To the other extreme, the NW and WB types of neighborhoods account for very small share of the 2010 global neighborhoods at 3.6% and 3.4% respectively.

In sum, neighborhoods already shared already by whites and immigrant groups, particularly those with both immigrant groups, are the most important source to global neighborhoods. In other words, blacks are later or last addition to the integrated neighborhoods in these metropolitan areas. This evidence, echoing the findings by Logan and Zhang (2010), gives support to the "immigrant buffer" hypothesis: the presence of immigrants soothes the path for blacks to join integrated neighborhoods.

Stability, diversification, and reversal. Such matrix contains three general kinds of transitions: 1. tracts on the main diagonal maintain same neighborhood type through the period; 2. the cells above the main diagonal added one or more new groups at the end of the transition period; 3. the cells below the main diagonal, lost one or more existing groups from 1980.

How did the original types of neighborhoods hold up over time? Which type of neighborhoods are stable and which are transient? Cells along the main diagonal contain cases maintained the same neighborhood type in 1980 and 2010. Overall, 42% of tracts in these multiethnic metropolitan areas are of the same neighborhood type in 1980 and 2010. The most stable type is non-white (NW). Over three decades, 86.8% of the 1980 non-white neighborhoods remain non-white in 2010. The global neighborhood (WBHA) is also relatively stable: a clear majority (55.4%) of the 1980 global neighborhoods remains integrated thirty years later. In contrast, the white-only (W) tracts are the most transient—only 14% of the original white-only tracts retained that status in 2010. The other neighborhoods show a retention rate of between mid-20s and mid-30s percentage points. In other words, except the global and non-white, all other types of neighborhoods show fairly strong tendency of change. What do they become?

A close examination of the matrix reveals two general trends: diversification and its reversal. Overall, 38.6% of all tracts become more diverse while 19.5% become less diverse in the period. It is clear that diversification is the main trend in the neighborhood change, while reversal is smaller but significant.

By individual types of neighborhoods: 14.2% of non-white neighborhoods added white—they mostly become global neighborhood or WB+h/a, pointing the fact that the reentry of white is more likely to the areas shared by blacks with immigrants. For white-only areas, only 1.6% lost white presence, while 31% added one immigrant group, and 24% become global. Nearly all other transient types of neighborhoods show the significant tendency toward global neighborhoods, range from 26.2% of W+h/a to 34.7% of WHA become WBHA. The 1980 wb+h/a neighborhoods also report strong trends toward opposite directions—31.8% of them become global, white 26.2% of them become lost white. The strongest white exit is from global neighborhoods: of the 1980 global neighborhoods, 30.6% of them become non-white in 2010. Whites exit from nearly 1 in 3 integrated neighborhoods.

In summary, in multiethnic metropolitan areas, where traditional racial groups and immigrant group have significant presence, we see these findings:

1. A dramatic transformation of group composition and neighborhood structure—less white only, more global neighborhoods, more minority-only;
2. A clear trend toward diversity—the significant growth of global neighborhoods, in terms of both territory and population share—total population as well as each racial/ethnic group;
3. WHA is the single most important path to diversity—through black entry into the neighborhoods already shared by white and both immigrant groups—suggests a clear and crucial role of the hypothesized immigrant “buffer;”

4. "Invasion and succession" phenomenon is virtually absent—only a small number (40 of 507) of the 1980 WB tracts lost white, and only 23 of the 40 became black only;
5. Neighborhood stability varies greatly by type—the all-minority neighborhoods have the highest retention rate—white entry into non-white areas is rare. The global neighborhoods are also stable with majority (55.4%) remain mixed—this is significant, because it shows the life of residential integration of this type: after 3 decades, the majority of the global neighborhoods remain integrated. White-only tracts are the least stable—only 13.9% of them remain the same.
6. There is a smaller but real trend of reversal—19.5% below the diagonal, the non-white areas expand from 14.3% to 25.7%--this is concerning because the non-white areas tend to stay non-white, there is little chance for them to gain white again and transit to other types of neighborhoods.

These results are consistent with the findings of early works (Logan and Zhang, 2010).

2). Old-minority/majority (White-Black) Metropolitan areas.

These metropolitan areas are expected to have most different transition patterns from the multiethnic metropolitan areas. Without a significant presence of any new immigrant groups, the effect of an "immigrant buffer," as observed in multiethnic metropolitan areas, is expected to be absent in these metropolitan areas of significant presence of whites and blacks. This group makeup most resembles the conditions in metropolitan America of pre-1965 immigration era, when racial relation was dominated by black-white interactions, and thus is expected to be most suitable for the old model of neighborhood transition, i.e., invasion and succession. Do we still observe "invasion and succession" in black and white metropolitan areas as it was in the early 20th century?

Table 6. White and black metropolitan areas (1980) transition matrix for tract racial/ethnic composition, 1980-2010

	2010							
1980	NW	W	W+H/A	WHA	W+B	W+B+H/A	WBHA	Total
NW	947	0	0	0	96	54	9	1106
W	37	1619	633	43	891	1036	469	4728
W+H/A	46	314	453	43	250	810	387	2303
WHA	10	9	18	14	2	83	138	274
W+B	320	150	66	2	1458	1121	322	3439
W+B+H/A	233	16	44	7	377	791	316	1784
WBHA	39	1	1	0	21	80	97	239
Total	1632	2109	1215	109	3095	3975	1738	13873

The above table gives transition in 52 metropolitan areas shared by whites and blacks in 1980. Most of them are in the South, none in the West, and only 2 in the Northeast.

Overall Distributions. In 1980, these places had hardly any global neighborhoods—only 1.7% of all tracts had significant presence of all groups. Instead,

near 5,000 tracts were white-only (34.1%), there were also 999 tracts were black-only (7.2%). This is expected—these are supposed to be the country's most residentially segregated locations at a time when the country was still experiencing its early stages of immigration from Latin America and Asian Pacific.

