

## The American Dream or The American Delusion?

### The Private and External Benefits of Homeownership

Grace W. Bucchianeri

The Wharton School of Business

*Abstract:* This paper uses a unique data set that links up well-being measures and housing characteristics to explore: (1) the relationship between homeownership and well-being; (2) time use pattern, family life, social connectedness and civic participation of homeowners; and (3) the implications of cross-sectional differences in neighborhood ownership rates, especially among subgroups of similar socio-economic status. The results show that after controlling for household income, housing quality, and health, homeowners are no happier than renters by any of the following definitions: life satisfaction, overall mood, overall feeling, general moment-to-moment emotions (i.e. affect) and affect at home but instead derive more pain from their house and home. Time use pattern analysis reveals that homeowners tend to spend less time on enjoyable activities. There is little evidence that homeowners are better citizens. Homeowners who live in ZIP code areas with higher rates of homeownership report more positive attitudes only if other owners are similar to them in socio-economic terms, lending some support to the idea of beneficial social interaction among owners.

## 1. Introduction

Homeownership is central to the notion of the American Dream in the public imagination. In a national survey, 65 percent of the respondents cited the “dream” as a major reason to buy a home. (Fannie Mae 2003) It helps justify the mortgage interest tax deduction, housing programs and policy platforms for politicians from either sides of the aisle.<sup>1</sup> This romantic view of homeownership alludes to important private and external benefits of homeownership, separate from the benefits of housing consumption on its own. Using a new data set that provides information on housing consumption, well-being and time use patterns for about six hundred women in Columbus, OH, this paper explores homeownership along three dimensions: 1) the relationship between homeownership and well-being; 2) time use pattern, family life, social connectedness and civic participation of homeowners; and 3) the implications of cross-sectional differences in neighborhood homeownership rates, especially among subgroups of similar socio-economic status.

The main contribution of this paper to the existing literature is apparent – the wide array of both outcome variables and control variables enables a much more comprehensive and credible comparison between owners and renters. My analysis explores subjective well-being measures such as life satisfaction and emotions (affect) during family time to complement a more traditional set of objective outcome measures such as BMI and time use patterns. The explicit analysis of overall outcomes (such as happiness), specific outcome variables (such as joy from children) and intermediate variables (such as time use patterns) helps fill in the gap in the literature, which has so far focused on specific outcomes. (Dietz and Haurin 2003) I have also limited my analysis to single-family home occupants, thus eliminating bias arising from comparing different living arrangements and life styles in single-family homes and multi-family

units. In Section 3, I examine in details the comparability of owners and renters, and the external validity of the analysis given the non-standard aspects of the data set, including its gender and geographical restrictions.

How much do we know about the benefits of homeownership? The literature on the private benefits of homeownership is inconclusive despite the well-referenced but rarely measured “pride of homeownership”. Rossi and Weber (1996) find that homeowners are happier using the NSFH but not the GSS. In Rohe and Stegman (1994) and Rohe and Basolo (1997), renters who became owners reported to be more satisfied than continuing renters. Galster (1987) and other later studies, however, point out the ownership-happiness link might well be the result of data limitation and the relationship between hard-to-measure neighborhood or personal characteristics and homeownership. So far the evidence concerning the exact homeownership-well-being mechanisms remain inconclusive. (Rohe et al. 2002) To shed light on this subject, I first re-assess the owner-renter differences by controlling for a wide array of confounding factors. I also directly investigate the potential channels homeownership might promote well-being: self-esteem, health, joy and pain from related domains of life (e.g., neighborhood, family, home), time use patterns and moment-to-moment emotions of homeowners in relation to their leisure, family and social lives.

Previous work on the external benefits of homeownership focuses on social capital generation and child outcomes.<sup>ii</sup> Attempts to measure the social capital related to homeownership have produced different results. DiPasquale and Glaeser (1999) suggest that homeowners are more active and involved citizens. Ellen et al. (2002) identify a causal link between two New York City homeownership programs and price increases in surrounding neighborhoods in the same ZIP code but provide no direct evidence on the mechanism. Green and White (1997),

Boehm and Schlottmann (1999) and Haurin et al. (2002b & 2002c) identify better child outcomes for homeowners, using different data and methodologies. A re-examination of the issue by Barker and Miller (2009), however, finds that the beneficial effects of homeownership previously measured are substantially reduced or eliminated by using a more comprehensive set of controls. This paper builds on the existing literature and offers new evidence on time spent with children and other family and social groups, and also emotions during those times. Other than simply looking at the owner-renter differences in social connectedness and civic participation, I explore the implications of a higher neighborhood homeownership rate, especially among one's own socio-economic group. So far the impacts of neighborhood homeownership rates have been little studied, despite the numerous theories that support such impacts. (Haurin et al. 2002a)

An interesting portrait of homeowners emerges from my analysis. While homeowners report higher life satisfaction, more joy from both home and neighborhood and better moods on an unadjusted basis, these promising differences become insignificant and much smaller in magnitude once I control for a basic set of confounding factors: household income, housing value and health status. Overall, I find little evidence that homeowners are happier by any of the following definitions: life satisfaction, overall mood, overall feeling, general moment-to-moment emotions (i.e., affect) and affect at home. The average homeowner, however, consistently derives more pain (but no more joy) from their house and home. Although they are also more likely to be 12 pounds heavier<sup>iii</sup>, report a lower health status and less joy from health, controlling for the less favorable health status does not change the results. My findings are robust to controlling for financial insecurity. Therefore, unadjusted differences in homeowners' well-being might have played an important role in establishing the popular beliefs about the American Dream.

To help understand these surprising results, I investigate the homeowners' time use pattern, family and social lives. The average homeowner tends to spend less time on active leisure or with friends, experience more negative affect during time spent with friends, derive less joy from love and relationships and is also less likely to consider herself to enjoy being with people. My results support neither the perception of gregarious homeowners nor that of housework-burdened homeowners. In this paper, homeowners are also shown not to be significantly different in terms of civic participation or social connectedness.

To reconcile this finding with the existing evidence, I explore the interaction of a respondent's homeownership status with the homeownership rates in her ZIP code overall and among females in her ZIP code of similar socio-economic status (SES). The rationale behind this is that social capital is likely created when homeowners interact, and that the externalities of homeownership arise from an agglomeration and interaction of homeowners of similar SES backgrounds. My findings are suggestive: The amount of reported pain from the neighborhood decreases with various SES-specific ZIP code-level homeownership rates, though not with the overall ZIP code-level homeownership rate. This is in line with the conclusion of Cummings et al. (2002) that homeownership programs have no significant benefit spillovers when there is a lack of interaction between homeowners and the greater community.

Clearly, the empirical setting is not ideal for testing causality links. In addition to the wide array of control variables available in this data, there exist other potential confounding factors related to the homeownership status, such as personality. However, given that those who derive more joy from homeownership are more likely to become homeowners and thus the unobserved confounding factors likely cause an upward bias in well-being outcomes, it is still useful to interpret my results as upper bounds of the benefits of homeownership. Moreover, the

survey took place during a boom market (May 2005), which might also relate to a relatively sunny view on housing by homeowners. Another important feature of the data sample is worth keeping in mind: because Franklin County, OH, is very similar to the national average, it is more useful to think about the implications of the results for the median household rather than subgroups of the population. These results are not easily generalized to an assessment of low-income or minority housing policies. Section 3 expands on the applicability of results in this paper.

The rest of the paper is organized as follows: Sections 2 and 3 describe and examine the data; Sections 4 to 7 present and discuss the empirical evidence; Section 8 concludes.

## 2. Data

This paper makes use of three separate data sets: the Day Reconstruction Method (DRM) Survey, the property tax records and the 2000 United States Census.

All well-being, demographic and time use variables are derived from the DRM Survey.<sup>iv</sup> It is a survey of 809 women in Columbus, OH, in 2005. Reliability of the data is analyzed by Krueger and Schkade (2008). It has been shown that the DRM method yields similar results to the gold standard, the experience sampling technique. (Kahneman et al. 2004a)

First, information on moment-to-moment emotions (affect) is collected. Respondents were asked to divide the previous day (“reference day”) into episodes that lasted for between 20 minutes and 2 hours. They were to start a new episode whenever there was a significant change in what they were doing, whom they were interacting with or their emotions. Respondents described each episode by indicating: (1) when the episode began and ended; (2) what they were doing, by checking as many activities that applied from a list of 16 possible activities (plus other) that included working, watching television, socializing, etc.; (3) where they were; (4) whom they

were interacting with, if anyone (co-workers, friends, spouse, children, etc.). Respondents next reported the intensity of 10 affective dimensions during each episode (Impatient, Competent/Confident, Tense/Stressed, Happy, Depressed/Blue, Interested/Focused, Affectionate/Friendly, Calm/Relaxed, Irritated/Angry), using a scale from 0 (not at all) to 6 (very much). The reported intensity of these 10 emotions is used to describe the affective experience of each episode.<sup>v</sup> I constructed a net affect measure, subtracting the average intensity of the negative emotions (impatient, stressed, depressed, angry) from the average intensity of the positive emotions (happy, affectionate, calm) at the episode level. Weighed by the episode duration, the episode-level net affect indicator is collapsed to a net affect measure at the respondent-level for the entire day, for specific activities and for specific social interaction. I also created positive, negative and neutral affect measures at the episode level, averaging the intensity of the relevant affect indicators.

