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the foreign minority experience

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Gaining Access to Housing in Germany: the foreign minority experience.¹

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ABSTRACT

Housing is a critical component of household well being and the extent to which minority households have achieved parity with Germans is a measure of the extent to which this population is integrated into the larger German society. Specifically we examine whether the housing conditions for immigrants² has improved between 1985 and 1998 despite the greater barriers to upward mobility for low skill workers arising from industrial restructuring. We use regression models to determine the degree to which socioeconomic differences between the two populations account for variations in the average quality of their housing. Finally, given the low number of vacancies in the German housing market and the disadvantaged position of minorities within it, we are interested in measuring the magnitude of the improvements persons of foreign origin are able to make through residential mobility. Our descriptive analyses reveal that although housing conditions for minorities have improved in absolute terms across a wide array of indicators, only in a few instances has the housing quality gap between Germans and persons of foreign origin narrowed. Further, we find that the housing conditions of minorities remained poorer even after controlling for variables thought to be strong predictors of housing quality (income, age, family size etc..) Finally, persons of foreign origin are becoming increasingly likely to move into the large, often geographically and socially isolated apartment complexes built in the post World War II era.

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² We use the terms ,immigrant‘ , minority‘ , foreign national‘ and ,person of foreign origin‘ interchangeably to refer to the population without citizenship living in Germany

INTRODUCTION

It will soon be a half century since the first guestworkers began arriving in Germany and since that time persons of Southern and Eastern European descent have evolved into an integral part of German society. Over the years a process of negotiation has taken place whereby immigrants have managed to carve out places for themselves within Germany society. Persons of foreign origin have had to struggle to be accommodated within institutions such as the school system, the white-collar labor force, the media and the housing market. This article will focus on the process of gaining access to the housing market in the period 1985 through 1998.

Initially most of the migrants lived in temporary housing near their place of work. However as temporary jobs became permanent jobs, and single males were joined by their families, foreign nationals began to move into the general housing market. This was especially the case shortly after the *Zuzugssperre* (migration halt) in 1973 and by the 1990s about half of all ‘*Ausländer*’ had lived in Germany for more than ten years (Münz, Seifert and Ulrich 1994). Generally, immigrants move into the least desirable urban housing being vacated by Germans moving up the housing ladder, a pattern reflected and repeated by low income immigrant/host society interactions everywhere. Over time the location of this housing has shifted as a result of changing housing policies and changing housing priorities among immigrants who have gradually placed more emphasis on putting down roots as opposed to sending home remittances (Flade and Guder 1988).

Theory tells us that the longer immigrants remain in a country, the more closely their housing consumption resembles that of the majority (Burgess 1925, Häusermann and Siebel 2000). Yet recent work in the United States has begun to raise concerns, that due to economic restructuring, the absorptive capacity of the industrial societies has been reduced (see Clark 2000, Borjas 1999).

During the three decades at the end of the twentieth century industrialized nations went through a fundamental change in their economic and demographic structures. Economic restructuring involved a decline in manufacturing jobs and the rise of a service economy. Associated with these changes many jobs moved "off shore" where those firms could access cheaper and non-union labor. The restructuring also involved the downsizing of firms and a related deskilling of the workforce (Bluestone and Harrison, 1982).

Thus the manufacturing jobs that originally drew guestworkers to Germany in the 1960s and 70s began to dry up as low skill jobs were either made redundant through improved technology or exported (Bender and Seifert 1996). Beginning in the 1980s, unemployment among immigrants rose above German levels and has remained about five percent higher ever since (Münz, Seifert and Ulrich 1997). In addition, there is a growing literature which details the increasing polarization found in European and American cities and the concomitant rise of an underclass (e.g. Dangschat 1994, Schmitter-Heisler 1994, Wilson 1996). One of the main goals of our research is to determine whether or not persons of foreign-origin have continued to be able to make improvements in their housing situation despite their having to face a more challenging economic context.

