

**The Effect of the G.I. Bill on Homeownership of World War II Veterans**

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**Abstract**

This paper estimates the effects of the G.I. Bill on homeownership of veterans returning from WWII. The estimation strategy focuses on between-cohort differences in military service. I take advantage of the sharp decline in service among men who were born between 1927 and 1929. In particular, when the Selective Service Act prohibited voluntary enlistment in the last months of WWII, the cohorts of men born between January 1927 and March 31, 1929 were most severely affected. As the war progressed, birth date chronology became the primary determinant of the probability of military service, and those who were born after the second quarter of 1929 were no longer eligible to serve in WWII. I use birth quarter cohort dummies as an instrument for veteran status to eliminate selection bias. I find that the G.I. Bill had a significant impact on increasing homeownership of veterans compared to otherwise similar non-veterans among whites, while its effects on African Americans were negligible. The G.I. Bill, thus, contributed to widening the racial gap in homeownership in the post-war period. However, the advantage in homeownership that white veterans enjoyed vis-à-vis non-veterans in 1960 disappeared by 1980 when the cohorts in question have turned 50, while black veterans improved their homeownership status compared to nonveterans tremendously. VA home loan guarantees relax liquidity constraints of veterans; the beneficial effects of the G.I. Bill seem to allow potential homeowners to purchase a home at an early stage in life. For African-American veterans, however, VA home loan guarantees enabled them to become homeowners, which would otherwise have been difficult.

JEL Classification Codes: R21, N32

*Keywords:* G.I. Bill, homeownership, home value, regression discontinuity design

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The G.I. Bill of Rights, formally known as the Servicemen's Readjustment Act of 1944, was revolutionary in its scope and coverage. It allowed veterans to resume education or technical training by providing up to \$500 for tuition, books and supplies per school year as well as monthly living allowances (\$50 for single veterans and \$75 for married veterans). It also offered guarantees by the federal government for home purchase and business loans up to 50 percent of the loan amount and gave unemployment allowances for veterans up to one year. The Veterans Administration (VA) was responsible for carrying out the law's key provisions. In the peak year of 1947, veterans accounted for 49 percent of college admissions. By July 1956 when the original G.I. Bill was terminated, 7.8 million of 16 million WWII veterans had participated in an education or training program (U.S. Department of Veterans Affairs, 2007). In essence, the G.I. Bill shaped post-WWII American society by bringing the "American Dream" of college education and homeownership within reach of millions of veterans (Bennett 1996).

This paper investigates whether the G.I. Bill has helped World War II veterans purchase homes. The G.I. Bill, by guaranteeing home loans for veterans, allowed many to purchase a home for the first time. The G.I. Bill provided loan guarantees of 50% or \$2,000 of any loans made by approved lending institutions for the purchase or construction of homes, farms, and business properties. Loans were provided at a 4% interest rate, amortized over 20 years, and the loan amount was evaluated on the basis of the borrower's income and employment potential. This Federal guarantee of home loans made it possible for approved lenders to provide no-down-payment mortgages. Between 1944 and 1952, the VA guaranteed nearly 2.4 million home loans. While the positive effect of the G.I. Bill on educational attainment is well documented by Bound and Turner (2002) and Turner and Bound (2003), the analysis of its effects on homeownership has not been analyzed. This research fills that gap.

Another important historic development of the housing industry in this period is the advent of Levittown, low-cost mass-produced housing for middle- and low-income households. The first Levittown was built on Long Island, NY in 1947 by Levitt & Sons, and advertisements in the New York Times specifically targeted returning veterans (see figure 1); houses were sold for just under \$8,000,<sup>1</sup> and veterans were able to own houses with no down payment and a monthly payment of \$58. At the same time, to ameliorate the acute housing shortage of the post-war period, the Federal Housing Administration's guarantee of loans to builders helped the supply side by reducing risks for commercial lenders. The number of new housing starts jumped in this period from fewer than 210,000 units in 1945 to over 930,000 units in 1948.