Aside from the episode level data, respondents were also asked about an array of global satisfaction questions that are not meant to be situational or attached to any specific moment of time. There are two types of global satisfaction questions. First, respondents were asked how satisfied they were these days with their lives as a whole. They could choose one of the following: Not At All Satisfied (1), Not Very Satisfied (2), Satisfied (3) or Very Satisfied (4). They were also asked the five-item instrument that produces the Satisfaction with Life Scale (SWLS), which measures global cognitive judgments of satisfaction with one's life. (Diener et al. 1985) Much of the literature focuses on these global satisfaction measures.

A set of indicators less explored in the existing literature measure the self-reported amount of joy and pain derived from a list of various domains of life. The more relevant domains of life include their neighborhood, house and home, children, family and community activities.

Respondents reported on the amount of joy using a scale of 1 (little or none) to 3 (a lot). Appendix Table A1 exemplifies the economic significance of these less-used indicators. In Probit regressions, the joy and pain indicators associated with both the neighborhood and the house and home help predict residential mobility during the twelve months following the survey.

My analysis focuses on the individual-level net affect measures and the general satisfaction indicators. To facilitate the interpretation of the empirical findings, I have re-scaled all categorical well-being variables by dividing by their standard deviations across the sample. An extensive set of demographic and other characteristics are used as control variables.

An important set of housing-related variables came from the tax records of actual home sales from the tax auditor. Using home addresses of the respondents, the tax records were linked to the DRM survey data. The tax records offer a description of the structure, along with details of the most recent sales transaction. Using a hedonic regression, I predict the log home value for 553 single-family homes in the data set, including 68 rental homes, in 2005 prices (Appendix Table A2;  $R^2=0.86$ ). This serves as a measure of the quality of housing consumption.

ZIP code-level homeownership rates (overall and by SES), education, household income and housing price averages are obtained from the 2000 Census.

### 3. Data Validity

To examine the issue of comparability, I explore if, and how, homeowners and renters might be different along other dimensions. Table 1 shows a comparison of owners and renters in single-family homes in my sample. It is reassuring to see that they do not show significant differences in the “survey variables”: whether their reference day happened during the weekend, the numbers of episodes they reported at home and outside home, and how typical the reference day was. This means the respondents are likely to have been randomly chosen to participate in

the survey regardless of their homeownership status and to have interpreted the survey questions in a similar fashion. It is interesting to note that the amount of time spent at home does not differ by homeownership. Appendix Table A3 drills deeper into the issue of question interpretation – do homeowners systematically understand and respond to survey questions, especially those involving self-reported and qualitative (as opposed to quantitative) indicators, in a different manner? To shed light on this question, I look at the relationship between the self-reported tiredness indicator and both qualitative and quantitative measures of sleep quality. The results in Appendix Table A3 show very similar relationships for homeowners and renters.

The demographic and housing variables in Table 1, however, do reveal systematic differences between owners and renters: homeowners tend to be older, with a higher household income and education level, live with a spouse/partner or children, and have been living in a more expensive house for a longer period of time. Their neighborhoods are more affluent, educated and expensive. These are confounding factors that will be controlled for in my analysis. The main results remain robust and stable regardless of the functional forms of the control variables; therefore the most straightforward models are presented in this paper. Results comparing at-home versus outside-home affect differences by homeownership status are derived controlling for person fixed effects and thus not affected by the potential confounding factors.

The downside of a very detailed data that enables a comprehensive study of various outcomes while controlling for an array of confounding factors is that the data sample is limited in several dimensions. My analysis relies on the responses from about 500 women from Franklin County, OH. This relates to three issues – the limited sample size, the restriction of the respondents by gender and also by geographical location. The sample size problem leads to a lack of precision in some results. Thus my interpretation of the results focuses on the differences

identified with statistical significance and says very little on potential differences identified without precision, leaving open questions for future research. The gender and geographical restrictions also limit the extent to which one can sensibly generalize the findings in this paper. Without available data to explore the homeownership-well-being link by geographical areas, it makes the most sense to take the results as a reflection of Middle America – Appendix Table A4 shows that averages in Franklin County, OH, are very similar to the United States averages. It is an open question whether the results in this paper reasonably extend to men.

#### 4. Are Homeowners Happier?

The link between homeownership and the American Dream presumably at least partly derives from a perception of higher levels of well-being for homeowners. To investigate this homeownership-well-being link, I perform the following analysis on owners and renters living in single-family homes:

$$(1) \quad W_i = \alpha + \beta * O_i + \mu * X_i + \varepsilon_i.$$

$W_i$  refers to one of the twelve well-being indicators for person  $i$ ,  $X_i$  a set of control variables,  $\varepsilon_i$  an error term.  $\beta$  therefore represents the average difference by ownership status in each of the well-being indicators, conditional on the control variables. Throughout the paper I make use of three separate control sets  $X_i$ : (1) includes log household income, predicted log home value and self-reported health status; (2) includes all variables in (1) *plus* an age quadratic, years of education, a dummy for cohabitation (living with a spouse or significant other), and a dummy for living with children under 18; and (3) all variables in (2) *plus* a dummy for reporting “a lot” of pain from financial security, an interaction term between income and living with children, and the ZIP code median household income, median home value and percentage of college-educated residents of age over 25. It is important to note that the variables in the control

sets might not be control variables per se, rather they can serve as a channel through which homeownership affects well-being. Therefore unadjusted differences between owners and renters (an empty control set) are shown along with differences adjusted for the three control sets.

Table 2 reports the coefficient estimates for the homeownership indicator. A column represents estimates from four regressions, each with a different control set, with a given well-being measure as the dependent variable. The unadjusted differences on the first row conform to the conventional wisdom that homeowners on average report to be more satisfied with their lives and also with their neighborhoods and homes. This type of unadjusted evidence might have fuelled the public's imagination of happy homeowners. Interestingly, on an unadjusted basis they also report more pain derived from their house and home, in magnitude and significance similar to the higher level of joy derived from their house and home (Columns 4 and 6). They report to spend less time in a bad mood by 3.6 percentage points and more time in a positive mood by 3.9 percentage points (Columns 7 and 8). The last two columns reveal that affect measures are not significantly related to homeownership status; the coefficients are both insignificant and smaller in magnitude compared to those in the earlier columns.<sup>vi</sup>

More strikingly, once the analyses adjust for the basic demographic variables (control set 1 – income, housing value, health), there is little evidence that homeowners are happier. Moving down the table as more demographic and neighborhood variables are controlled for, it becomes clear that homeowners are not happier – in fact, they consistently derive more pain from their homes (Columns 6). Note that these positive pain differentials remain robust and very similar in magnitude after controlling for a self-reported measure of financial insecurity in control set 3, which has so far been cited in the literature as the main negative of homeownership. This suggests that the higher level of reported pain is not mainly due to increased financial stress.

An alternative way to measure the amount of satisfaction from one's house and home is to take individual differences in the amount of satisfaction from aspects of life outside home into account. This alleviates concerns about comparability of owners and renters along unobserved dimensions, such as personality. A comparison of this type between owners and renters assumes, however, that outside-home satisfaction is not affected by homeownership. In the Appendix Table A5, I experiment with this approach. The affective experience at home is measured against that outside home for each respondent and the at-home-outside home difference is compared by homeownership status. Therefore the coefficient of interest is that of the interaction term between the homeownership dummy and the at-home indicator. Columns 1 to 4 contain the main results: the at-home-outside-home affect difference does not vary by homeownership status, whether one looks at positive, negative, neutral or net affect measures. The remaining columns detail results on the individual affect measures. The only affect that significantly varies by homeownership status is "depressed/blue", which echoes with the finding on pain from home in Table 2.