The labor market position of foreign-origin persons only partially determines their housing situation. Their housing budget in turn interacts with the actual housing stock and extant social barriers. During the 1970s the majority of immigrants to enter into the German housing market moved into privately rented *Altbau* housing near city centers or industrial areas. Generally this housing stock pre-dated the Second World War and as time moved on, it became more and more dilapidated and hence less desirable to native Germans. Lower and middle class Germans, on the other hand, were the beneficiaries of large scale government housing support that lasted until the mid 1970s. Much of this money went to 'private social landlords' who in return for low interest loans and tax breaks agreed

to keep rents at a certain level and to accept tenants nominated by the local government (Power 1993).

As a result of policy changes in the 1970s and 1980s, the supply of low-income housing for both persons of foreign-origin and Germans became more limited. The German government changed the emphasis of its housing subsidies to schemes designed to encourage owner occupation and therefore the government pushed social landlords to redeem their loans, which in turn freed them to charge market rents. As a result, rents rose faster than the cost of living. Furthermore, the *Städtebauforderungsgesetz* of 1971 provided for renovation grants and subsidies to persons wanting to upgrade inner-city property. The ensuing gentrification and conversion of many units to owner/occupier dwellings displaced many lower-income and foreign-origin households. After realizing that the low-income housing supply was drying up in Germany, the governments began to limit inner city renovation subsidies, buying rights from private landlords to nominate households in need for vacant housing, constructing new social housing and providing tax subsidies and low interest loans to create more housing within existing structures (Power 1993, Friedrichs 1998).

Although initially the residences of low and middle income Germans, the large blocks of social housing largely clustered on the edges of Germany's large cities have recently begun to house a growing portion of Germany's minorities. Most of these *Großwohnsiedlungen* were built during the late 1960s and 1970s and over two thirds of them contained more than 2000 dwellings in a single estate (Power 1993). Housing policy, in addition to the austerity and isolation of the estates, has made them increasingly less attractive to working German families. Häusermann and Kapphan (2000) point out that in Berlin, rent levels in *Großwohnsiedlungen* in the West are set at a level that is difficult for poorer families to afford on their own, yet persons who are so poor that social assistance is covering their housing costs are able to move into these areas. In addition, tenants whose incomes rise to a level 20% above eligibility limits are forced to pay

a special surcharge and as a result, many better off families have moved away. These policies have resulted in a growing concentration of Germany's most economically vulnerable populations in some of the country's more geographically isolated spaces. Although the *Großwohnsiedlungen* have better amenities than the unrenovated, pre World War II housing referred to as *Altbau* in Germany, *Altbau* neighborhoods tend to be vibrant economic areas as opposed to the *Großwohnsiedlungen* far from city centers. Our analysis investigates not only the extent to which foreign-origin populations are moving into these areas but also which sub-populations are more likely to do so.

In our analysis we place particular emphasis on residential mobility as it is through this process that households adjust for changes in size and translate increases in income into a higher standard of living. It is also principally through residential mobility that persons of foreign-origin are able to reduce the housing quality gap between themselves and native Germans. Past research reveals, however, that minorities do not have unbarred access to all areas of the housing market available at a given market rent. Studies undertaken in both the United States and Europe have shown that minority members with incomes similar to those of the majority are not able to move into desegregated neighborhoods (Arend 1984, Massey Condran and Denton 1987, South and Deane 1993 Friedrichs 1998). Therefore, a relatively large population is forced to search for housing in a limited portion of the housing market, which in turn drives up rental prices (Clark 1965, Dangschat 1994, Özuekren and Kempen 1997, Häusermann and Siebel 2000,). Persons of foreign-origin therefore often end up paying significantly more than native Germans for the same housing stock (Tuchscherer 1993, Kapphan 1995). Naturally this is then made even worse when the vacancy rate in the housing market is low.

The previous discussion leads to three hypotheses. First, given the continued investment in the German housing market we expect the housing situation of persons of foreign nationals to have improved but that the gap in their

housing quality relative to persons with German citizenship has not decreased. Second we believe that that gap in housing quality will remain even after controlling for factors likely to influence the gap, such as income, urban location and age. Finally, we expect German households to make greater gains through moves than households of foreign-origin.