There were several surprises in 1980 distribution. First, even then, 3500 tracts (24.8% of the all tracts) were already shared by whites and blacks. Were those neighborhoods still approaching the "tipping point" for neighborhood turnover? Second, there were also many neighborhoods of significant presence of immigrants, despite their overall lack of presence at metropolitan level. Over 2300 tracts (16.6% of total) were shared by white with one other immigrant group—though smaller than that in the multiethnic metropolitan areas, and another 1800 tracts (12.9%) were shared by whites and blacks with one immigrant group—the share is slightly bigger share than that of the multiethnic metropolitan areas. Although notably unlike the multiethnic metropolitan areas, neighborhoods shared by whites and both immigrant groups are extremely rare.

How do we explain the shared areas by whites and immigrants? One possibility is that immigrants are concentrated residentially—despite their small overall presence in these regions—1.7% for Hispanics and 0.7% of Asians, they do not distribute evenly, but instead, form clusters to create significant local presence.

Over time, there are dramatic shifts to this distribution. Global neighborhoods are no longer insignificant: in thirty years, 1500 tracts become global—an increase of 11% in share of the region; and by 2010, 12.5% of the total tracts in these metropolitan areas are shared by all four groups.

The increase of WB+h/a type of neighborhoods is even greater: more than doubled from 12.9% to 28.7% to become the most populous neighborhood type. Similar to that in multiethnic metropolitan areas, the white-only areas shrank by more than half from 34.1% to 15.2%; while the WB neighborhoods were still significant with a small dip of 2.5%. Also declined is the share of W+h/a neighborhoods, by nearly half. What does it mean? Or what did they become?

In sum, comparing with the multiethnic metropolitan areas, there are many differences in the distribution of neighborhoods both at the beginning and the end of the transition period: in WB metropolitan areas, the share of W and WB are much higher, and the presence of most other types of neighborhoods is smaller, particularly the global neighborhoods. The share of WB+h/a is similar between the two types of metropolitan areas at the beginning of the transition period, but the WB metropolitan areas report significant growth over time to become the largest neighborhood in 2010.

Despite the vast difference of distributions between the WB metropolitan areas and the multiethnic metropolitan areas, we still see similar trends of neighborhood change: 1. both report significant growth of global neighborhoods over time—the growth of these integrated neighborhoods is less numerous but more dramatic in relative terms in WB metropolitan areas; 2. both report significant drop of white-only neighborhoods. Unlike the multiethnic metropolitan areas, WB+h/a type of neighborhoods in WB metropolitan areas report significant growth over time to become the largest neighborhood in 2010.

Path to global neighborhoods. Here we see very different patterns from the multiethnic metropolitan areas. WHA is no longer an important source. Instead, other pathways to globalization are available in WB metropolitan areas.

Of the 1738 global neighborhoods in 2010, only 5.6% were mixed in 1980; in other words, the overwhelming majority of global neighborhoods in these metropolitan areas are newly global. Unlike the multiethnic metropolitan areas, where the sources were dominated by areas shared by whites and non-black minority, there are multiple pathways to diversity here. The biggest contribution comes from white-only tracts, making up 28.6% of new global neighborhoods (there is an ambiguity here: it is unlikely that these 1980 W tracts added all minority groups in one step, but the order of entry is not revealed in this transition matrix). Not too far behind, the w+h/a neighborhoods account for 23.6% of new global neighborhoods; in addition, both WB and WB+h/a types of neighborhoods contribute about 20%; even the smallest contributor the WHA neighborhoods make up 8.4% of the new global neighborhoods.

We can see that there are many more significant sources to global neighborhoods in WB metropolitan areas than multiethnic metropolitan areas, most noticeable among which are the white-only and black present neighborhoods. This means that, in WB metropolitan areas, it is not necessary for blacks to be the later or last entrant in order to form a global neighborhood. This suggests a substantive difference in transition dynamics. Global neighborhoods could form by immigrants joining co-existing whites and blacks.

Is the buffer effect absent? While blacks are not always the late or last in a global neighborhood, black entry into areas already shared by whites and immigrants is still significant: for instance, the W+h/a type of neighborhoods is the second biggest source to global neighborhoods making up 23.6% of new global tracts.

Stability, Diversification, and Reversal. Overall, 38.8% of the tracts have same neighborhood type in 1980 and 2010—this is lower general stability than that of the multiethnic metropolitan areas. Just as we saw in the multiethnic metropolitan areas, the most stable neighborhood type is non-white—over three decades, 85.6% of minority-only neighborhoods remain non-white. The retention rate for the global neighborhoods is 40.6%, much lower than that of the multiethnic metropolitan areas. In addition, both WB and WB+h/a neighborhoods report higher stability of above 40%. The white-only tracts still lost its majority to other types of neighborhoods, but appear to be more stable than multiethnic metropolitan areas with a retention rate of 34.2% (versus 13.9%). Here, the most transient neighborhoods are those shared by whites and immigrants with retention rate of 19.7% for w+h/a and 5.1% for WHA, respectively. What did they become?

In WB metropolitan areas, we once again observe the existence of two opposing trends. Over the period, 48.3% of all tracts experience diversification and 12.9% the reversal—the main trend in these WB metropolitan areas is stronger than that in multiethnic metropolitan areas, while the reversal is weaker. Look more closely at the individual neighborhood evolutions: a. only 14.4% NW tracts added white, and most white entry occurs in areas already have blacks, and only tiny share of them become global neighborhoods; b. About 2/3 of the white-only tracts added blacks or immigrants to become more diverse; c. the wb+h/a type is one of the most important destinations of transition: 35.2% of W+h/a added blacks, 32.6% of WB added an immigrant group, and

30% of WHA tracts added blacks but lost an immigrant group—this is a sharp contrast with the multiethnic metropolitan areas.

In comparison, the rate of transition to global neighborhoods is much lower in WB metropolitan areas than in multiethnic metropolitan areas, with the exception of the WHA neighborhoods, of which 50% become global neighborhoods over the period.

The tendency of white loss is relatively smaller in these metropolitan areas, but the global neighborhoods once again report the highest probability at 16.3%. WBHA neighborhoods also have a high probability to lose one of the immigrant groups to become WB+h/a neighborhoods.

In summary, in WB metropolitan areas, where immigrant group do not report significant presence at metropolitan level, we indeed observe much difference in the pattern neighborhood changes from the multiethnic metropolitan areas, but more surprisingly, we also see many similarities.