#### 5. Why Are Homeowners Not Happier?

Given the limited role of financial stress in the well-being analysis in the previous section, I explore the systematic differences by homeownership in other domains of life.<sup>vii</sup> Using the framework under equation (1) above, I assess homeowners' self-esteem and stress level, health status, time use pattern, and the quality of family and social lives. Again I focus on  $\beta$ , the coefficient of the homeownership dummy. Results using three different control sets (as before) are presented; in the health (financial stress)-related regressions, health status (pain from financial security) is omitted as a control.

It has been theorized that homeownership promotes well-being and mental health through a higher social status and more freedom, which potentially translate to higher self-esteem and a sense of perceived control (Doling and Stafford 1989). Evidence in the literature has so far been scant and inconclusive (see Rohe et al. 2001 for a survey). On the other hand, it has also been proposed that stress, especially financial stress, can be a significant negative for homeowners. There is no direct evidence on this link. In Table 3, I explore four indicators that proxy for self-esteem and perceived control (Columns 1 to 4) and five others that indicate different aspects of stress.

If we for one moment focus on the unadjusted differences, again homeowners seem to be much better off. They report more joy and less pain concerning respect from others, self-assess to be less worried or depressed, and also report less pain from financial (in)securities. These unadjusted differences by homeownership amount to between 25 to 35 percent of a standard error, which can be interpreted by a casual observer as strong evidence for benefits of homeownership. However, once the basic demographics, including income, home value and health status, are controlled for (second panel), these differences become statistically insignificant and smaller in magnitude. Notable is the decrease in the point estimate in Column (8) on financial stress. Resonating results in Rohe and Stegman (1994), I do not find any evidence for a link between homeownership and self-esteem and perceived control. More surprisingly, at least on average homeowners turn out not to be more or less stressed than renters.

Next I turn to the more objective and easy-to-report indicators concerning health status. A sense of stability and social status due to homeownership can be reflected in better psychological health; any relationship between homeownership and health can also be due to self-selection. Surprisingly, not only do homeowners in my sample report to be less satisfied with their health,

they also weigh more and report less joy from health (Table 4). Compared to the unadjusted differences which are close to zero, the adjusted differences are generally greater in magnitude. Evaluated at the average height of an American woman (5 ft 4 in), the estimated difference in the body-mass index (BMI) translates to a 12-pound difference in weight. No significant differences are found in reported sleep quality, the usage of sleeping pills or depression medication. Note that the self-reported health status is in all three control sets in the previous section; although unobserved health differences not accounted for by the self-reported health status can contribute to a lower level of well-being for homeowners, differences in health status are unlikely to fully explain why homeowners are not happier.

To measure time use patterns, for each respondent I calculate the percentage of the awake day spent on each of the following seven focal activities: active leisure, passive leisure, eating, talking, compulsory activities (such as food preparation, housework, grooming, healthcare), housework, work and commute, and others. The first seven categories are chosen based on their prominence in terms of the amount of time respondents reported spending on them (eight to twenty-seven percent of the awake day on average); housework is a sub-category of compulsory activities that can be specifically relevant to homeowner-renter comparisons. The last category, which includes all activities that were not well-defined in the survey, is included in my analysis to make sure owners and renters do not leave certain activities out and label them “others” in different ways. Table 5 shows that owners do not have a vastly different time use pattern, even on an unadjusted basis. Notably, the average homeowner spends more time on housework and less on active leisure. The former difference becomes small and insignificant once the main demographic variables are controlled for. Reassuringly, they do not seem to have grouped more of their activities into the undefined “others” category (Column 8).

The main difference that stands out is that the average homeowner spends less time on active leisure around three percentage points (Column 1). Compared to the average respondent in the sample who spends 13.4% of her awake time on active leisure, this is a substantial reduction. Since active leisure has been revealed to be among the best moments of a day in terms of affective experience, this finding is consistent with the observation in the previous section that homeowners are not happier than renters. (Kahneman et al., 2006) Granted, global satisfaction measures used in the previous section are meant to complement affects by describing different dimensions of a person's well-being, the fact that homeowners spend less time on enjoyable activities nonetheless helps us understand why homeowners might report lower levels of satisfaction than we otherwise expect.

#### 6. Homeownership and Family/Social Lives

Although homeownership does not seem to improve either general well-being (Section 4) or health status (Section 5), it might have a positive impact on certain aspects of life. This section focuses on the relationship between homeownership and social interactions. Specifically, I investigate the amount of time spent with family and friends and the affect during those times, and also the reported joy or pain derived from those relationships. To make sure that the comparisons are valid, I limit my analysis to the sub-sample living with a spouse or significant other (children) when investigating the interactions with a spouse or significant other (children). Interactions with friends and other relatives are explored using the full sample. Table 6 shows the results.

Perhaps the most striking finding from this analysis is that the average homeowner spends around four to six percent less of their awake time interacting with friends and neighbors and also experiences more negative affect during that time (Columns 1 and 2). These estimated

differences do not vary much by the choice of the control variable set and they amount to a third of the sample average (13.3 percent) and 35 percent of a standard deviation respectively. This is interesting since time spent with friends has been found to be one of the most positive affective experiences (Krueger 2007). On the other hand, the average homeowner spends a similar amount of time with their spouse as renters do and less time with their parents and relatives. They might also spend more time with their children, but this result is not very stable. Interestingly, they do not experience significantly different net affects during interactions with their family (Columns 4, 6, and 8). So far my results are contrary to the intuition that homeownership fosters more involved or better family lives. Indeed, it points to less active and less enjoyable social lives.

Next I turn to the reported amount of joy and pain derived from family and friends. Table 7 shows the results on the joy indicators. Surprisingly, not only do homeowners report a lower level of joy from their love and relationships, they are also less likely to consider themselves to enjoy being with people. These results remain stable and robust when detailed demographic and neighborhood variables are controlled for. In results not shown, there are no significant differences in the amount of pain derived from family and friends.

In conclusion, my results point to generally similar time use patterns and affect experiences concerning family and friends by homeownership status. Any significant differences, in time use, affective experience or amount of derived joy, suggest the differential by homeownership to be negative.

#### 7. Homeownership, Civic Participation and Social Interaction

So far the evidence on the private benefits paints a picture at odds with the perception of happy homeowners. This section investigates if there are significant externalities arising from

homeownership. First I study observed and reported behavior related to civic participation; next I examine the role of ZIP code-level ownership rates.

Comparing the available indicators related to civic participation – namely, volunteer work, joy and pain from activities in the community and pain from politics – we see no significant differences by homeownership status (Table 8).<sup>viii</sup> In results not reported, I find little evidence that homeowners differ from renters in terms of engagement in religious activities or satisfaction derived from them.

It is perceivable, however, that civic participation depends not only on one's own homeownership status but also the homeownership rate in one's neighborhood. It is through the interaction among homeowners that social capital is created. To investigate this link, I perform analysis of this form for the sub-sample of homeowners only:

$$(2) \quad C_i = \alpha + \Omega * Z_i + \mu * X_i + \varepsilon_i.$$

$C_i$  contains an indicator related to civic participation as detailed earlier and  $Z_i$  represents a log ZIP code-level ownership rate. Aside from using the overall ZIP code-level ownership rate, I also match each respondent by her demographic characteristics to a ZIP code-level ownership rate specific to a socio-economic group that she belongs to. For example, if a respondent is aged 26, I assign to her the ownership rate for the age group 25-34 only in her ZIP code area. I experiment with SES-status groupings below: age, marital status, marital status X age, marital status X children, and finally household income.  $\Omega$  represents the change in the civic participation indicator for a homeowner, given a one percent change in the ZIP code-level neighborhood ownership rate. I focus on owners because owner-renter interaction can be entirely different due to different stakes and objectives in the community.

Table 9 illustrates two noteworthy points. First, the overall ZIP code-level ownership rate is not significantly related to any of the home-related joy or pain indicators. Second, I find evidence that a higher ownership rate in their own demographic and household income groups corresponds to lower reported level of pain from the neighborhood.

The power of this analysis is undermined by several factors. First, the true neighborhood or community that affects a person's decision concerning civic activities is likely not well defined by the ZIP code. This means the ZIP code-level ownership rates I used in my analysis are at best proxies for homeownership in the community that the respondents belong to. Second, the homeownership rates are derived from the 2000 Census. To the extent that neighborhoods have changed during the five years between the Census and the DRM Survey (possibly at different rates), the homeownership indicators are likely to deviate from the 2005 homeownership rates. Third, because of the limited variation in ZIP code-level ownership rates, the data set available is not the ideal setting to investigate this potential interaction between self homeownership status and neighborhood homeownership. However, this is to my knowledge the first attempt to investigate directly well-being outcomes or social capital through this channel, instead of focusing on the owner-renter differential.