DATA AND VARIABLES

The German Socio-Economic Panel (GSOEP) is a rich source of information on the housing and household characteristics of approximately 6,000 randomly sampled households. Of importance to this particular study is the fact that persons of foreign origin are over-sampled in the GSOEP (Wagner et al 1993). Initially in 1984, 1393 households of Turkish, Yugoslavian, Greek, Spanish and Italian origin were included in the sample. In 1994/1995, an additional immigrant sample of 522 households who moved from abroad to Germany was added to the GSOEP. As a result, the immigrant sample within the GSOEP captures a broad spectrum of immigrant experiences within Germany. Sampling weights, calculated by the German Institute for Economic Research (DIW Berlin), are used to adjust for panel attrition and sample bias and aid in ensuring that results are fairly representative of the German population as a whole. It should be noted, however, that certain portions of the population, such as illegal immigrants and immigrants living in homes for asylum seekers, are not included in the sample.

In the analysis we look specifically at foreign nationals rather than at all persons of foreign origin. We, however, miss out on only a small number of foreign origin households as a result. Up until 1998 citizenship laws were so restrictive that a large portion of the foreign origin population did not have the option to obtain German citizenship. Even after 1998 the vast majority of persons of foreign origin, including those who are now second or third generation immigrants, chose not to obtain German citizenship, The main reason being that Germany does not allow dual citizenship. In addition, many countries, including Turkey, will not allow non-nationals to inherit property within Turkey. Further we

do not include ethnic Germans who immigrated from outside Germany or *Aussiedler*, as German citizens have easier access to housing.

We limited the analysis to households residing in West Germany, as this is where the vast majority of all immigrants live. The research was carried out at the household level because people generally move in household units. In addition, moves which involved household split-offs (ie divorce, children leaving the household) were not included in the before and after move analysis. We felt that including split-off moves would bias the results because these types of moves are more likely to take place in the German population, and they result in different types of housing consumption. Additionally, our study did not differentiate between long and short distance moves. Normally, in studies of migration, short and long distance moves are treated separately. We know that long distance moves are employment related and short distance moves are more closely tied to changes in housing status. In the present study however, we analyze the outcomes of both long and short distance moves. It is of interest whether households in general, who relocate, are able to improve their housing, whether or not they are moving primarily for housing related reasons.

Other important factors to note regarding the analysis are that all personal characteristics, such as foreign-origin or age, refer to the characteristics of the household head. The descriptive analysis compares 1985 and 1998 cross sectional files whereas the regressions and mover analysis are calculated from a pooled data set which includes data from every year between 1985 and 1998.³ We control for urban location by grouping the population into those who live in communities of more or less than 20,000. Income and space per person are adjusted in the regression analysis. By adjusting our measure of space per person we are able to take into account economies of scale in larger households (ie a two person household does not need two kitchens, bathrooms etc...). We use a scale

³ Apart from the mover analysis we only use cross-sectional aspects of the panel. This is because we wanted to research housing quality gains as opposed to timing issues.

originally developed in 1957 and later revised in 1971 referred to as the ‘Cologne recommendation’ (see Frick 1995 and Glatzer 1980) which sets a minimum number of square meters for households of between one and six persons. In adjusting household income for housing size we use an equivalence scale that involves dividing household income by the square root of the number of persons in the household.⁴ This allows us to take into consideration the fact that 50,000 DM goes much further in a family of two than it does in a family of five. Finally, in the analysis we look at all foreign nationals and we examine persons of Turkish origin separately. The reason we focus on Turks in particular is twofold. First, in the past Turks faced more difficult housing and economic conditions than persons of foreign-origin in general (Gans 1987). Second, Turks are the largest national subgroup within Germany, and the GSOEP immigrant sub-sample, making the analysis of their housing situation not only possible, but also particularly relevant.⁵