1. WB metropolitan areas have very different neighborhood distributions before and after the transition period. They have many more white-only and black present neighborhoods than the multiethnic metropolitan areas.
2. As in the multiethnic metropolitan areas, we observe dramatic transformation of group composition and neighborhood structure—less white only, more global neighborhoods, more minority-only; but uniquely, significant increase of WB+h/a neighborhoods.
3. Similar to the multiethnic metropolitan areas, there is an clear and even stronger trend toward diversity—a higher proportion of tracts added the presence of other group(s), and the growth of global neighborhoods is significant in terms of both territory and population share—total population as well as each racial/ethnic group;
4. Unlike the multiethnic metropolitan areas, the WHA type of neighborhoods is not the single most important path to diversity; global neighborhoods register significant contributions from all neighborhood types but the non-white. Therefore, black entry is not always preceded by immigrants. So now what is the role of the hypothesized immigrant buffer?
5. In these most favorable conditions for the traditional ecological metaphor, “invasion and succession” phenomenon is still not prevalent—only 320 of 3439 (9.3%) of the 1980 WB tracts lost white, and 262 of the 320 became black only;
6. Like the multiethnic metropolitan areas, the variation of stability for different types of neighborhoods is significant—and nw has the highest retention rate (above 85%)—white entry into non-white areas is rare. However, the global neighborhoods are a lot less stable at only 40% compared to 55.4% in the multiethnic metropolitan areas. What does it mean? Global neighborhoods are less stable in WB metropolitan areas than in multiethnic metropolitan areas.
7. Like the multiethnic metropolitan areas, the trend of reversal is real but smaller than the main trend—13% below the diagonal, the non-white areas expand from 8% to 12%--although smaller than the comparable measures in the multiethnic

metropolitan areas, this trend is still concerning because the NW areas tend to stay non-white, there is little chance for them to regain white.

3). New-minority/majority (White-Immigrant) Metropolitan areas.

Besides the multiethnic metropolitan areas and the more traditional white-black metropolitan areas, there is another type of metropolitan areas—they do not have significant presence of blacks and are shared by whites and immigrants. Many metropolitan areas in the West fit this category. Many of them are also young metropolitan areas. Historically, these metropolitan areas never hosted large black population; and in the decades after the 1965 Immigration Legislation, they experienced significant growth of Hispanics and Asians. The absence of blacks implies the lack of the kind of entrenched racial discrimination and inter-group antagonism between blacks and whites that was often observed in some metropolitan areas in the Northeast and Midwest. What does residential integration look like in this condition? Are they global neighborhoods? Or mostly areas shared by whites and immigrants? Since the immigrant groups make up most of the minority, is there still a "buffer" effect?

Table 7. Non-black (except white-only) metropolitan areas (1980) transition matrix for tract racial/ethnic composition, 1980-2010

	2010							
1980	NW	W	W+H/A	WHA	W+B	W+B+H/A	WBHA	Total
NW	371	0	27	5	1	29	17	450
W	1	441	488	193	18	92	145	1378
W+H/A	165	182	1448	806	5	323	746	3675
WHA	195	23	586	1857	1	139	993	3794
W+B	3	8	5	1	8	25	17	67
W+B+H/A	43	7	45	15	3	164	222	499
WBHA	212	1	50	150	2	138	802	1355
Total	990	662	2649	3027	38	910	2942	11218

This table shows the transition patterns in metropolitan areas shared by whites and immigrants in 1980. There are 41 metropolitan areas of this type in 1980, and 28 of them were in the West region and an additional 8 were in the South.

Overall Distributions. The neighborhood distribution in these metropolitan areas is rather similar to the multiethnic metropolitan areas, and quite different from the WB metropolitan areas. Three of the 7 categories expanded, and others shrank.

There are indeed global neighborhoods in these metropolitan areas despite their lower black presence. The share of the integrated neighborhoods is already significant at the beginning of the transition period—in 1980, global neighborhoods made up 12.1% of all tracts—only a slightly lower than that in the multiethnic metropolitan areas (14.5%). Like the multiethnic metropolitan areas, this type of neighborhoods also grew significantly over time—by 2010, the share more than doubled to account for 26.2% of all tracts.

Non-white neighborhoods also recorded growth. In comparison with the multiethnic metropolitan areas, the initial share of all-minority tracts is much smaller at 4.0%, but this type of neighborhoods doubled to 8.8% in 2010. Similarly, the neighborhoods hosting white, blacks, and one other immigrant group (WB+h/a) also expanded: from 4.4% in 1980 to 8.1% in 2010.

As expected, the neighborhoods shared exclusively by whites and blacks are extremely rare—the share was less than 1%. White-only areas made up 12.3% in 1980, and decreased by about half to 5.9% in 2010—this is a slower pace than that in either the multiethnic or the WB metropolitan areas.

Just like the multiethnic metropolitan areas, neighborhoods shared by whites and one or two groups of immigrants were by far the most populous in 1980, each type made up about a third of all tracts in these metropolitan areas. Also like the multiethnic metropolitan areas, both experienced significant decrease over time: the w+h/a type lost over 1000 tracts, and the WHA type shrank by 700. By 2010, the two categories together make up just over 50% of all tracts.

To sum up the distribution and trend for white-immigrant metropolitan areas: 1. global neighborhoods were significantly present in the beginning of the period and significantly expanded over time—similar to all other metropolitan areas; 2. the share of white-only, and whites with immigrants neighborhoods decreases—similar to all other metropolitan areas; 3. WB neighborhood was and still is largely absent; 4. similar to WB metropolitan areas and different from multiethnic metropolitan areas, WB+h/a neighborhoods report moderate growth; 5. similar to all other metropolitan areas in trend, non-white neighborhoods grow, although the share is still smaller than either multiethnic and WB metropolitan areas.

Path to global neighborhoods. Examining the 1980 source neighborhoods to global neighborhoods in these metropolitan areas, we see very similar pattern as the multiethnic metropolitan areas. Of the near 3,000 global neighborhoods in 2010, 2140 became global in the past 3 decades. Two types of 1980 neighborhoods are principally responsible for the new global neighborhoods: WHA is once again the most important, contributing 46.4%; and the W+h/a type adding 34.9%--these two categories account for 81.3% of all new global neighborhoods. This dominance suggests that blacks are the late or last entry to integrated neighborhoods in these metropolitan areas.