Despite the limitations of the analysis, it is interesting to see that neighborhood ownership rates matter, and to find supportive evidence that the way homeownership promotes civic participation is through interaction of similar socio-economic groups (Cummings et al. 2002). These results have important implications for homeownership programs.

## 8. Conclusion

Is the American Dream a delusion? In the 2003 Fannie Mae National Survey, 74 percent of the respondents believe that homeownership provides the feeling of “owning something of

your very own”, alluding to what economists call “the pride of ownership”. 81 percent of homeowners report homeownership being a very positive experience, while only 31% of renters report renting being so.

This paper conducts an in-depth analysis of the well-being, time use, family life and civic participation of homeowners. By using a wide array of well-being indicators as well as information on housing consumption, neighborhood characteristics and demographics, I am able to examine the well-being of homeowners from different angles while controlling for confounding factors to isolate the effect of homeownership.

The findings in this paper are striking. Homeowners are happier on average only on an unadjusted basis. Once household income, housing quality and health are controlled for, they are no happier than renters. What’s more, they report to derive more pain from their house and home. This positive pain gap remains stable and robust when health, neighborhood characteristics and financial stress are controlled for.

As for the most frequently cited channels of a positive impact by homeownership, namely self-esteem, stress, health and family life, again there is very little supporting evidence in my data. In fact, less healthy women might have self-selected as homeowners. Homeowners are less stressed on an unadjusted basis only. Whether I look at the time use patterns, affective experience or satisfaction related to social or family lives, my analysis finds no support for happier homeowners. On the other hand, homeowners spend less time on active leisure activities or with friends, which have been documented as some of the most positive affective experiences.

Two tentative conclusions can be reached from my findings on private benefits of homeownership. First, the American Dream notion of homeownership might at least be partly fueled by observed differences in the levels of well-being by homeownership on an unadjusted

basis. Second, once we explore the actual time allocation, affect and satisfaction related to specific activities and social interactions, the intuitive link between homeownership and well-being breaks down. Insofar as homeowners self-select into homeownership, one might expect them to choose a state that yields more satisfaction. This implies the results from the cross-sectional comparisons in this paper can be viewed as upper bounds of private benefits of homeownership.

As for the external benefits of homeownership, my analysis offers little support for the notion that homeowners are better citizens. However, I do find suggestive evidence that homeowners view their neighborhood in a more positive way if there is a larger share of homeowners in their own SES group. This is consistent with the theory that social capital is created when homeowners interact and coordinate – presumably homeowners of similar SES backgrounds either interact more or create more social capital for a given amount of interaction. These results help reconcile the mixed results in the social capital literature; they suggest that interaction among homeowners, rather than homeownership in itself, is more likely to be responsible for the positive social outcomes.

## **Appendix – Episode-level evidence**

A within-person comparison, making use of the multiple episodes for each respondent, is useful because it circumvents the issue of comparability. Because each respondent was interviewed only once, the relationship between homeownership status and affect is not well identified in a within-person comparison. The episode-structure of the DRM data, however, allows me to measure the differential of net at-home affect impact by homeownership. I regress at the episode level:

$$(1) \text{ AFFECT}_{it} = \alpha + \beta * H_{it} + \beta_2 * (H_{it} * O_i) + \Omega_1 * AM_t + \Omega_2 * PM_t + \Omega_3 * EVE_t + I_i + \gamma * A_{it} + \theta * X_{it} + \varepsilon_{it}.$$

where  $\text{AFFECT}_{it}$  is the intensity of an affect for a respondent  $i$  during episode  $t$ ,  $H_{it}$  indicates an episode that took place at home, AM, PM and EVE denote the time of the day (morning, afternoon, evening),  $I_i$  is a person fixed effect,  $A_{it}$  an activity fixed effect,  $X_{it}$  a social interaction fixed effect and  $\varepsilon_{it}$  an error term. While  $H_{it}$  measures the within-person, at-home versus outside-home affect difference, the interaction term  $(H_{it} * O_i)$  informs us the differential on this difference by ownership status. Because homeownership might well increase affect both at home and outside home,  $\beta_2$  can be seen as a lower bound on the overall affect increase because of homeownership. Appendix Table A5 reports the estimates of  $\beta$  and  $\beta_2$ .

There is very little evidence that the net at-home affect differs significantly by homeownership status; Column 10 shows that owners tend to be *more* blue and depressed at home versus outside home.

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## Endnotes

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<sup>i</sup> For example, see The American Dream Downpayment Act 2003. Fannie Mae claims to be in the American Dream business, helping Americans “realize their American Dream of owning a home”.

<sup>ii</sup> Obviously, child outcomes also yield private benefits so related results are discussed along with other private benefits of homeownership.

<sup>iii</sup> Calculation is based on the differences on BMI and the average height of American women. Please see Section 5 for more details.

<sup>iv</sup> See Kahneman et al. (2004) for a discussion and evaluation of the Day Reconstruction Method. The questionnaires and related documentation are available upon request.

<sup>v</sup> These emotions were chosen to represent points along the Russell (1980) circumplex. See Krueger (2007).

<sup>vi</sup> Note that Columns 7 and 8 use respondents’ own estimates of their overall mood in a typical day, while Columns 9 and 10 represent duration-weighted affect during episodes throughout the reference day.

<sup>vii</sup> In results not shown, four proxies for stress – levels of agreement with: “often worries for nothing”, “a bit depressed”, “tense and uncomfortable”; amount of pain derived from financial (in)security – are studied and they show no relationship to homeownership status.

<sup>viii</sup> Less than 20 percent of the women in the sample regularly engage in volunteer or charity work, so the power of the related analysis is limited.

**Table 1 - Summary Statistics**

Variable	Owners		Renters		Owners-Renters	
	Obs	Mean [s.d.]	Obs	Mean [s.d.]	Obs	Mean [s.d.]
<b><u>Survey Variables</u></b>						
Proportion of awake time spent at home	492	0.547 [0.237]	71	0.525 [0.254]	563	0.004 (0.031)
Proportion of episodes occurred during weekend	492	0.335 [0.473]	71	0.437 [0.499]	563	-0.090 (0.057)
Total no. of episodes at home	492	7.744 [4.221]	71	6.746 [4.544]	563	0.866 (0.549)
Total no. of episodes outside home	492	6.175 [3.959]	71	5.986 [3.705]	563	0.398 (0.513)
Reference day: worse than typical	491	0.234 [0.424]	71	0.183 [0.390]	562	0.044 (0.054)
Reference day: pretty typical	491	0.534 [0.499]	71	0.620 [0.489]	562	-0.087 (0.064)
Reference day: better than typical	491	0.232 [0.422]	71	0.197 [0.401]	562	0.042 (0.053)
<b><u>Demographic and Housing Variables</u></b>						
Log Household Income	490	11.164 [0.578]	70	10.171 [0.980]	560	<b>1.018***</b> <b>(0.083)</b>
Log predicted home value in 2005	485	12.009 [0.443]	68	11.604 [0.518]	553	<b>0.411***</b> <b>(0.059)</b>
Self-reported satisfaction with health (1 not at all - 4 very)	492	2.787 [0.726]	70	2.746 [0.890]	562	0.053 (0.095)
Age	492	46.327 [9.157]	70	34.971 [10.803]	562	<b>11.470***</b> <b>(1.208)</b>
Years of education	492	16.024 [2.693]	71	14.085 [2.693]	563	<b>1.984***</b> <b>(0.345)</b>
Cohabitation (dummy)	492	0.829 [0.377]	71	0.493 [0.504]	563	<b>0.339***</b> <b>(0.051)</b>
Living with children (dummy)	492	0.644 [0.479]	71	0.620 [0.489]	563	0.035 (0.062)
Tenure, no. of years	476	10.088 [8.060]	19	5.965 [6.835]	495	<b>4.331**</b> <b>(1.905)</b>
<b><u>Neighborhood (ZIP code) Characteristics</u></b>						
Median household income	491	51,479.2 [15,024.1]	71	40,589.7 [14,554.9]	562	<b>11,377.9***</b> <b>(1928.8)</b>
Portion of population over 25 with a high-school degree or higher	491	0.890 [0.091]	71	0.814 [0.119]	562	<b>0.078***</b> <b>(0.012)</b>
Portion of population over 25 with a bachelor's degree or higher	491	0.375 [0.184]	71	0.261 [0.177]	562	<b>0.116***</b> <b>(0.024)</b>
Median house value	491	134,532.8 [44,204.3]	71	103,533.8 [37,137.4]	562	<b>31,939.1***</b> <b>(5608.0)</b>
25th percentile house value	491	103,928.7 [29,722.6]	71	81,153.5 [27,977.2]	562	<b>23,520.4***</b> <b>(3815.4)</b>
75th percentile house value	491	178,977.4 [69,338.7]	71	135,445.1 [53,193.8]	562	<b>44,795.7***</b> <b>(8741.1)</b>