ANALYSIS AND RESULTS

The analysis examines descriptive statistics and models, which test the three hypotheses. In the first stage we compare general housing conditions for all persons of foreign-origin, for Turks and for Germans, at two points in time, 1985 and 1998. This allows us to measure the degree to which housing conditions have changed since the mid-1980s for the three groups. The second stage of the analysis consists of a series of multiple and logistic regression analyses. These analyses assess whether or not differences found in the descriptive analyses are statistically significant and they control for the factors most highly associated with variations in housing quality. This makes it possible to find out the extent to which nationality, independent of socioeconomic factors, is a predictor of housing quality. In the last stage of the analysis we compare Germans, Turks and foreign-origin movers before and after they change their place of residence. The main

⁴ See Atkinson, A. B., L. Rainwater, and T. M. Smeeding. 1995. *Income Distribution in OECD Countries: Evidence from the Luxembourg Income Study (LIS)*. Paris: OECD for other examples of the use this income equivalence scale

objective here is to measure the degree to which persons of foreign-origin are able to improve their living conditions through mobility.

DESCRIPTIVE ANALYSIS

The major measures of success in the housing market are ownership, housing space, housing quality and housing location. The GSOEP data can be used to measure changes in the proportions who own, the amount of space consumed, the quality of the space and whether or not the unit is located within a large, post World War II apartment block or a 1-2 unit dwelling. We examine the quality through both objective and perceptive measures of housing quality.

The study begins by discussing access to private bath and central heating as these two factors have a very large impact on quality of life and dwelling price. We then look at crowding, general state of repair, rent burden, dwelling location and lastly tenure. Far fewer people own their own homes in Germany as there are fewer financial incentives to do so and thus tenure does not have the same significance that it does in the United States.

Renovation projects, most of which are publicly subsidized, have had considerable effect on the housing conditions of minorities in Germany. Unlike the housing stock in the United States, a sizeable portion of the housing stock in Germany predates WWII, therefore until recently facilities such as central heating and private bath were not necessarily standard in German housing. At the same time, table 1 (see Appendix) indicates that the benefits of urban renewal policies have indeed reached persons with foreign citizenship. The percentage of foreign households without private bath dropped precipitously between 1985 and 1998 and as a result, the percentages of citizens and non-citizens without bathroom facilities are almost indistinguishable.

⁵ Although it would have been advantageous to look at the housing of other nationalities as well, sample sizes were prohibitively small. We did not look at foreign nationals minus Turks separately as we felt this

The statistics for access to central heating and crowding show that the urban renewal has substantially improved housing conditions for foreign nationals in absolute terms, however relative differences have not diminished. The percentage of foreign families living without central heating has been cut in half -a significant achievement- yet the percentage drop for German citizens was even greater. Further, levels of crowding decreased significantly among foreign nationals to an average of just below one. Although the average is now just shy of the recommended amount of space per person, this still means that around half of all foreign nationals live in overly crowded conditions. In addition, German nationals also made large gains and thus no appreciable closing of the housing quality gap took place.

The subjective evaluations of crowding, state of repairs and rents levels show no improvements in absolute levels of satisfaction and slight increases in the gap between the two populations. Although the objective statistics indicate that the average space per person in the non-citizen population increased between 1985 and 1998, one third still felt that their living quarters were too small in 1998. This likely reflects the foreign population's assimilation of German expectations regarding housing space and awareness on their part of the undiminished gap in their living conditions compared to that of the greater German population. A similar explanation probably accounts for the increasing gap between percentages of Germans and percentages of foreign nationals feeling that their housing is not in need of renovation. Especially given the fact that far fewer foreign nationals live in units without a bathroom or central heating. We also note that some caution should be used when interpreting absolute changes over time because while the category 'not in need of renovations' remained the same between the two time periods, an additional category indicating some degree of dissatisfaction was included in the 1998 data. This change in the survey might have lowered the number of persons responding that their dwelling was not in need of renovations.

group was too diverse for the results to be easily interpretable.