Although Levittown homes were heavily marketed towards veterans, they were available to nonveterans as well. The only difference between veterans and nonveterans was the requirement for down payment for nonveterans; nonveterans normally had to pay \$890 to \$1,000 as a down payment. It is thus reasonable to assume that there was no difference between the two groups in the expansion of the supply of housing stock. The difference in housing demand between veterans and nonveterans stems from the differences in liquidity constraints attributable to the G.I. Bill eligibility.

Although Levittown for the first time provided low-cost housing to middle-class Americans, its benefits were limited to whites. William Levitt is quoted as saying "if we sell one house to a Negro family, then 90 to 95 percent of our white customers will not buy into the community" (Sokolove 2008) thus the development's exclusionary policy. In addition to the

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<sup>1</sup> To put this in perspective, weekly earnings of the 10-percentile full-time, male worker from the 1950 Census was \$37.50, which translates into an annual income of \$1,875, assuming a 50-week work year. Thus the price of a lower-end house in Levittown was slightly over 4 times the annual income of the poorest 10 percent of full-time male workers.

exclusionary policy of housing development builders, the federal government aided racial segregation by categorizing certain residential neighborhoods unsuitable for receiving loans, a practice commonly known as redlining. The Home Owners' Loan Corporation (HOLC) and the Federal Housing Administration (FHA) developed maps delineating desirability of neighborhoods for home mortgage purposes, based on neighborhood characteristics and designating mostly black neighborhoods as most risky for mortgage support (Hillier 2003). Many private lenders developed their own redline maps to meet the requirements of the FHA underwriting manual. Thus blacks faced very different supply constraints in mortgage as well as housing compared to whites, which could have adversely affected their ability to take advantage of the G.I. Bill.

I estimate the effect of the veteran status on homeownership using the regression discontinuity design. Estimates from the 1960 data suggest that the veteran status, thus eligibility for the G.I. Bill, significantly raised the probability of homeownership among white veterans; the homeownership of veterans is 6 to 10 percentage points higher compared to nonveterans even after controlling for income and educational attainment. On the other hand, the G.I. Bill did not seem to have helped increase homeownership of African-American veterans. The disparity of homeownership by veteran status is reversed in the 1989 data. The white veterans no longer enjoy advantages in homeownership vis-à-vis nonveterans, while African-American veterans display substantially higher homeownership. I conclude the racial gap in the effect of the G.I. Bill in 1960 reflects discrimination practiced by the Federal agency and lending institutions in earlier years, and its reversal by 1980 is a sign of the changes in legal and institutional aspects of mortgage lending in the United States.

## I. Data and the Estimation Method

As a primary data set, I use the one-percent sample from the U.S. Decennial Censuses of 1960, made available by the Integrated Public Use Microdata (IPUMS) Series at the University of Minnesota (Ruggles et al. 2008). I limit the sample to U.S. native-born men who were born between 1923 and 1930. I exclude from the sample those for whom age and sex were allocated. I also limit my sample to those who worked more than 30 weeks in the previous year. Following the literature in labor economics, I multiply the top-coded income (\$25,000 in 1960, \$75,000 in 1980) by a factor of 1.4. The Census data lack the variables on mortgages. To assess the role of the G.I. Bill on a veteran's ability to accumulate housing asset, I use the self-reported house value as a proxy for housing asset.<sup>2</sup> To assess the long-term impact of the G.I. Bill, I also use the 5% sample from the 1980 Census with similar sample-selection criteria.<sup>3</sup>

To estimate the effect to the G.I. Bill on homeownership, simply including in a set of control variables a binary variable indicating the veteran status is problematic, as selection into military service is not random. While all men were required to register with their local draft board at age 18, some were deferred from service if they were deemed mentally or physically unfit for military service, illiterate, or employed in industries vital to the war effort. Because the reasons for deferment would also be correlated with labor market outcomes, which are directly correlated to homeownership and the amount of a loan one could get, the simple comparison of

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<sup>2</sup> The house value is also top coded at \$35,000 which affects only a handful of cases in the analysis sample and are disproportionately nonveterans. I use the top-coded value without changing it so that I would not overestimate the beneficial effects of the veteran status on house value.