**Table 2 - Are Homeowners Happier?**

**Dependent Variables**

	Life Satisfaction (1)	Satisfaction With Life Scale (2)	Joy from neighborhood (3)	Joy from house and home (4)	Pain from neighborhood (5)	Pain from house and home (6)	Overall mood, % time in a bad mood (7)	Overall % of time in a positive mood (8)	Duration-weighted net feeling (9)	Duration-weighted net feeling at home (10)
(1) Unadjusted	<b>0.286**</b> (0.125)	<b>0.409***</b> (0.123)	<b>0.379***</b> (0.122)	<b>0.217*</b> (0.122)	-0.189 (0.118)	<b>0.223*</b> (0.123)	<b>-3.610***</b> (0.989)	<b>3.963*</b> (2.237)	-0.056 (0.122)	-0.060 (0.124)
Observations	563	563	562	561	562	562	557	557	563	563
Adj. R-squared	0.008	0.018	0.015	0.004	0.003	0.004	0.022	0.004	-0.001	-0.001
(2) Control Set 1	-0.018 (0.132)	0.133 (0.127)	0.218 (0.138)	0.063 (0.140)	0.164 (0.128)	<b>0.345**</b> (0.139)	<b>-2.070*</b> (1.079)	1.504 (2.451)	-0.099 (0.137)	-0.100 (0.140)
Observations	550	550	549	548	549	549	544	544	550	550
Adj. R-squared	0.189	0.218	0.062	0.048	0.130	0.047	0.110	0.113	0.071	0.057
(3) Control Set 2	0.054 (0.144)	<b>0.227*</b> (0.138)	0.118 (0.151)	0.078 (0.150)	0.199 (0.139)	<b>0.342**</b> (0.150)	-1.283 (1.156)	-0.276 (2.623)	-0.153 (0.149)	-0.066 (0.150)
Observations	549	549	548	547	548	548	543	543	549	549
Adj. R-squared	0.181	0.225	0.065	0.073	0.143	0.067	0.126	0.124	0.086	0.091
(4) Control Set 3	0.045 (0.138)	0.203 (0.133)	0.133 (0.150)	0.080 (0.150)	0.199 (0.139)	<b>0.362**</b> (0.147)	-1.319 (1.149)	-0.462 (2.587)	-0.185 (0.148)	-0.091 (0.150)
Observations	548	548	547	546	547	547	542	542	548	548
Adj. R-squared	0.255	0.288	0.092	0.087	0.162	0.122	0.152	0.164	0.116	0.106

Control Set 1 is a set of basic controls including Income, Housing price and Health. Control Set 2 contains additional demographic variables including an age quadratic, education, cohabitation and living with children indicators. Control Set 3 includes a full control set with a financial security indicator and ZIP Code-level income and education measures. Note: Subjective dependent variables are re-scaled using the sample standard deviations. Therefore coefficients in related regressions can be interpreted as changes in terms of standard deviations associated with a change in homeownership status.

Standard errors shown in parentheses

\*\*\*=Significant at 1%; \*\*=Significant at 5%; \*=Significant at 10%

**Table 3 - Self-esteem, Perceived Control and Stress Levels for Homeowners**

	Dependent Variables								
	Self Esteem and Perceived Control			Stress Level					
	Agree: 'What is important to me is being Joy from the respect you get from others (1)	Agree: 'Happiness is difficult to reach and keep but it is a worthy goal (4)	Self-assessment: compared to others, I often worry for nothing (5)	Self-assessment: compared to others, I am a bit depressed (6)	Self-assessment: Compared to others, I am tense and uncomfortable (7)	Pain from financial (in)security (8)	How many hours do you work in a typical week? (9)		
(1) Unadjusted	<b>0.336***</b> (0.124)	<b>-0.237*</b> (0.125)	<b>-0.243*</b> (0.129)	-0.167 (0.128)	<b>-0.263**</b> (0.124)	<b>-0.257**</b> (0.123)	-0.048 (0.122)	<b>-0.345***</b> (0.129)	-1.938 (2.153)
Observations	561	562	561	562	561	562	562	562	433
Adj. R-squared	0.011	0.005	0.005	0.001	0.006	0.006	-0.002	0.011	0.000
(2) Control Set 1	0.228 (0.143)	-0.203 (0.143)	-0.141 (0.150)	-0.026 (0.148)	-0.214 (0.142)	-0.101 (0.136)	0.046 (0.139)	0.004 (0.143)	-3.299 (2.443)
Observations	548	549	548	549	549	549	549	549	424
Adj. R-squared	0.033	0.027	0.011	0.021	0.029	0.090	0.044	0.091	0.013
(3) Control Set 2	0.069 (0.154)	-0.164 (0.157)	-0.202 (0.162)	-0.119 (0.161)	-0.115 (0.154)	-0.049 (0.149)	0.079 (0.152)	-0.013 (0.157)	-3.410 (2.450)
Observations	547	548	547	548	548	548	548	548	424
Adj. R-squared	0.057	0.031	0.023	0.028	0.041	0.088	0.052	0.094	0.111
(4) Control Set 3	0.051 (0.156)	-0.187 (0.156)	-0.233 (0.163)	-0.069 (0.162)	-0.123 (0.156)	-0.062 (0.150)	0.084 (0.153)	-0.031 (0.158)	-3.743 (2.446)
Observations	546	547	546	547	547	547	547	547	423
Adj. R-squared	0.057	0.049	0.025	0.035	0.039	0.093	0.049	0.095	0.127

Control Set 1 is a set of basic controls including Income, Housing price and Health. Control Set 2 contains additional demographic variables including an age quadratic, education, cohabitation and living with children indicators. Control Set 3 includes a full control set with a financial security indicator and ZIP Code-level income and education measures.

Note: Subjective dependent variables are re-scaled using the sample standard deviations. Therefore coefficients in related regressions can be interpreted as changes in terms of standard deviations associated with a change in homeownership status.

Standard errors shown in parentheses

\*\*\*=Significant at 1%; \*\*=Significant at 5%; \*=Significant at 10%

**Table 4 - Homeownership and Health**

	OLS Regressions				Logit Regressions		
	Satisfaction with health	BMI: kilo/m <sup>2</sup>	Joy from health	Pain from health	Sleep quality during the previous month	Sleeping pills dummy	Depression medication dummy
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Unadjusted	0.072 (0.128)	0.173 (0.887)	-0.101 (0.126)	0.011 (0.128)	0.010 (0.127)	-0.127 (0.297)	0.015 (0.292)
Observations	563	563	561	561	562	563	562
Adj. R-squared	-0.001	-0.002	-0.001	-0.002	-0.002	0.000	0.000
(2) Control Set 1	<b>-0.322**</b> <b>(0.142)</b>	<b>2.733***</b> <b>(0.976)</b>	<b>-0.364***</b> <b>(0.141)</b>	<b>0.246*</b> <b>(0.146)</b>	-0.233 (0.145)	0.396 (0.352)	0.540 (0.347)
Observations	550	550	548	548	549	550	549
Adj. R-squared	0.086	0.085	0.054	0.019	0.031	0.015	0.022
(3) Control Set 2	<b>-0.339**</b> <b>(0.153)</b>	<b>2.061*</b> <b>(1.062)</b>	<b>-0.364**</b> <b>(0.153)</b>	0.149 (0.160)	-0.215 (0.159)	0.365 (0.389)	0.509 (0.376)
Observations	549	549	547	547	548	549	548
Adj. R-squared	0.104	0.096	0.066	0.022	0.031	0.021	0.026
(4) Control Set 3	<b>-0.371**</b> <b>(0.151)</b>	<b>2.091**</b> <b>(1.055)</b>	<b>-0.387**</b> <b>(0.152)</b>	0.144 (0.157)	-0.226 (0.156)	0.316 (0.394)	0.541 (0.383)
Observations	548	548	546	546	547	548	547
Adj. R-squared	0.139	0.123	0.088	0.073	0.075	0.047	0.030

Control Set 1 is a set of basic controls including Income and housing price. Control Set 2 contains additional demographic variables including an age quadratic, education, cohabitation and living with children indicators. Control Set 3 includes a full control set with a financial security indicator and ZIP Code-level income and education measures.