The percentage of the foreign national population who perceived that their rent was too high remained the same between the two time periods, however there were marked increases in the average percentage of income spent on rent. In 1985, immigrants spent a lower proportion of their net income on housing than did Germans. This probably reflects both the fact that a greater portion of the immigrant population viewed themselves as temporary at that time, and that there was more unrenovated housing available at that time. However by 1998 persons of foreign-origin were spending close to as much of their income on rent as Germans.

Not only has the gap between non-citizens and citizens remained undiminished, the gap between Turks and foreign nationals overall remains the same with respect to objective indicators and has actually widened with respect to subjective appraisals of housing conditions. Past research has indicated that Turks are Germany's most poorly housed national group (Gans 1987). Their position relative to Germans and foreign nationals remained unchanged over time with respect to their access to central heating and average level of crowding. Subjective valuations indicate that the gap between their level of satisfaction with their living space, the amount of rent they pay for their unit and the level of repair of their units has widened over time.

In Table 2 (see Appendix) we compare home ownership rates and aspects of home location for the three sub-populations. Home ownership is an especially critical factor because not only is a home a major financial asset, but for immigrants home ownership is an indicator of rootedness within a society. Home ownership rates remain very low among foreign nationals despite strong increases between 1985 and 1998. These numbers should be regarded with some caution as persons of foreign origin who buy property are likely to be among the few who decide to obtain German citizenship.

The type of housing a group is living in also serves as an indicator of neighborhood quality. Persons of foreign-origin are moving into buildings with 9 or more units whereas the proportion of Germans in these buildings has remained constant. Large apartment buildings in Germany are often located towards the edge of the city and are isolated from services (Herlyn 1990). As in other parts of Europe, economically vulnerable persons such as single mothers, the unemployed and the elderly are becoming increasingly concentrated in these areas (Khakee et al. 1999). Persons of foreign-origin are likely to end up socially and geographically isolated as a result of their increasing concentration in these areas.

The results of our descriptive analysis confirm our initial hypothesis that the housing situation for foreign nationals has improved in relative but not absolute terms. Although the gap in access to indoor bath facilities closed between 1985 and 1998, no relative improvements in access to central heating, state of renovation or crowding levels took place. It seems fair to conclude that the economic consequences of industrial restructuring have hindered the assimilation of foreign nationals in the German housing market. The next question is then if we control for the socioeconomic differences between the two populations, do the differences in housing quality between the two populations dissipate?

REGRESSION MODELS

Past findings have consistently indicated that persons of foreign-origin live in poorer quality housing. However, the issue that has inspired debate is whether the disadvantaged position of immigrants in the housing market is due to socioeconomic factors or to factors associated with national origin. Our research attempts to clarify this debate using a series of regression models to test our second hypothesis that nationality remains significant even after controlling for other variables likely to affect housing quality. Therefore each model contains the same socioeconomic and demographic independent variables while the dependent variable for each model is some measure of housing quality. The analyses were

performed on pooled data therefore the Huber Standard errors were employed to correct for unrealistically high significance levels.

In each of the models we have included variables which previous research indicates have influenced housing quality. Many of these variables are also likely to have contributed to variations in housing consumption between the foreign national and German population. Income was included because there is a positive and direct relationship between dwelling cost and dwelling quality and foreign nationals earn on average less than Germans. In addition, age was included because past research has shown a strong correlation between stages in the life cycle and changes in patterns of housing consumption (Clark and Dieleman 1996). Ownership is an indicator of wealth and not just income, and as such it is a marker for an increased capacity to afford better housing. Urban location is important because rents are higher and dwellings more crowded within cities. Number in household is important because although income is already adjusted for household size, households with children are likely to make different decisions about where they live than those without, such as opting for 1 or 2 unit dwellings and being willing to pay more to be in a good neighborhood. In the multiple regression models it is possible to control for income, age, tenure, urban location, number in household and time period to determine whether or not a 'foreign' effect exists above and beyond these other factors.