A distant third source is neighborhoods shared by white, blacks, and one immigrant group (wb+h/a)—accounts for 10.4%, and white-only tracts makes up 6.8% of the new global neighborhoods. The NW and WB neighborhoods contribute only trivially to the integrated neighborhoods at less than 1% each.

Stability, Diversification, and Reversal. In comparison with the multiethnic metropolitan areas, the neighborhoods in these metropolitan areas are more stable—45.4% of the 1980 tracts have the same neighborhood type in 2010. Once again, the highest retention rate goes to the non-white neighborhoods (NW)—82.4% of non-white neighborhoods remain non-white. This is lower than the other two types of metropolitan areas. The 17.6% non-white neighborhoods which gained white include both immigrant neighborhoods as well as neighborhoods shared by immigrants and blacks.

Global neighborhoods are also quite stable. 59.2% of the 1980 global neighborhoods are still integrated in 2010. This is even higher retention than the multiethnic metropolitan areas.

WHA neighborhoods have a retention rate of 48.9%, w+h/a neighborhoods retain 39.4%, and white-only neighborhoods at 32%--all higher than the corresponding categories for the multiethnic metropolitan areas.

Of all tracts, 38.3% become more diverse, versus 16.4% become less diverse. Once again, the trend of change is consistent: diversification is the main trend, but its reversal is also present. The rate of conversion to global neighborhoods is across the board lower than that in multiethnic metropolitan areas, but so is the rate of white-loss, for example, the largest white-loss occurred with the global neighborhoods, of which 15.6% lost white presence—it is half of that rate in the multiethnic metropolitan areas.

The white and immigrant metropolitan areas are similar to WB metropolitan areas in one respect: regardless the metropolitan level group presence, minority groups (the Hispanics and Asians in WB metropolitan areas, or the blacks in white and immigrant metropolitan areas) are most likely to be found in integrated neighborhoods—it reflects two possibilities: minority groups tend to concentrate, and where the neighborhoods of these groups reside are more likely to become integrated; both may be true.

Overall, the white and immigrant metropolitan areas are more similar to the multiethnic metropolitan areas in terms of group distribution, the presence and growth of global neighborhoods, general trend of diversification and reversal, and the pathways to global neighborhoods. The neighborhoods in white and immigrant metropolitan areas tend to have higher stability over time.

1. Like the previous two types of metropolitan areas, we observe significant transformation of group composition and neighborhood structure—less white only, more global neighborhoods, more minority-only;
2. Like the previous two types of metropolitan areas, there is a clear trend toward diversity—the significant growth of global neighborhoods, in terms of both territory and population share—total population as well as each racial/ethnic group;
3. Like the multiethnic metropolitan areas and different from the WB metropolitan areas, neighborhoods shared by whites and immigrants (w+h/a and WHA) are the most important pathways to diversity—by black entry into the neighborhoods already shared by white and immigrant groups—suggests the role of the immigrant “buffer;”
4. Like the previous two types of metropolitan areas, “Invasion and succession” phenomenon is virtually absent. There were very few WB neighborhoods in these type of metropolitan areas, and the number got even smaller over time;
5. We also see a great variation between different types of neighborhoods—the all-minority neighborhoods have the highest retention rate—white entry into non-white areas is rare. The global neighborhoods in these metropolitan areas are most stable among all with majority (59.2%) remain mixed—after 3 decades, the majority of the global neighborhoods remain integrated. The pace of

diversification of the white-only tracts is much slower than the multiethnic metropolitan areas but slightly faster than the WB metropolitan areas at 32%.

6. There is a smaller but real trend of reversal—the overall reversal rate is 16.4%. And the non-white areas expand from 4.0% to 8.8%--still smaller in share but at a faster pace than the other two types of metropolitan areas. This is concerning because the non-white areas tend to stay non-white, there is little chance for them to gain white again and transit to other types of neighborhoods.

Even in metropolitan areas where blacks are not significantly represented, we see the emergence and rapid expansion of global neighborhoods. What does it mean? It suggests two possibilities: 1. the small share of blacks in the total population tends to be more concentrated in those global neighborhoods, and not else where; 2. the areas already have blacks are more likely to become global—this may be evidence for a pure demographic effect. In contrast to WB neighborhoods or other neighborhoods of significant black presence, global neighborhood is the most likely form of integration for blacks, even in the places that they are not significantly represented.

4). No-minority (White-Only) Metropolitan areas.

In this type of metropolitan areas, none of the minority groups has significant presence in 1980. They are closest to the initial state of affairs—places are dominated by white presence and not much minority presence. How did things begin? How did the neighborhoods in them change over time? Is the global neighborhood typology still relevant? If not, what is the key pattern of neighborhood change? What does the racial/ethnic composition in the neighborhoods look like in these metropolitan areas? Do we expect residential integration as modeled in the multiethnic metropolitan areas? Do we see buffer effect?

Table 8. White-only metropolitan areas (1980) transition matrix for tract racial/ethnic composition, 1980-2010

	2010							
1980	NW	W	W+H/A	WHA	W+B	W+B+H/A	WBHA	Total
NW	118	0	0	0	9	14	2	143
W	0	3113	1197	159	565	766	463	6263
W+H/A	8	449	865	148	162	702	439	2773
WHA	2	5	51	40	3	55	80	236
W+B	16	44	18	1	373	241	103	796
W+B+H/A	52	7	15	2	86	382	246	790
WBHA	27	1	4	1	2	81	138	254
Total	223	3619	2150	351	1200	2241	1471	11255

There are 11255 tracts in this type of metropolitan areas, where no minority group meet the national average in 1980. In 1980, there are 60 metropolitan areas of this type, spreading between Northeast (28), Midwest (18), South (11), and West (3). These

metropolitan areas report the slowest growth over time. Two of the seven types of neighborhood shrank, the rest expanded.