Note: Subjective dependent variables are re-scaled using the sample standard deviations. Therefore coefficients in related regressions can be interpreted as changes in terms of standard deviations associated with a change in homeownership status.

Standard errors shown in parentheses

\*\*\*=Significant at 1%; \*\*=Significant at 5%; \*=Significant at 10%

Robust standard errors shown in parentheses

**Table 5 - Homeownership and Time Use Patterns by Activities**

	Dependent Variables							
	% time spent on active leisure (1)	% time spent on eating (2)	% time spent on talking (3)	% time spent on passive leisure (4)	% time spent on all compulsory activities (5)	% of time on compulsory - housework (6)	% time spent on work/ commute (7)	% of time on other activities (8)
Unadjusted Differences	<b>-0.035**</b> (0.016)	<b>-0.028***</b> (0.010)	-0.006 (0.020)	-0.009 (0.015)	0.027 (0.024)	0.009 (0.024)	0.036 (0.032)	-0.016 (0.015)
Observations	332	285	343	319	511	271	363	563
R-squared	0.015	0.025	0.000	0.001	0.003	-0.003	0.003	0.000
Control Set 1	-0.023 (0.018)	<b>-0.029**</b> (0.012)	-0.000 (0.023)	0.005 (0.017)	0.035 (0.028)	-0.005 (0.026)	0.015 (0.036)	-0.020 (0.017)
Observations	332	280	333	314	499	262	355	550
R-squared	0.022	0.032	0.006	0.027	0.030	-0.004	0.041	-0.004
Control Set 2	<b>-0.032*</b> (0.019)	-0.019 (0.013)	-0.002 (0.027)	0.001 (0.019)	0.044 (0.029)	-0.006 (0.027)	0.013 (0.040)	<b>-0.033*</b> (0.019)
Observations	332	280	332	313	498	262	354	549
R-squared	0.029	0.059	0.020	0.035	0.126	-0.012	0.101	0.007
Control Set 3	<b>-0.030*</b> (0.019)	-0.018 (0.013)	0.000 (0.027)	0.002 (0.019)	0.044 (0.030)	-0.004 (0.027)	0.008 (0.040)	-0.031 (0.019)
Observations	331	279	331	312	497	262	353	548
R-squared	0.032	0.066	0.030	0.057	0.137	-0.025	0.109	0.003

Control Set 1 is a set of basic controls including Income and housing price. Control Set 2 contains additional demographic variables including an age quadratic, education, cohabitation and living with children indicators. Control Set 3 includes a full control set with a financial security indicator and ZIP Code-level income and education measures.

Note: standard errors shown in parentheses

\*\*\*=Significant at 1%; \*\*=Significant at 5%; \*=Significant at 10%

**Table 6 - Homeownership and Time Use Patterns by Social Interaction**

	Full sample		Living with spouse/significant other		Living with children		Full sample	
	% time spent with friends/ neighbors	Net affect during time spent with friends/neighbors	% time spent with spouse/ significant other	Net affect during time spent with spouse/significant other	% time spent with children	Net affect during time spent with children	% time spent with parents/other relatives	Net affect during time spent with parents/other relatives
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Unadjusted	<b>-0.074***</b> (0.020)	<b>-0.362***</b> (0.129)	-0.070 (0.044)	0.068 (0.162)	0.016 (0.044)	0.029 (0.156)	<b>-0.129***</b> (0.023)	<b>-0.273**</b> (0.129)
Observations	563	563	443	443	306	306	563	563
Adj. R-squared	0.021	0.012	0.003	-0.002	-0.003	-0.003	0.050	0.006
(2) Control Set 1	<b>-0.064***</b> (0.024)	<b>-0.533***</b> (0.150)	-0.042 (0.050)	-0.108 (0.178)	0.050 (0.054)	-0.081 (0.187)	<b>-0.114***</b> (0.027)	-0.181 (0.150)
Observations	550	550	434	434	300	300	550	550
Adj. R-squared	0.033	0.022	0.009	0.048	0.008	0.052	0.040	0.008
(3) Control Set 2	<b>-0.047*</b> (0.026)	<b>-0.599***</b> (0.164)	-0.032 (0.052)	-0.137 (0.182)	<b>0.104*</b> (0.053)	-0.070 (0.192)	<b>-0.087***</b> (0.029)	-0.092 (0.164)
Observations	549	549	433	433	299	299	549	549
Adj. R-squared	0.035	0.022	0.014	0.064	0.090	0.055	0.052	0.011
(4) Control Set 3	<b>-0.045*</b> (0.026)	<b>-0.610***</b> (0.165)	-0.039 (0.052)	-0.185 (0.181)	<b>0.095*</b> (0.053)	-0.059 (0.189)	<b>-0.083***</b> (0.030)	-0.068 (0.165)
Observations	548	548	433	433	299	299	548	548
Adj. R-squared	0.038	0.025	0.010	0.088	0.102	0.094	0.048	0.014

Control Set 1 is a set of basic controls including Income and housing price. Control Set 2 contains additional demographic variables including an age quadratic, education, cohabitation and living with children indicators. Control Set 3 includes a full control set with a financial security indicator and ZIP Code-level income and education measures.

Note: Net affect variables are re-scaled using the sample standard deviations. Therefore coefficients in related regressions can be interpreted as changes in terms of standard deviations associated with a change in homeownership status.

Standard errors shown in parentheses

\*\*\*=Significant at 1%; \*\*=Significant at 5%; \*=Significant at 10%

**Table 7 - Homeownership and Reported Joy from Domains of Life**

	Dependent variables						
	Joy from children (1)	Joy from family (2)	Joy from friends (3)	Joy from love and relationships (4)	Joy from regular activities with friends (5)	Joy from regular family occasions (6)	"Enjoys being with people" (7)
(1) Unadjusted	0.185 (0.118)	-0.107 (0.125)	-0.107 (0.125)	-0.013 (0.125)	-0.078 (0.125)	-0.086 (0.123)	-0.110 (0.126)
Observations	548	562	557	560	562	563	563
Adj. R-squared	0.003	-0.001	-0.001	-0.002	-0.001	-0.001	0.000
(2) Control Set 1	0.080 (0.136)	-0.182 (0.146)	-0.198 (0.144)	<b>-0.285**</b> <b>(0.141)</b>	-0.184 (0.143)	-0.143 (0.141)	<b>-0.242*</b> <b>(0.145)</b>
Observations	535	549	545	547	549	550	550
Adj. R-squared	0.015	0.002	0.019	0.056	0.026	0.025	0.003
(3) Control Set 2	-0.154 (0.139)	-0.074 (0.159)	-0.174 (0.155)	<b>-0.266*</b> <b>(0.147)</b>	-0.030 (0.153)	-0.030 (0.152)	<b>-0.327**</b> <b>(0.157)</b>
Observations	534	548	544	546	548	549	549
Adj. R-squared	0.143	0.005	0.028	0.144	0.065	0.036	0.024
(4) Control Set 3	-0.128 (0.140)	-0.108 (0.161)	-0.188 (0.157)	<b>-0.289*</b> <b>(0.148)</b>	-0.041 (0.154)	-0.066 (0.154)	<b>-0.338**</b> <b>(0.158)</b>
Observations	533	547	543	545	547	548	548
Adj. R-squared	0.133	0.002	0.022	0.146	0.065	0.039	0.030

Control Set 1 is a set of basic controls including Income and housing price. Control Set 2 contains additional demographic variables including an age quadratic, education, cohabitation and living with children indicators. Control Set 3 includes a full control set with a financial security indicator and ZIP Code-level income and education measures.

Note: Subjective dependent variables are re-scaled using the sample standard deviations. Therefore coefficients in related regressions can be interpreted as changes in terms of standard deviations associated with a change in homeownership status.

Standard errors shown in parentheses

\*\*\*=Significant at 1%; \*\*=Significant at 5%; \*=Significant at 10%

## Table 8 - Homeownership and Civic Activities

### Dependent Variables

	Regularly do volunteer or charity work (1)	Joy from activity in the community (2)	Pain from activity in the community (3)	Pain from the politics of the country (4)
(1) Unadjusted	0.058 (0.052)	0.131 (0.127)	-0.090 (0.122)	0.016 (0.124)
Observations	563	561	561	561
Adj. R-squared	0.000	0.000	-0.001	-0.002
(2) Control Set 1	0.055 (0.061)	0.001 (0.146)	0.089 (0.141)	0.050 (0.145)
Observations	550	548	548	548
Adj. R-squared	-0.001	0.034	0.034	-0.001
(3) Control Set 2	-0.015 (0.066)	-0.108 (0.158)	-0.077 (0.153)	-0.078 (0.158)
Observations	549	547	547	547
Adj. R-squared	0.010	0.045	0.048	0.003
(4) Control Set 3	-0.026 (0.067)	-0.097 (0.159)	-0.070 (0.154)	-0.043 (0.158)
Observations	548	546	546	546
Adj. R-squared	0.013	0.053	0.053	0.021

Control Set 2 contains additional demographic variables including an age quadratic, education, cohabitation and living with children indicators. Control Set 3 includes a full control set with a financial security indicator and ZIP Code-level income and education measures.