<sup>3</sup> The 1980 Census contain more “qualifying” variables indicating whether or not the variable values have been assigned by Census enumerators. In addition to the sample-selection criteria used for the 1960 data, I also excluded observations where birth place, birth month, race, income, veteran status, marital status, house value, or home ownership status have been allocated.

homeownership between veterans and nonveterans of the same birth cohorts would overestimate the causal effect of military service (thus the G.I. Bill) on homeownership. To make causal inference, we need exogenous variation in the probability of service in WWII that is not related to homeownership above and beyond observable characteristics of individuals.

Following Bound and Turner (2002), my estimation strategy focuses on between-cohort differences in military service. I take advantage of the sharp decline in service among men who were born between 1925 and 1929. In particular, when the Selective Service Act prohibited voluntary enlistments in the last months of WWII, the cohorts of men born between January 1925 and March 31, 1929 were most severely affected. As the war progressed, birth date chronology became the primary determinant of the probability of military service, and those who were born after the second quarter of 1929 were no longer eligible to serve in WWII. Assuming the effect of the G.I. Bill is constant across adjacent cohorts, I could estimate the role of the G.I. Bill by comparing homeownership of birth cohorts with significant service during WWII with that of birth cohorts that were born too late to serve.

The sharp decline of the probability of service among the particular birth cohorts is illustrated in figure 2. The left-hand-side panel plots the proportion of men who served in WWII by birth quarter; over three-fourth of men born before 1926 served in the war, while the proportion declines precipitously from those born in the second quarter of 1927 until the birth cohort of the second quarter of 1930 among which no one served. Panel (b) depicts the homeownership of the same birth cohorts by veteran status. Compared to nonveterans, the proportion of WWII veterans who own homes is quite high among earlier birth cohorts, but the veteran's advantage quickly disappears with each successive birth quarter. There is a clear discrete drop in homeownership of veterans between the birth cohort of 1927-II and 1927-III

coinciding with a decline in probability in service, while the homeownership rate of nonveterans does not demonstrate such discontinuity by birth cohort. Being a veteran thus seems to have very strong relationship to homeownership.

We are interested in the average effect of military service for men who would not have served (and thus were ineligible for the G.I. Bill) had they been born in different years. This effect is referred to as the local average treatment effect (LATE) in the evaluation literature. Formally, the effect of the veteran status on homeownership,  $\beta^{LATE}$ , is estimated in the following way:

$$\beta^{LATE} = \frac{\Pr(own = 1 | cohort = i) - \Pr(own = 1 | cohort = j)}{\Pr(V = 1 | cohort = i) - \Pr(V = 1 | cohort = j)}.$$

This estimator can be thought of as an IV estimator with the year and quarter of birth as an instrument (Hahn et al. 2001, Imbens and Lemieux 2008). Specifically, I use indicators for year and quarter of birth as instruments to predict the veteran status.

The key assumption is time homogeneity. That is, individuals in adjacent cohorts would have the same propensity to purchase a home had they received the same treatment. This assumption is reasonable in the context of homeownership and WWII veterans. I'm limiting my sample to a relatively small set of birth cohorts (1923-1930). Besides, since homeownership constitutes a core of the "American Dream" accompanied by tax incentives, it is reasonable to assume that most would want to buy their own homes regardless of birth year if they could afford it.

## **II. Analysis of the Relationship between the G.I. Bill and Homeownership**

### **(a) Probability of Owning a Home**

The first question is whether or not the G.I. Bill increased the homeownership of WWII veterans. I estimate the probability of homeownership by a linear model as well as by probit. Because the supply constraints may work differently for blacks and whites, I estimate the probability of homeownership separately by race. I present the results for three different birth cohorts (1923-30, 1925-30, 1927-30) as a robustness check, by examining the impact of different bandwidth around the discontinuity point (Imbens and Lemieux 2008).

Table 1 presents the results for whites. The first two rows report the estimates on the veteran dummy from the linear probability model (LPM) and a simple probit model without considering possible endogeneity of the veteran status. The regressions include the full set of control variables including weekly income and five indicator variables for educational attainment.<sup>4</sup> Both linear probability and probit models provide remarkably similar results; having served in WWII is associated with a 4 to 8 percentage point increase in homeownership depending on the birth cohort.