Overall Distributions. Global neighborhood was almost absent in the beginning, similar to the WB metropolitan areas. Of the 11255 tracts, only 2.3% had significant presence of all four groups in 1980. However, it became significant over time; after 3 decades, the share of integrated neighborhoods was 13.1% in 2010. Global neighborhoods have become significant. The pattern of change is very similar with that observed in WB metropolitan areas. A multi-fold increase over time results in the share of global neighborhoods at the end of the transition period standing at low teens. The share of global neighborhoods is still lower than those of multiethnic metropolitan areas or white-immigrant metropolitan areas, but the relative pace of change is much greater.

True to its category title, the presence of white-only tracts is much larger than any other types of metropolitan areas. In 1980, 55.6% of all tracts did not have significant presence of any minority group. But as seen in other types of metropolitan areas, there is a steep decline over time; by 2010, despite still being the largest neighborhood type in these metropolitan areas, the share dropped to 32.2%—although this is twice as large as the next highest share of white-only tracts in all types of metropolitan areas, this really suggests the clear trend of change: former white-only tracts have been adding minority groups, and becoming more diverse.

The second most numerous category in 1980 is w+h/a (whites with one immigrant group) making up 24.6%. Like the all-white tracts, it also decreased over time—to 19.1%.

The largest expansion occurred to whites and blacks plus one immigrant group (wb+h/a) neighborhoods—from a moderate 7.0% in 1980 to 19.9% in 2010. In contrast, the whites with both immigrant groups only increased from 2.1% to 3.1%. WB neighborhoods also rose: from 7.1% to 10.7%.

As expected, these white-only metropolitan areas have not many non-white (NW) tracts, in both 1980 and 2010, the share of this type in total tracts is trivial. They also see slower growth in this category than other types of metropolitan areas.

Path to global neighborhoods. Among the 1471 global neighborhood tracts in 2010, only 9.4% were integrated in 1980—this is more similar to that of WB metropolitan areas, than the other two types. Therefore, over 90% of the global neighborhoods become global during the period.

Several sources stand out: 34.7% of the new global neighborhoods were from white-only, and 32.9% from w+h/a, and the wb+h/a is a distant third at 18.5%. Two-thirds of the new global neighborhoods were either white-only or white with a single immigrant group. (A closer look at the transition stages of the white-only tracts reveals that most of them add a single immigrant group first then adding black, instead of the opposite.) So, here we also see the evidence of immigrant buffer: black as the late or last entry into integrated neighborhoods.

Once again, the contribution to global neighborhoods from non-white areas is very small at 0.2%.

Stability, Diversification, and Reversal. The non-white areas once again are the most stable with the retention rate of 82.5%. White entry occurred in areas shared by whites with blacks and immigrant groups. But only 25 all-minority tracts added white.

Once again, the global neighborhoods report the second highest retention rate—54.3% of the 1980 integrated neighborhoods remain mixed thirty years later.

Three other categories report the retention rate in the high 40s—near half (49.7%) of white-only tracts remain, the highest rate of all types of metropolitan areas; near half (48.4%) of wb+h/a tracts remain, the highest among all types of metropolitan areas; and 46.9% of WB tracts remain, the highest among all types of metropolitan areas.

The WHA type is the most transient: 84.1% of them become a different type. What did they become? Most of them added blacks, but many also lost an immigrant group in the process.

Overall, the neighborhoods in these white-only metropolitan areas have 44.7% retention rate, similar to that of the white-immigrant metropolitan areas and multiethnic metropolitan areas, and higher than WB metropolitan areas.

The diversification trend is the strongest—47.6% above the main diagonal, only 7.7% experienced the reversal.

The rate of different types of neighborhoods toward global neighborhoods: a significant percentage of both WHA and wb+h/a turned global (around 1/3). But despite being the biggest contributor to global neighborhoods, only 7.4% of white-only tracts become global—indicating diversification take time and occur in stages.

The reversal trend is the weakest among all types of metropolitan areas. The risk of white loss is the smallest for all types of neighborhoods. But once again, the more diverse neighborhoods are also more vulnerable to white loss: with WBHA and wb+h/a leading the way.

In summary, the white-only metropolitan areas are unique in the high presence of white-only tracts. Most types of neighborhoods are more stable than their counterparts in other types of metropolitan areas. Some themes conform to the observations from other types of metropolitan areas:

1. Like the other types of metropolitan areas, we observe significant transformation of group composition and neighborhood structure—less white only, more global neighborhoods, more minority-only—although the share of all-minority neighborhood is still so small that it is relatively less of a concern for these white-only metropolitan areas.;
2. Like the other types of metropolitan areas, there is a clear trend toward diversity—the significant growth of global neighborhoods, in terms of both territory and population share—total population as well as each racial/ethnic group;
3. Unlike other metropolitan areas, white-only and w+h/a are the most important pathways to global neighborhoods. And since most white-only tracts first become w+h/a neighborhoods, it once again suggests the effect of immigrant buffer

through black entry into the neighborhoods already shared by white and immigrant groups—suggests the effect of an immigrant "buffer;"

4. Like the other types of metropolitan areas, we do not see "Invasion and succession." Only 16 (of 796) WB tracts lost white over the thirty year period.
5. Most neighborhoods in these metropolitan areas are more stable than the other types of metropolitan areas. The retention rate for the all-minority neighborhoods is again the highest—over 80%. A majority (54.3%) of the global neighborhoods in these remains mixed. The stability of White-only tracts is much higher than the other types of metropolitan areas at near 50%.
6. The trend of reversal is smallest of all types of metropolitan areas—7.7% below the diagonal, the non-white areas expand from 1.3% to 2.0%--smaller in share and slower in pace than the other types of metropolitan areas. All-minority neighborhoods are not yet a big concern in white-only metropolitan areas.

Patterns across Metropolitan areas

1. All types report double-digit increase of the share of global neighborhoods in the region, despite the starting point. The relative pace of growth is much faster in white-only and with-black regions, where the initial global neighborhoods share is small.

2. All experience significant decrease of white-only neighborhoods—losing about half or more of the region share. The once significant presence in white-only and with-black regions is significantly reduced, while the white-only share in diverse and non-black regions become trivial.

3. There are significant expansions of NW areas in all metropolitan areas—at quite different levels: the white-only metropolitan areas still only have 2.4% in 2010; and in the diverse region, this type accounts for about a quarter of all tracts.