Note: Subjective dependent variables are re-scaled using the sample standard deviations. Therefore coefficients in related regressions can be interpreted as changes in terms of standard deviations associated with a change in homeownership status.

Standard errors shown in parentheses

\*\*\*=Significant at 1%; \*\*=Significant at 5%; \*=Significant at 10%

**Table 9 - Neighborhood Homeownership Rate by SES**

	Dependent Variables											
	Joy from neighborhood			Joy from house and home			Pain from neighborhood			Pain from house and home		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) log ZIP code-level homeownership rate (Z_own)	-0.711 (0.531)	-0.546 (0.533)	-0.134 (0.883)	-0.372 (0.532)	-0.419 (0.526)	-0.886 (0.881)	-0.148 (0.491)	-0.264 (0.494)	0.475 (0.821)	0.144 (0.545)	-0.037 (0.545)	1.224 (0.885)
Observations	481	481	481	481	481	481	481	481	481	481	481	481
Adj. R-squared	0.060	0.069	0.100	0.034	0.074	0.087	0.129	0.138	0.156	0.031	0.051	0.116
(2) Z_own of own age group	0.143 (0.623)	-0.130 (0.707)	0.189 (1.014)	-0.593 (0.632)	0.001 (0.703)	0.177 (1.020)	-0.037 (0.604)	-0.029 (0.681)	0.664 (0.990)	-0.763 (0.666)	-0.551 (0.748)	-0.650 (1.058)
Observations	384	384	384	383	383	383	383	383	383	383	383	383
Adj. R-squared	0.035	0.042	0.078	0.041	0.087	0.102	0.133	0.138	0.154	0.028	0.042	0.110
(3) Z_own of female by cohab status	-0.356 (0.426)	-0.297 (0.428)	0.730 (0.519)	-0.377 (0.427)	-0.417 (0.422)	-0.189 (0.520)	-0.030 (0.393)	-0.032 (0.395)	0.058 (0.484)	-0.058 (0.437)	-0.165 (0.436)	0.091 (0.522)
Observations	481	481	481	481	481	481	481	481	481	481	481	481
Adj. R-squared	0.058	0.068	0.104	0.034	0.074	0.085	0.129	0.138	0.155	0.031	0.051	0.112
(4) Z_own of female by cohab status and age	0.160 (0.209)	0.052 (0.228)	0.230 (0.235)	-0.328 (0.209)	-0.233 (0.225)	-0.158 (0.234)	<b>-0.375*</b> (0.193)	<b>-0.366*</b> (0.211)	<b>-0.389*</b> (0.219)	-0.085 (0.215)	0.066 (0.233)	-0.004 (0.237)
Observations	478	478	478	478	478	478	478	478	478	478	478	478
Adj. R-squared	0.056	0.066	0.099	0.036	0.072	0.083	0.133	0.141	0.159	0.029	0.048	0.108
(5) Z_own of female by cohab status and with children under 18	0.355 (0.420)	0.372 (0.481)	0.590 (0.537)	0.093 (0.422)	0.237 (0.475)	0.230 (0.536)	-0.437 (0.387)	<b>-0.762*</b> (0.444)	-0.554 (0.499)	-0.271 (0.430)	0.016 (0.491)	0.476 (0.539)
Observations	481	481	481	481	481	481	481	481	481	481	481	481
Adj. R-squared	0.058	0.068	0.103	0.033	0.073	0.085	0.131	0.143	0.157	0.032	0.051	0.113
(6) Z_own by household income	-1.222 (1.118)	-1.012 (1.125)	-0.662 (1.207)	1.278 (1.120)	1.564 (1.109)	1.839 (1.202)	<b>-1.694*</b> (1.029)	<b>-2.071**</b> (1.035)	-1.680 (1.120)	-1.235 (1.145)	-1.306 (1.147)	-0.699 (1.211)
Observations	481	481	481	481	481	481	481	481	481	481	481	481
Adj. R-squared	0.059	0.068	0.101	0.035	0.076	0.089	0.133	0.145	0.159	0.033	0.054	0.113

Control Set 1 is a set of basic controls including income and housing price. Control Set 2 contains additional demographic variables including an age quadratic, education, cohabitation and living with children indicators. Control Set 3 includes a full control set with a financial security indicator and ZIP Code-level income and education measures.

Note: Subjective dependent variables are re-scaled using the sample standard deviations. Therefore coefficients in related regressions can be interpreted as changes in terms of standard deviations associated with a change in homeownership status.

Standard errors shown in parentheses

\*\*\*=Significant at 1%; \*\*=Significant at 5%; \*=Significant at 10%

## Appendix Table A1 - Residential Mobility and Well-being Measures

Dependent Variable: =1 If Respondent Moved During the 12 Months Post-Survey

	(1)	(2)	(3)	(4)	(5)	(6)
Joy from neighborhood: 'some'	-0.019 (0.034)	--	0.006 (0.033)	--	--	--
Joy from neighborhood: 'a lot'	-0.031 (0.033)	--	0.005 (0.041)	--	--	--
Pain from neighborhood: 'some'	--	<b>0.060**</b> (0.032)	<b>0.059**</b> (0.031)	--	--	--
Pain from neighborhood: 'a lot'	--	<b>0.252***</b> (0.129)	<b>0.261***</b> (0.142)	--	--	--
Joy from house and home: 'some'	--	--	--	<b>-0.079*</b> (0.042)	--	-0.052 (0.046)
Joy from house and home: 'a lot'	--	--	--	<b>-0.096**</b> (0.050)	--	-0.054 (0.051)
Pain from house and home: 'some'	--	--	--	--	0.005 (0.028)	0.004 (0.027)
Pain from house and home: 'a lot'	--	--	--	--	<b>0.131**</b> (0.075)	<b>0.099*</b> (0.073)
Observations	422	422	421	422	422	421
R-squared	0.003	0.043	0.043	0.017	0.024	0.029

**Appendix Table A2: Hedonic Price Model**

	<b>Dependent Variable: Log Sales Price</b>
Log total finished living area	0.571*** (0.076)
Log building age	-0.031** (0.015)
No. of bedrooms	-0.008 (0.029)
No. of family rooms	-0.041 (0.033)
No. of dining rooms	0.060* (0.035)
No. of half baths	0.059 (0.036)
No. of full baths	0.027 (0.036)
Attic dummy	0.038 (0.053)
Air-conditioning dummy	0.042 (0.050)
Fireplace dummy	0.037 (0.033)
Remodelled dummy	0.019 (0.038)
Neighborhood desirability: fair	0.206 (0.410)
Neighborhood desirability: average	0.296 (0.414)
Neighborhood desirability: good	0.345 (0.415)
Neighborhood desirability: very good	0.497 (0.416)
One Garage dummy	0.033 (0.056)
2+ Garage dummy	0.147*** (0.054)
<i>Types of exterior wall (base group=wood/ Al)</i>	
Stucco	0.092 (0.065)
Stone	-0.033 (0.061)
Masonry	0.072** (0.031)
<i>Building conditions (base group=average)</i>	
Fair	0.312*** (0.106)
Good	0.374*** (0.108)
Very good	0.450*** (0.148)
Zipcode fixed effects	Yes
Year fixed effects	Yes
Observations	416
R-squared	0.855

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Regression is performed using all available home sales of single-family homes. Log sales values are predicted for all single-family homes in the sample with the year of transaction adjusted to 2005.