To assess the causal effect of the G.I. Bill, however, we have to take into account the selection into military service. I thus instrument the veteran status with dummy variables for quarters of birth. Since both first-stage equation and second-stage equation take a binary variable as the outcome variable (WWII veteran status and homeownership, respectively), the standard IV estimator is not necessarily most efficient. To improve the efficiency of the estimator, I use the treatment effect model and bivariate probit, both of which estimate the first-stage equation by probit. The row labeled “2<sup>nd</sup> stage linear” reports the instrumental variable estimator in which the first-stage selection into military service is estimated with probit. The

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<sup>4</sup> Other controls include age, age squared, dummy variables for region of birth, marital status, urban residence, family size, number of children, and the region of current residence.

row “2<sup>nd</sup> stage probit” indicates the results from bivariate probit in which both the first- and second-stage regressions are estimated simultaneously.

The first column of each cohort (column (1), (3), (4)) illustrates the results of the regressions that include only truly exogenous variable: age, age squared, and nine indicator variables for region of birth, together with the veteran status dummy which is instrumented. For the broader sample, having served in WWII, thus being eligible for the G.I. Bill, has led to about a 10 percentage point increase in homeownership, while for a younger (1927-30) birth cohort, the effect is close to 15 percentage points. The second column of each cohort group adds demographic variables that may be associated with unobservable characteristics of being a veteran, such as marital status, residence in urban areas, family size, the number of children, and the region of residence. These variables make only marginal changes to the coefficient estimates of the veteran status, implying that they are not strongly correlated with the veteran status above and beyond those already captured by age and the region of birth variables.

The third column of each cohort group (columns (3), (6), and (9)) includes control variables that presumably have been directly affected by the G.I. Bill. These variables include an indicator for self-employment (since the G.I. Bill also guaranteed business loans), five dummy variables for educational attainment (because the major benefits of the G.I. Bill are education subsidies), and log of weekly income (because education raises earning potential of workers). Even after controlling for education and income variables, the veteran status has led to a 6 to 11 percentage point increase in homeownership probability depending on cohort. The effect of the G.I. Bill on homeownership among white veterans was thus substantial. Including the third set of controls (self-employment, education and income) reduces the size of estimates only by about one-third. For the 1923-30 birth cohort, the estimate decreases from 0.089 to 0.076, while for

the youngest cohort (1927-30), the estimate drops from close to 14 percentage points to about 10 percentage points. Thus the role of the G.I. Bill in increasing homeownership of white veterans seems quite substantial above and beyond what could be explained by education and income.

The estimates from the Africa-American regressions are presented in table 2. As expected, the effects of the G.I. Bill on homeownership for African-American veterans are small. In the simple linear probability and probit models, the veteran status is associated with only a 4.2 to 4.5 percentage point increase in homeownership for the 1923-30 cohorts (compare to over an 8 percentage point increase, for whites) while the relationship is numerically smaller and statistically insignificant for more restricted set of birth cohorts. Instrumenting for selection into military service, both treatment effect and bivariate probit estimation results indicate that the relationship between the veteran status and homeownership is numerically large, but is not statistically significant in most specifications. Only in the bivariate probit estimation in columns (2) and (3) are the coefficient estimates statistically significant. However, given wide fluctuations of the estimates and large standard errors across overlapping samples, I strongly suspect that the statistical significance of these two estimates may have been obtained by chance. Without a consistent pattern that I observe among the estimates in the white sample, it is hard to put much faith in these estimates. The effect of the G.I. Bill on homeownership among African Americans is mixed at best. It is prudent to conclude that the G.I. Bill probably did not increase homeownership of African-American veterans in the 1950s..

The homeownership gap between whites and blacks widened between 1940 and 1960 (Collins and Margo, 2003). This widening gap is mainly attributed to migration of blacks to the industrial north where house prices tend to be higher and increased concentration of blacks in the central city. As the G.I. Bill helped white veterans to become homeowners whereas it did not

seem to improve African American's access to homes, the results here indicate that the Federal policy and its implementation may have contributed to the widening ownership gap between blacks and whites after WWII.