4. The areas shared by whites and immigrants are shrinking significantly—with only one exception in the wha tracts of white-only metropolitan areas—of a diminutive increase of 0.2%.

5. There is an increase to the share of areas involving blacks, particularly the areas shared by whites, blacks and another immigrant group.

Although at different levels, the general trend of movement is consistent: more global neighborhoods, more non-white neighborhoods, less all-white neighborhoods, less white with immigrant neighborhoods, and more white-black with immigrant neighborhoods.

DISCUSSION

The notion of the transition to global neighborhood expresses an understanding of the process of residential integration in American metropolitan areas. It conceives residential integration as a dynamic progression with distinguishable phases of development along a common direction. Communities transform from majority dominance to progressively more diverse combinations of racial/ethnic groups via designated paths.

Different kinds of changes of sometimes opposite effects are taking place simultaneously in different parts of metropolitan areas. While the segregation index scores computed for metropolitan areas do not change dramatically, there are complex dynamics at work at neighborhood level. For example, the trends of diversification (in the form of the growth of global neighborhoods) and reversal (in terms of the growth of non-white neighborhoods) are canceling out each other at the aggregate level, and thus may not be detected at metropolitan area level. Indeed, there is a great deal more actions than displayed in the segregation index scores. Examining transition at neighborhood level enables us to capture such actions.

In this study, we show that this multi-phased progression is indeed occurring across metros of varying diversity context; and the pace and path of the progress are contingent upon the makeup of their population. We no longer see evidence of typical "invasion and succession," even in metropolitan areas shared only by whites and blacks—the most suitable conditions for such model. It suggests that the dichotomous mode of neighborhood change may have become a relic along with the bygone era of racial duality. Global neighborhood is now the norm of change.

Through this prism, one sees a dependable path out of traditional segregation conundrum and a new hope to stable integration. However, the story is not uniform.

New minorities alter the dynamics.

Because of the very different group composition at the beginning of the transition period, one would not expect to see significant development of global neighborhoods outside the multiethnic metropolitan areas. But it turns out so. This suggests that there may be something in common. Global neighborhood is a common path toward integration.

Integration was rare in the era of dual-group relation (Ellen 2000; Maly 2005; Ottensman and Gleason 1992; Saltman 1990), but becomes more prevalent in the era of mass immigration. The key is the immigrant buffer. The presence of new immigrants changed the neighborhood dynamics for blacks and whites. There has thus been a persistent divide between blacks and whites, which is still true to a large extent today; but with the *immigrant buffer* between blacks and whites, it is no longer imperative to first eliminate the black-white divide before they could share a neighborhood. That is the critically important general effect of immigration on the racial/ethnic relations in this country.

Neighborhood transition in different metros.

Neighborhood transitions show regional pattern. While the general direction of change is the same, the actual progress is at different levels, as if different places are at different stages/phases of the process.

The four types of metropolitan areas are very different: they have very different group makeup, group balance; they had different past, history, and interacting dynamics; they show different paths to diversity. While the overall trend toward diversity is the same, there are different paths to global neighborhoods, there are different levels of global neighborhoods, there are different levels of stability in global neighborhoods as well as other types of neighborhoods, there are different risks of reversal, different threat of white loss, different pace of the expansion of all-minority areas—even different conditions in global neighborhoods!

Some hypotheses pan out, others do not. In WB metropolitan areas, we would expect to see evidence of "invasion and succession" but did not. In the all-white metropolitan areas, we have global neighborhoods nonetheless. There is a clear parallel between the multiethnic and white-immigrant metropolitan areas in transition patterns.

There are signs of similar processes. For example, the immigrants are quicker and readier to enter white areas than blacks, and the immigrant entry paves the way for blacks to join; in the meanwhile, in WB metropolitan areas, immigrants also seem to enter the neighborhoods shared by blacks and whites. One would expect these areas to show greater stability as a result. The rapid increase of the share of global neighborhoods even in white and WB metropolitan areas may be the evidence for it.

Two Transitions: micro versus macro.

A new element of this study is the introduction of the transition of metropolitan areas. The contrast of transitions at neighborhood level (micro) and metropolitan level (macro) provides (a useful perspective) interesting insights into the development of residential integration of the country.

There is a common trend toward diversity. At both micro and macro level, we see the momentous rise of multiethnic areas: the number of multiethnic metropolitan areas doubled, and multiethnic neighborhoods expanded significantly; at both levels, we see the rapid reduction of no-minority areas: only half the original white-only metropolitan areas remain, and a large proportion of white-only neighborhoods added minority presence.

There seems to be a different role for the new minority groups at the micro and macro levels that lead to possible diverging prospects. This conjunction of whites and immigrants appears to be a way-station in neighborhood transition at micro level; but a destination in metropolitan change at macro level.

At metro level, the new-minority/majority is the most stable form and records the fastest expansion. The most populous metro category is W+H/A in 2010 at 58; over time, this category records the fastest growth of any metro type, including 20 previously all-

white metropolitan areas added immigrants; moreover, this type of metros reports a retention rate of 88%—the most stable of any type, even higher than the multiethnic.

In contrast, at neighborhood level, it is the global neighborhood that has the largest share, the fastest growth, and is the most stable form of community; the WHA neighborhood, instead, is a gateway stage leading to global neighborhood—in most situations, it is the biggest source of new global neighborhoods, which attests the effect of immigrant "buffer."

The transition trend at the micro level is to move toward global neighborhood (and then possibly all-minority). As a result, the neighborhoods are expected to become growingly global over time.

At the macro level, there is clearly a *new* world—the new minority groups are growing rapidly, and have become the main minority groups (Hispanics replace blacks as the largest minority); they not only enter the established port-of-entry places, like New York and Los Angeles, the mega melting-pot metros (Frey 2011) along the coasts, but also move inland, and enter previously no-minority (all-white) areas, which were hitherto almost closed to minority (diversity) because of the would-be encountered difficulties by the old minority group (blacks)—immigrants face less resistance and experience more acceptance by whites. There is an emerging line of research focusing on the so-called "new destinations" for immigrants examining this kind of dynamics, trying to address this kind of questions, (Lichter et al. 2010; Hall 2013)

There are several reasons to think that the new-minority/majority metropolitan areas will remain the most populous type: 1. immigrants still grow quickly—both immigration (legal and illegal) and higher birth rate has made Hispanics a group to be reckoned with in political, economic, social, and cultural ways; 2. blacks are less mobile than the new minority groups, therefore, they may not move into these W+H/A metropolitan areas in large numbers.