## Appendix Table A3 - Explaining Tiredness

Dependent Variable: Tired (Overall feeling yesterday)

	Owners			Renters		
	(1)	(2)	(3)	(4)	(5)	(6)
Sleep quality during the previous month	<b>-0.943***</b> (0.091)	<b>-0.835***</b> (0.110)	<b>-0.822***</b> (0.108)	<b>-1.026***</b> (0.240)	<b>-0.670**</b> (0.286)	<b>-0.586**</b> (0.285)
Avg hours of sleep during the previous month	--	<b>-0.125*</b> (0.072)	0.044 (0.078)	--	<b>-0.343**</b> (0.159)	-0.164 (0.184)
Hours of sleep the previous night	--	--	<b>-0.244***</b> (0.049)	--	--	<b>-0.271*</b> (0.148)
Observations	488	488	486	71	71	71
Adj. R-squared	0.180	0.183	0.219	0.198	0.238	0.264

Standard errors shown in parentheses

\*\*\*=Significant at 1%; \*\*=Significant at 5%; \*=Significant at 10%

**Appendix Table A4: Comparing Franklin County, OH with the Country Average**

**2005 American Community Survey** (percentages except when noted)

<u>General Characteristics</u>	Franklin County, OH	U.S.
Male	0.49	0.49
Female	0.51	0.51
Median age (years)	34.10	36.40
Under 5 years	0.08	0.07
18 years and over	0.74	0.75
65 years and over	0.10	0.12
One race	0.98	0.98
White	0.73	0.75
Black or African American	0.20	0.12
American Indian and Alaska Native	0.00	0.01
Asian	0.04	0.04
Native Hawaiian and Other Pacific Islander	0.00	0.00
Some other race	0.01	0.06
Two or more races	0.02	0.02
Hispanic or Latino (of any race)	0.03	0.15
Average household size	2.39	2.60
Average family size	3.02	3.18
<u>Social Characteristics</u>		
High school graduate or higher	0.88	0.84
Bachelor's degree or higher	0.34	0.27
Civilian veterans (civilian population 18 years+)	0.10	0.11
Disability status (population 5 years+)	0.14	0.15
Foreign born	0.08	0.12
Male, Now married, except separated (population 15 years+)	0.51	0.56
Female, Now married, except separated (population 15 years+)	0.47	0.51
Speak a language other than English at home (population 5 years+)	0.11	0.19

**2000 Census** (percentages except when noted)

<u>Economic Characteristics</u>	Franklin County, OH	U.S.
In labor force (population 16 years and over)	0.71	0.64
Mean travel time to work in minutes (workers 16 years and over)	21.9	25.5
Median household income in 1999 (dollars)	42,734	41,994
Median family income in 1999 (dollars)	53,905	50,046
Per capita income in 1999 (dollars)	23,059	21,587
Families below poverty level	0.08	0.09
Individuals below poverty level	0.12	0.12
<u>Housing Characteristics</u>		
Owner-occupied homes: median value (dollars)	116,200	119,600
Median owners' costs: with a mortgage (dollars)	1,077	1,088
Median owners' costs: : not mortgaged (dollars)	326	295

**Appendix Table A5 - Homeownership and At-home Net Affect**

	Aggregate Affects				Positive Affects			Negative Affects				Neutral Affects		
	Positive affects: competent, happy, affectionate (1)	Negative affects: impatient, tense, depressed, irritated (2)	Neutral affects: interested, calm, tired (3)	Net Feeling (4)	Competent/ Confident (5)	Happy (6)	Affectionate/ Friendly (7)	Impatient for it to end (8)	Tense/ Stressed (9)	Depressed/ Blue (10)	Irritated/ Angry (11)	Interested/ Focused (12)	Calm/ Relaxed (13)	Tired (14)
(1) At home (dummy)	-0.032 (0.107)	<b>-0.174*</b> (0.094)	<b>0.306***</b> (0.092)	<b>0.212**</b> (0.098)	<b>-0.235**</b> (0.116)	0.150 (0.106)	0.018 (0.099)	<b>-0.296***</b> (0.088)	<b>-0.171*</b> (0.095)	0.109 (0.111)	-0.112 (0.081)	-0.085 (0.111)	<b>0.354***</b> (0.094)	<b>0.216**</b> (0.096)
At home dummy * Ownership dummy	-0.096 (0.114)	-0.041 (0.097)	<b>-0.250**</b> (0.099)	-0.114 (0.102)	0.120 (0.123)	-0.156 (0.111)	<b>-0.206**</b> (0.104)	-0.036 (0.089)	-0.030 (0.098)	-0.095 (0.116)	0.018 (0.083)	-0.150 (0.119)	<b>-0.233**</b> (0.098)	-0.051 (0.103)
Pid fixed effects	no	no	no	no	no	no	no	no	no	no	no	no	no	no
What_ fixed effects	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Who_ fixed effects	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Observations	7,652	7,639	7,659	7,675	7,681	7,677	7,669	7,669	7,680	7,658	7,663	7,691	7,689	7,676
Adj. R-squared	0.011	0.025	0.046	0.021	0.008	0.011	0.018	0.039	0.027	0.005	0.008	0.015	0.022	0.064
(2) At home (dummy)	-0.095 (0.076)	<b>-0.304***</b> (0.095)	<b>0.158*</b> (0.090)	<b>0.207**</b> (0.091)	<b>-0.176**</b> (0.087)	0.034 (0.084)	-0.085 (0.084)	<b>-0.364***</b> (0.111)	<b>-0.206**</b> (0.097)	<b>-0.184**</b> (0.089)	-0.155 (0.097)	<b>-0.164**</b> (0.075)	<b>0.261***</b> (0.089)	0.153 (0.100)
At home dummy * Ownership dummy	-0.026 (0.081)	0.107 (0.102)	-0.028 (0.097)	-0.116 (0.098)	0.064 (0.091)	-0.048 (0.090)	-0.079 (0.090)	0.040 (0.118)	0.033 (0.104)	<b>0.203**</b> (0.091)	0.089 (0.103)	-0.079 (0.082)	-0.148 (0.096)	0.130 (0.104)
Pid fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
What_ fixed effects	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Who_ fixed effects	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Observations	7,652	7,639	7,659	7,675	7,681	7,677	7,669	7,669	7,680	7,658	7,663	7,691	7,689	7,676
Adj. R-squared	0.534	0.428	0.471	0.441	0.513	0.494	0.387	0.254	0.378	0.588	0.371	0.402	0.393	0.610
(3) At home (dummy)	-0.100 (0.076)	<b>-0.234**</b> (0.093)	0.137 (0.091)	<b>0.151*</b> (0.089)	<b>-0.149*</b> (0.089)	-0.001 (0.084)	-0.089 (0.081)	<b>-0.298***</b> (0.104)	-0.144 (0.097)	<b>-0.161*</b> (0.089)	-0.095 (0.098)	<b>-0.137*</b> (0.073)	<b>0.210**</b> (0.090)	0.142 (0.100)
At home dummy * Ownership dummy	-0.015 (0.080)	0.111 (0.096)	-0.023 (0.096)	-0.116 (0.093)	0.080 (0.092)	-0.043 (0.088)	-0.071 (0.088)	0.043 (0.109)	0.042 (0.102)	<b>0.204**</b> (0.089)	0.091 (0.100)	-0.067 (0.081)	-0.150 (0.095)	0.129 (0.103)
Pid fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
What_ fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Who_ fixed effects	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Observations	7,652	7,639	7,659	7,675	7,681	7,677	7,669	7,669	7,680	7,658	7,663	7,691	7,689	7,676
Adj. R-squared	0.547	0.460	0.484	0.476	0.517	0.510	0.410	0.312	0.402	0.589	0.381	0.418	0.414	0.614
(4) At home (dummy)	<b>-0.121*</b> (0.064)	-0.115 (0.090)	0.078 (0.090)	0.052 (0.080)	<b>-0.149*</b> (0.087)	-0.038 (0.073)	-0.106 (0.069)	-0.095 (0.106)	-0.028 (0.095)	<b>-0.182**</b> (0.085)	-0.075 (0.101)	-0.036 (0.076)	0.101 (0.088)	0.065 (0.096)
At home dummy * Ownership dummy	0.016 (0.067)	0.089 (0.091)	-0.027 (0.092)	-0.083 (0.082)	0.079 (0.090)	-0.021 (0.076)	-0.018 (0.072)	0.020 (0.108)	0.016 (0.097)	<b>0.188**</b> (0.084)	0.090 (0.099)	-0.057 (0.078)	-0.145 (0.091)	0.113 (0.096)
Pid fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
What_ fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Who_ fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	7,652	7,639	7,659	7,675	7,681	7,677	7,669	7,669	7,680	7,658	7,663	7,691	7,689	7,676
Adj. R-squared	0.584	0.482	0.488	0.494	0.535	0.525	0.485	0.342	0.425	0.592	0.391	0.444	0.428	0.631

Robust, clustered standard errors shown in parentheses  
 \*\*\*=Significant at 1%; \*\*=Significant at 5%; \*=Significant at 10%