#### (b) Value of Owner-Occupied Housing

Our society values homeownership as owning a home would make one a better citizen. Homeownership accrues long-term benefits to society as homeowners are also better parents and homeownership exerts beneficial effects on children (Green and White, 1997). From an individual's stand point, homeownership is valuable as owner-occupied housing, because of tax benefits and capital appreciation associated with it, acts as a main vehicle for asset accumulation. For the majority of American households, home is where a large fraction of wealth is held.

The G.I. Bill seems to have increased the homeownership of WWII veterans, at least among whites. The VA loan guarantees increased homeownership by relaxing liquidity constraints of veterans, thus allowing them to purchase homes earlier in life. Another pertinent question is if this easing of liquidity constraints has quantitative implications, i.e., whether or not WWII veterans who were eligible for VA home loan guarantees purchased larger, more expensive homes compared to nonveterans. To this end, I estimate the effects of the G.I. Bill on the home values among home owners.<sup>5</sup>

Table 3 presents the results of house-value regressions in which the samples are limited to homeowners. Panel (a) reports the results for whites, and panel (b) displays the results for African Americans. The rows titled "2SLS" reports the results from two-stage least squares

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<sup>5</sup> Ideally, I would like to see if WWII veterans have accumulated larger home equity by 1960. However, the Census lacks information on mortgage amount, and I am unable to examine the home equity values.

regressions (in which the first stage is estimated with ordinary least squares), and the rows named “treatment effects” indicate the results of the two-stage regressions in which the first stage is estimated with probit. Surprisingly, although most estimates are positive, none of the estimates are statistically significant for either whites or African Americans. Thus having a Federal loan guarantees has no effect on allowing borrowers to take out larger mortgages or purchase more expensive houses.

The absence of any effect of the G.I. Bill on house values can be interpreted in two ways. First, housing demand reflects primarily permanent income, risk preference, and life-style preferences of borrowers and once initial borrowing constraints are relaxed, availability of loans does not change the intrinsic demand for housing. This interpretation fits well with forward-looking life-cycle maximizing model of consumer choice. The second interpretation is that housing demand is constrained not only by down-payment constraints but also by payment constraints imposed by lending institutions. Mortgage lenders traditionally have limited the amount of mortgages such that the monthly payment-to-income (PTI) ratio would not exceed 28% of the gross income of borrowers. If such restrictions are in place, then a VA guarantee of home loans would only relax down-payment constraints of home buyers, but not the monthly-payment constraints. However, zero-down-payment loans in turn implies higher monthly payments for a given interest rate, and veterans taking advantage of VA guarantees may be constrained to take out a smaller mortgage to stay within the PTI constraint. Since we do not observe such a pattern, veterans would be either getting lower interest rates (due to the Federal guarantees) or choosing an appropriate house size consistent with life-cycle hypothesis.

### (c) Regional Differences

In analyzing historical data of the United States, it is important to recognize the impact of *de jure* and *de facto* segregation on black Americans. Although the G.I. Bill of Rights was Federally enacted, its implementation was left to local veterans boards. As a result, the effects of the G.I. Bill on educational advancement of black men were tremendously different between the South and the non-South regions. In particular, blacks in the non-South region enjoyed large increases in years of college and college completion rate because of the G.I. Bill, its effects on blacks in the South were negligible and statistically insignificant (Turner and Bound, 2003), contributing to the widening gap of educational attainment between the races in the post-war period.