Therefore, we may see a new landscape of group relation at macro level—in the areas where blacks are already in, they become multiethnic over time; in previously all-white areas, new-minority groups enter and establish a new minority-majority relation with whites—it remains a question whether blacks will eventually join in, but at least it will be some time before it happens, if it happens—because, blacks need to be mobile enough—to achieve enough social and economic progress to move into these areas, and they also need to desire such move—we see something like that in the secondary black migration into the non-traditional destinations in the West and Southwest (Frey ?), which involves blacks who are socioeconomically more advanced.

Whether global neighborhood will contribute to the final elimination of racial barriers is a separate question. One may expect that the broader, deeper, and more frequent interactions between different racial/ethnic groups in these shared neighborhoods to gradually lead to improved understanding and thereby eventually yield a real solution to the pathology of racially based residential segregation that has plagued American cities since early 20th century.

Global neighborhood is not a panacea. Even integrated neighborhoods are still subject to neighborhood deterioration and white exodus, albeit at a slower pace. We

observe indeed that global neighborhoods are more stable and less prone to white loss than other types of shared neighborhoods.

The troubling prospect of the disappearing white-present neighborhoods

Contemporary neighborhood transition report contradictory trends: on the one hand, more and more tracts become global neighborhoods; on the other hand, a significant number of tracts lose whites or become less diverse in other ways. The net result is the expansion of two extremely different types of areas within a metropolitan area—one points to prospect of residential integration, and the other, the despair of perpetual segregation. These two kinds of places will have very different immediate prospects of future neighborhood change, segregation, integration—following the current trend of continual white exist without reentry, one can argue that, eventually, all tracts must head toward the absorbing state of non-white neighborhoods. That would be an untenable proposition—whites must go somewhere, white flight will run out of potential destinations and therefore must stop at some point, some must give at some point, What will be the solution? Will gentrification in the disserted downtown areas make a full circle of the neighborhood transition process?

Localized spatial analysis is the next step.

The existence of global neighborhoods in less diverse contexts point to the apparent uneven distribution, the heterogeneity of geographic distribution of groups within metropolitan area—even in a metro area with small presence for a minority group, the group may be so geographically concentrated that they create localized hotbeds for global neighborhoods to develop. In other words, a multiethnic context is formed in less diverse metropolitan areas. There is a sharp diversion between metropolitan macro condition and the neighborhood micro condition. We hypothesize this to be the case. To confirm this, localized spatial analysis is called for.

Thus, the next step is to examine specific metropolitan areas to see how neighborhoods relate to each other spatially, and to infer how they affect each other through spatial interactions. The Burgess model of concentric rings of urban arrangement may be a useful guide: a tendency of white expansion toward the peripheral while minority neighborhoods stuck in the old city centers—a spatial pattern first displayed in suburbanization and probably now extended further away from the city center.

Footnotes:

1. The three non-Hispanic groups are non-Hispanic white, non-Hispanic black, and non-Hispanic Asian. In the text, we refer them as whites, blacks, and Asians.

2. Here metropolitan areas include both metropolitan areas and metropolitan divisions based on the 2009 metropolitan definition by Office of Management and Budget (OMB), which was created for Census 2010. It reflects a significant change from the previous metropolitan definition of 1999. It added the new category of micropolitan area with a much smaller urban core, a lower threshold requirement than metropolitan standard. Many of the micropolitan areas are indeed very small with skewed distribution for minority groups. In this study, we decide to only focus on metropolitan areas and metropolitan divisions, to be consistent with the macro units used in previous works (Logan and Zhang 2010).

Logan and Zhang (2010) employed MSA/PMSA (Metropolitan Statistical Areas/ Primary Metropolitan Statistical Areas) designation from 1999 with the total number of 331 metropolitan areas in the United States. The 2010 update employed the new metropolitan definition of 2009—MSA/MD, in which the old Primary Metropolitan Statistical Areas [PMSA] are replaced by Metropolitan Divisions.

3. We feel the cutoff of 200K is a sweet-spot compromise after trying out alternative cutoff points of 150K, 250K, and 300K. The key findings remain robust in our analyses based on alternative sample selections.

4. There are also several differences to be noted between the Frey and Farley ethnic classification and our typology:

- different metro units: they used MSA/PMSAs of the 1990 OMB definition (*Office of Management and Budget in June 1990*, p. 36), their classification includes 318 metropolitan units; and we use their comparable OMB definition of 2009: metropolitan statistical area and metropolitan division, our classification includes 386 metropolitan units.
- they studied 37 metropolitan areas, we will study 170 metropolitan areas.
- they use 1990 data, we used 1980 data normalized to the census 2010 geography. Our classification is based on 1980 figures. 1980 is the starting point of our transition period. It is the beginning point of the process.
- their classification contains five categories: multiethnic, mostly Latino-white, mostly Asian-white, mostly black-white, and mostly white, but only studied multiethnic, which combines WBH, WBA, WHA, and WBHA types of metropolitan areas. We introduce four categories of our typology: white-only (mostly white, white-dominant), black and white (mostly black and white), immigrants and white (non-black, WH, WA, WHA), and multiethnic (black and white and immigrant, WBH, WBA, and WBHA).

Appendix 1. Group composition across neighborhoods in the all metropolitan areas

	1980				2010			
	W	B	H	A	W	B	H	A
A	11.2		2.5	85.8	5.8	1.3	4.7	78.7
H	7.7		90.0		4.9	1.0	92.7	
HA	8.5		64.2	27.2	6.0	1.7	65.4	25.2
B	4.4	94.2	1.1		3.2	93.6	2.4	
BA	6.3	89.4	1.4	2.6	6.2	79.2	4.0	10.1
BH	5.2	64.5	29.7		4.0	46.6	47.8	
BHA	7.3	56.9	31.0	4.4	6.1	29.7	48.6	13.9
W	97.6				93.6	1.5	2.6	1.1
WA	94.6	1.1	1.5	2.4	83.3	2.1	4.0	9.7
WH	78.5	1.0	19.4		60.1	2.0	34.9	1.4
WHA	76.7	1.5	16.1	5.2	58.7	2.4	24.7	12.8
WB	72.4	25.9	1.1		67.7	26.5	3.5	1.2
WBA	75.8	19.7	1.6	2.4	70.2	16.5	4.4	7.9
WBH	55.0	26.8	17.3		46.3	21.4	29.6	1.4
WBHA	60.1	16.6	16.7	6.1	47.0	15.7	25.5	10.3

Note: cells with less than 1% are left open.