The models in table 3 (see Appendix) are significant and it is notable that in every model, the foreign-origin variable was not only significant, but the effects were large. As one would expect, living in an urban area and having a large household made household heads less satisfied with the size of their living space while higher income, age and ownership made them less likely to be dissatisfied. Interestingly during 1992-1998 household heads were significantly more likely to be dissatisfied with their dwelling size. However, even after controlling for all these factors, foreign national households were more than a third more likely to be dissatisfied with the space in their dwelling.

Foreign nationals were even more likely to be dissatisfied with their rent levels. They were two thirds more likely than German nationals to feel that they were paying too much for their living space. None of the other variables, aside from income and to a limited extent age, were significant predictors of satisfaction with rent levels, a fact reflected in the pseudo R squared for the model.

Finally, persons of foreign origin were, relative to Germans, very unlikely to be satisfied with the state of repairs of their dwellings. This is probably a reflection of the role that non-nationals have traditionally played in the German housing market. As in most cities, minorities tend to live in the least desirable housing that is in most need of upkeep. In Germany, foreign nationals often circulate through un-renovated, pre World War II (*Altbau*) housing that has deteriorated to the point that it is in need of major renovation and they stay there until they are forced to leave once renovations get under way.

In the standard regression model for predicting adjusted meters per person (see table 4, Appendix) the directionality and significance of the variables is expected. Once again, being a foreign national results in more cramped living conditions even after controlling for variables such as income, home ownership and urban location. Interestingly, being a non-national results in 1.6% less of a family's income being spent on rent. This figure is rather small though and the descriptive statistics indicate that much of the difference in rent burden between the two populations disappeared between 1985 and 1998.

Even after controlling for variables likely to influence the type of housing a family lives in, foreign nationals remain more likely to live in post World War II buildings with nine or more units, and less likely to live in buildings with only one or two units. This means that they are more likely to live in socially and geographically isolated housing estates and less likely to live in suburbs and smaller towns than Germans. A model with interactions was added to the analysis

and it reveals some particularly interesting trends. Large households headed by foreign nationals are more likely than large households headed by Germans to live in large apartment buildings. This may be a problem because it indicates that foreign households with children are particularly likely to be within poor living environments. In addition, when foreign nationals make the transition to ownership, they are still more likely to purchase a unit in a large apartment than are Germans.

The regression models (see table 5, Appendix) confirm that it is not socioeconomic differences between the foreign national and the German population that drives housing inequality. Nationality alone is a critical variable. Furthermore, the large gaps in housing quality cannot be explained by household decisions to spend a smaller portion of their income on rent. The descriptive statistics indicated the average difference in percent of income spent on rent for the foreign-origin and German population was only 2%. We must therefore conclude that our second hypothesis that nationality effects alone result in poorer housing quality, is tenable.

RESULTS OF MOVES

One can improve the quality of one's housing either through moving or by renovating in place. In our analysis we focus on movers, comparing their living situation before and after a re-location. Movers are critical because their behavior is indicative of demographic dynamics within the housing market. In addition, renovations in place offer only limited potential for improvement. In our analysis of non-movers we found only very minimal gains in housing quality. Therefore it is mainly through moving that persons of foreign-origin are going to be achieve gains relative to Germans. We would also like to note that we do not analyze moves into particular housing types as it seems fairly clear that the changes in population within these housing types reflects their residential mobility.

Our analysis reveals that both Germans and persons of foreign-origin improve their housing quality significantly through moving (see table 6, Appendix). Notably foreign movers tend to be as satisfied with their dwelling's size and state of repair as their relocated German counterparts. This almost certainly reflects the tendency for foreign nationals to move out of *Altbau* housing undergoing renovation and into the more modern housing in Germany's large housing districts. However concrete measures of crowding reveal that moving does not in fact benefit foreign nationals to the same extent in terms of gains in space.

Interestingly, although all national groups spend a greater percentage of their income on rent after a move, they all report being more satisfied with their rent burden. Although foreign citizens tend to experience a smaller increase in their rent burden relative to Germans, they are clearly less satisfied with the housing they are able to obtain for their money. This seems to mirror results of previous researchers who found that foreigners often end up paying more for the same quality housing than do their German counterparts.