Was there regional difference in the effects of the G.I. Bill on homeownership, too? Table 4 presents the estimates of homeownership probability and house value separately for the South and non-South by race. The regressions here correspond to the full specification (e.g., column (3) of table 1) and estimators used are bivariate probit for the ownership equation and treatment effect model for the values equation. With respect to whites, the contribution of the G.I. Bill is similar in magnitude between the South and the non-South regions. The veteran status led to a 6.7 to 8.9 percentage point increase in homeownership for the older two cohort samples. For the 1927-30 cohort, the effect of the G.I. Bill on homeownership is greater among Southern whites than non-Southern whites (15.5% vs. 9.8%), although the difference between the two estimates is not statistically significant. Thus it appears that there was no regional difference in the effects of the G.I. Bill for whites. On the other hand, the effect of the G.I. Bill for blacks are bigger for non-Southern blacks than for Southern blacks. While the estimates are not statistically significant, the effect in the non-South region is about twice as big as in the

South. The results here generally confirm the racial differences in the effect of the G.I. Bill on educational attainment.

#### (d) Changes in the 1980 Data

The benefits of the G.I. Bill to WWII veterans were to relax their liquidity constraints and to enable them to purchase their homes. Under the life-cycle hypothesis, liquidity constraints would eventually cease to bind, we would thus expect the effect of the G.I. Bill on homeownership would diminish over time. If this is the case, the G.I. Bill would only enable young veterans to own homes earlier in their life-cycle than nonveterans and the advantage of veterans would weaken as the cohorts get older. If, on the other hand, the G.I. Bill had made it possible for some marginal borrowers to obtain home loans that would otherwise have been impossible, then we would expect to see the advantage of veterans to persist later in life even after liquidity constraints are no longer binding. To evaluate the long-term effects of the G.I. Bill on homeownership, I now turn to the analysis of the data from the 1980 Census.

Table 5 presents the results from the 1980 data for homeownership and house value by race. The most striking thing in this table is the stark contrast of the estimates between whites and African Americans. With respect to homeownership, the advantage of veterans among whites disappeared by 1980, evidenced by numerically small and statistically insignificant estimates of the probability of owning a home. On the other hand, black veterans have a substantially higher homeownership rate compared to black non-veterans of the same cohorts: WWII veterans among African Americans have a 14 to 18 percentage point higher homeownership than nonveterans. Furthermore, unlike the estimates reported in table 2, the results here are more tightly estimated and consistent across overlapping samples (note that the

sample size is about twice as large), giving more credence to the estimates. As for house values, however, veterans again have little or no advantage vis-à-vis nonveterans, as the coefficient estimates become numerically small and statistically insignificant after controlling for income and educational attainment. Legal and institutional changes that took place in the United States between the two Census years probably benefited blacks, particularly among veterans who can now take advantage of the VA home loan guarantees.<sup>6</sup>

The difference in the long-term effects of the G.I. Bill on homeownership offer interesting insights into the role of the VA home loan guarantees in the post-war period. As for white veterans, the G.I. Bill simply relaxed liquidity constraints by removing down-payment requirements, thus allowing them to purchase homes early in their life cycle. By 1980, however, as WWII cohorts turn 50 and liquidity constraints are no longer binding, the advantageous effects of the G.I. Bill have disappeared. African-American veterans, on the other hand, were not able to take advantage of the G.I. Bill and the VA home loan guarantees in the 1950s presumably because of discrimination practiced by local VA boards as well as lending institutions. After the 1960's, however, black WWII veterans were able to take advantage as the United States made conscious efforts to right discrimination in the past. The G.I. Bill, therefore, offered home loans that would not have otherwise been possible for many African Americans.

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<sup>6</sup> Another possibility is the differential mortality between veterans and nonveterans among African American men. I would obtain the results here if black veteran homeowners have survived with a higher probability to 1980 than black nonveteran homeowners. While education and income are highly correlated with mortality, it is not clear how the veteran status would be positively correlated with the survival probability. Since I obtain statistically significant estimates even after controlling for income and education (in addition to other obvious correlates such as marital status and the place of birth), I suspect the differential mortality between veterans and nonveterans plays a role here.

### **III. Conclusions**

The G.I. Bill of Rights was a major social experiment in the 20<sup>th</sup> Century. It made middle-class life and the “American Dream” possible for a large number of veterans who served during WWII. Its role in increasing educational attainment is well documented. This paper has estimated its causal impact on homeownership of WWII veterans and home values of homeowners using the data from the 1960 and 1980 U.S. Censuses.