Appendix 2. Neighborhood group presence cut off points

	W	B	H	A
1980	15.9%	4.6%	3.7%	0.8%
2010	10.5%	4.4%	7.4%	2.4%

REFERENCES

Alba, Richard D. Nancy A. Denton, Shu-yin Leung, and John R. Logan. 1995. "Neighborhood Change under Conditions of Mass Immigration: The New York City Region, 1970-1990." *International Migration Review* 29:625-656.

Aldrich, Howard. 1975. "Ecological Succession in Racially Changing Neighborhoods: A Review of the Literature." *Urban Affairs Quarterly* 10:327-48.

Blalock, Hubert M. 1957. "Per cent non-white and discrimination in the South." American Sociological Review 22: 677-82.

Blalock, Hubert M. 1967. *Toward a Theory of Minority-Group Relations*. Wiley & Sons.

Denton, Nancy A. and Douglas S. Massey. 1988. "Residential Segregation of Blacks, Hispanics, and Asians by Socioeconomic Status and Generation." *Social Science Quarterly* 69:797-817.

Denton, Nancy A. and Douglas S. Massey. 1991. "Patterns of Neighborhood Transition in a Multiethnic World: U.S. Metropolitan Areas, 1970-1980." *Demography* 28:41-63.

Duncan, O.D. and Beverly Duncan. 1957. *The Negro Population of Chicago*. Chicago: University of Chicago Press.

Ellen, Ingrid Gould. 2000. *Sharing America's Neighborhoods: The Prospects for Stable Racial Integration.* Cambridge: Harvard University Press.

Farley, Reynolds and William Frey. 1994. "Changes in the Segregation of Whites from Blacks during the 1980s: Small Steps toward a More Integrated Society." *American Sociological Review* 59:23-45.

Frey, William H. 2001. “Melting Pot Suburbs: A Census 2000 Study of Suburban Diversity.” *The Brookings Institution Census 2000 Series*. June, pp. 1-17.

Frey, William and Reynolds Farley. 1996. “Latino, Asian, and Black Segregation in U.S. Metropolitan Areas: Are Multi-ethnic Metros Different?” *Demography* 33: 35-50.

Guest, Avery M. and James J. Zuiches. 1971. “Another Look at Residential Turnover in Urban Neighborhoods: A Note on ‘Racial Change in a Stable Community’ by Harvey Molotch.” *American Journal of Sociology* 77:457-467.

Hall, Matthew. 2013. “Residential integration on the new frontier: Immigrant segregation in established and new destinations.” *Demography* 50(5): 1873-1896.

Hoover, Edgar and Raymond Vernon. 1959. *Anatomy of a Metropolis*. Cambridge, MA: Harvard University Press.

Iceland, John. 2004. “Beyond Black and White: Metropolitan Residential Segregation in Multi-ethnic America.” *Social Science Research*, 33:248-271.

Iceland, John, and Erika Steinmetz. 2003. “The Effects of Using Census Block Groups instead of Census Tracts When Examining Residential Housing Patterns.” Bureau of the Census.

Lee, Barret A. and Peter B. Wood. 1991. “Is Neighborhood Racial Succession Place-Specific?” *Demography* 28 (February):21-40.

Lichter, Daniel T.; Parisi, Domenico; Taquino, Michael C.; Grice, Steven Michael. 2010. “Residential Segregation in New Hispanic Destinations: Cities, Suburbs and Rural Communities Compared.” *Social Science Research* Vol. 39, Issue 2, 215–230.

Logan, John R., Richard D. Alba, Tom McNulty, and Brian Fisher. 1996. "Making A Place in the Metropolis: Locational Attainment in Cities and Suburbs." *Demography* 33: 443-453.

Logan, John R., Brian Stults, and Reynolds Farley. 2004. "Segregation of Minorities in the Metropolis: Two Decades of Change." *Demography* 41:1-22.

John R. Logan and Charles Zhang. 2010. "Global Neighborhoods: Paths to Diversity in the Immigrant Metropolis." *American Journal of Sociology* 115: 1069-1109.

Maly, Michael T. 2005. *Beyond Segregation: Multiracial and Multiethnic Neighborhoods in the United States*. Philadelphia: Temple University Press.

Massey, Douglas and Nancy Denton. 1993. *American Apartheid: Racial Segregation and the Making of the Underclass*. Cambridge, MA: Harvard University Press.

Nyden, Philip, John Lukehart, Michael Maly, and William Peterman. 1998. "Racial and Ethnic Diversity in U.S. Cities." *Cityscape: A Journal of Policy Development and Research* (Volume 4, Number 2).

Ottensman, J. and M. Gleason. 1992. "The Movement of Whites and Blacks into Racially Mixed Neighborhoods, Chicago 1960-1980." *Social Science Quarterly* 73:645-62.

Saltman, J. 1990. *A Fragile Movement: The Struggle for Neighborhood Stabilization.* New York: Greenwood Press.

Santiago, Anne M. 1991. "The Spatial Dimensions of Ethnic and Racial Stratification." Research Report 91-230, Population Studies Center, The University of Michigan.

Schelling, Thomas C. 1971. “Dynamic models of segregation.” *Journal of Mathematical Sociology* 1.2: 143-186.

Schwirian, Kent. 1983. “Models of Neighborhood Change” Pp. 83-102 in R. H. Turner and J.F. Short, Jr. (editors), *Annual Review of Sociology*, Volume 9. Palo Alto: Annual Reviews.

Taeuber, Karl and A.F. Taeuber. 1965. *Negroes in Cities*. Chicago: Aldine.