Moves appear to enable Turks to move into dwellings that are in a dramatically better state of repair, and the proportional improvements in subjective and objective measures of housing space achieved by Turks are similar to those gained by foreign nationals overall. Although increases in the percentage of income spent on rent were greater for Germans and Turks, than persons of foreign-origin generally, these two groups also experienced more dramatic drops in dissatisfaction with rent levels. The strong housing quality gains achieved by Turks through mobility are tempered, however by the fact that movers within the Turkish population are those who are most poorly housed to begin with. This is indicated by their level of crowding (.69 vs. an ideal minimum of 1) and the fact that only forty percent of them felt they were living in housing not in need of renovation before their move.

The results provide support for our third hypothesis -- that German households make greater gains through moves than do households headed by foreign nationals. Germans make slightly larger gains in terms of space and satisfaction with rent and their housing quality remains better pre and post move. Foreign nationals, however clearly make large gains by moving, especially in terms of the state of repair of their dwellings.

CONCLUSION

The question posed at the beginning of this paper was whether foreign nationals, despite the negative impacts of industrial restructuring, have been able to continue to improve their position in the German housing market. Objective indicators show that although conditions have improved consistently for minorities in absolute terms, progress in relative terms has been much more limited. Furthermore, many of the gains in housing quality appear to have been made at the cost of moving out of *Altbau* housing in the inner city to large, more socially and geographically isolated housing built after World War II. This housing, although an improvement in terms of the quality of the dwelling itself, is attracting growing numbers of foreign-families, a group that can ill afford to bear the social consequences of living in these areas.

If we turn our attention to subjective measures of housing quality we see that persons of foreign-origin have become less satisfied with the quality of their housing over time. This is on the one hand an indication of the assimilation of German norms of housing quality, on the other hand it shows growing frustration on the part of minorities at their limited ability to get ahead in the housing market.

The research also indicates that barriers to mobility continue to exist within the German housing market. Although previous research has found mobility rates for persons of foreign origin to be similar to that of Germans (Clark and Drever, 2000), this mobility does not appear to be unhampered. Even after controlling for

the socioeconomic factors most likely to determine housing quality, persons of foreign-origin remain worse off. As persons of foreign-origin only spend a slightly smaller percentage of their income on rent, these differences cannot be attributed to financial priorities. Further, our analysis of movers revealed that Germans generally made slightly larger improvements in their housing quality than non-Germans. It is likely that industrial restructuring, which increases the number of low-income households competing for housing, has exacerbated the situation by increasing the pool of potential renters making it easier for landlords to select renters and to perhaps discriminate against minorities.

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APPENDIX

Table 1: Housing quality for households with German and Foreign-origin household head in West Germany 1985 and 1998

	Household head					
	German		Foreign-origin			
	1985	1998	All foreign-origin		Just Turkish	
	1985	1998	1985	1998	1985	1998
No bathroom (%)	2	1	15	2	21	2
No central heating	17	5	34	16	42	22
Crowding index ¹	1.16	1.29	0.86	0.95	0.77	0.89
% feeling crowded	13	16	31	33	31	39
% no renovations nec.	64	68	52	50	49	42
% feeling rent high	19	20	33	32	36	41
Rent as % of income	24	29	19	27	17	26

Source: GSOEP

¹ These calculations were made using the 'Cologne recommendation' scale. A value of 1 indicates that a group's average adjusted level of space per person is exactly adequate. A value of 1.16 indicates, for example, that dwelling space is on average 16% greater than it needs to be (see Frick 1995 and Glatzer 1980).

Table 2: Selected building types and ownership status with German and foreign-origin household head status in West Germany between 1985 and 1998.

	Household head					
	German		Foreign-origin			
	1985	1998	All foreign-origin		Just Turkish	
	1985	1998	1985	1998	1985	1998
Building Type:						
Large apt. building	12	12	13	18	10	18
1-2 unit housing	47	47	21	23	21	17
Home owner	41	38	8	13	2	12

Source: GSOEP

Table 3: Logistic Regression models with subjective indicators of housing quality as dependent variables

Dependent variables	Likelihood of being unhappy with housing space	Likelihood of feeling rent level is too high	Likelihood of feeling housing not in need of renovations
Independent variables	Odds ratio	Odds ratio	Odds ratio
Adjusted net income	1.00002 .7651*	1.0002* .585*	1.0001 1.5558*
Log of adj. income			
Age	.9672*	.9931*	1.0016
Age squared	.9995	.9999	1.0002
Owner vs. (renter)	.3903*		1.6271*
Foreign origin vs. German	1.3785*	1.6721*	.1799*
Urban vs. non-urban	1.3251*	1.0148	.8812
Number in household	1.2446*	1.0126	.9999
1992-1998 vs. 85-91	1.4899*	1.0104	**
Pseudo R squared ¹	0.12	0.02	0.27

Source: GSOEP

* significant at the 0.01 level

** due to recoding of this variable in the GSOEP, analysis is for years 1992-1998 only

¹ The pseudo-R², in logistic regression, is defined as $(1 - L1)/L0$, where L0 represents the log likelihood for the "constant-only" model and L1 is the log likelihood for the full model with constant and predictors

Table 4: Standard regression models with objective indicators of rent and room stress

Dependent variables	Rent burden	Adjusted meters per person
Independent variables		
Adjusted net income**	.00009	.00005*
Log of adj. income**	-.5560*	.10356*
Age	-.0011*	.00306*
Age squared	.00005*	-.00008*
Owner vs. (renter)		.3247*
Foreign origin vs. German	-.0155*	-.1543*
Urban vs. non-urban	.0106	-.10701*
Number in household	.0861*	-.10315*
1992-1998 vs. 85-91	.1390*	-.02070
Constant	4.16511	.3925
R squared	0.24	0.32

Source: GSOEP

* significant at the 0.01 level

** This was not adjusted for the calculation of rent burden

Table 5: Logistic regression models with building type as the dependent variable

Dependent variables	Likelihood of living in a buidind with 9+ units	Likelihood of living in a 1 or 2 unit building	Likelihood of living in a building with 9+ units + foreign orig interactions
Independent variables	Odds ratio	Odds ratio	Odds ratio
Adjusted income	.9999	1.0001*	.9999
Log of adjusted income	1.1859	1.0116	1.0290
Age	.9992	1.0207	1.0001
Age squared	.9999	.9996	.9999
Owner vs. (renter)	.2630*	**	.2359*
Foreign origin	1.6156*	.1954*	1.8761
Urban	4.2681*	.1781*	4.1613*
Number in household	.7700*	1.6859*	.7723*
1992-1998 vs. 85-91	.9470	1.0217*	1.0049
Adj inc x foreign orig			1.0001 .9160
Log adj inc x for orig			
Age x foreign orig			.9921
Age sq x foreign orig			1.0002
Owner x foreign orig			2.8855*
Urban x foreign orig			.8923
# in household x for orig			1.1358*
Year seg x for orig			1.1409
Pseudo R squared	0.13	0.19	0.13

Source: GSOEP

*=significant at the 0.01 level

**= removed because of multicollinearity

Table 6: Pre and post move housing quality and rent burden indicators

	Household head					
	German		Foreign-origin			
	Pre-move	Post-move	All foreign-origin		Just Turkish	
			Pre-move	Post-move	Pre-move	Post move
Crowding index	1.03	1.19 (16%)	.78	.89 (14%)	.69	.77 (12%)
% feeling crowded	34	19 (-44%)	40	19 (-53%)	47	28 (-40%)
Rent as % of income	22	29 (32%)	20	23 (15%)	18	23 (28%)
% not satisfied w/rent	28	20 (-29%)	33	28 (-15%)	41	31 (-24%)
% no renovations nec	55	70 (27%)	51	72 (41%)	40	73 (83%)

Source: GSOEP