The paper has unearthed several intriguing findings: the G.I. Bill seems to have benefited white WWII veterans in early stage of the life cycle by relaxing liquidity constraints and enabling them to purchase homes early. However, the veterans’ advantage disappeared by 1980 when the youngest of the WWII cohorts turned age 50. On the other hand, for African-American veterans, supply constraints (e.g., exclusion from certain low-cost suburban developments such as Levittown and redlining practiced by lending institutions) seemed to have hindered them from becoming homeowners by 1960 even with the VA loan guarantees of home mortgages. However, as the United States changed its legal institutions and commercial banks modified lending practices, black veterans benefited a great deal during 1960s and 1970s. By 1980, they have a substantially higher homeownership rate than nonveterans. Despite the benefit of the G.I. Bill on homeownership, the VA loan guarantees did not help veterans acquire larger homes, which is consistent with the view that demand for housing reflect preferences and life-time earnings.

Liquidity constraints are the key impediment to homeownership, particularly in young ages. The VA loan guarantees relax the constraints by eliminating down-payment constraints. Recent research shows that the broadening of homeownership was instrumental in narrowing the wealth gap between white and black Americans (Yamashita 2008). Policy aimed at relaxing

down-payment constraints (but not necessarily the PTI constraints) would have a tremendous effect on “spreading the wealth around” in the United States.

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Table 1 Relationship between Veteran Status and Homeownership: White Men

	1923-30 birth cohorts			1925-30 birth cohorts			1927-30 birth cohorts		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LPM			0.080*			0.068*			0.042*
			(0.005)			(0.005)			(0.007)
Probit <sup>1/</sup>			0.083*			0.077*			0.044*
			(0.005)			(0.006)			(0.007)
Instrumented									
2 <sup>nd</sup> stage linear	0.098*	0.089*	0.076*	0.113*	0.104*	0.087*	0.147*	0.140*	0.105*
	(0.023)	(0.023)	(0.022)	(0.025)	(0.024)	(0.024)	(0.035)	(0.034)	(0.033)
2 <sup>nd</sup> stage Probit <sup>1/</sup>	0.101*	0.106*	0.064*	0.112*	0.114*	0.087*	0.132*	0.134*	0.112*
	(0.022)	(0.021)	(0.020)	(0.023)	(0.022)	(0.022)	(0.031)	(0.030)	(0.030)
Demographic control	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Education and income control	No	No	Yes	No	No	Yes	No	No	Yes
N		62,123			45,952			30,437	
First-stage F statistics									

Note: Dependent variable is the binary variable indicating homeownership (own=1). Standard errors in parentheses. Columns (1), (4), and (7) also control for age, age squared, and region of birth. “Demographic” controls of columns (2), (5), and (8) include binary variables for urban status, three indicator variables for marital status, family size, the number of children, and region of residence, which are possibly related to unobservable characteristics related to the veteran status. Finally, columns (3), (6), and (9) include the variables which could have been directly affected by the G.I. Bill, namely, a dummy for self-employment, five dummies for educational attainment, and log of weekly income.

<sup>1/</sup> Probit and Bi-probit results are the marginal effect of the change of the veteran status indicator variable from 0 to 1.

\* significant at the 1% level.

Table 2 Relationship between Veteran Status and Homeownership: African-American Men

	1923-30 birth cohort			1925-30 birth cohort			1927-30 birth cohort		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LPM			0.042*			0.021			0.003
			(0.016)			(0.019)			(0.027)
Probit			0.045*			0.021			0.002
			(0.017)			(0.021)			(0.028)
Instrumented									
2 <sup>nd</sup> stage linear	0.151	0.184	0.143	0.135	0.149	0.105	0.004	0.060	0.023
	(0.121)	(0.118)	(0.115)	(0.141)	(0.138)	(0.135)	(0.239)	(0.233)	(0.228)
2 <sup>nd</sup> stage Probit	0.104	0.281*	0.245*	0.070	0.194	0.164	-0.129	0.030	0.176
	(0.155)	(0.104)	(0.084)	(0.166)	(0.132)	(0.111)	(0.257)	(0.275)	(0.191)
Demographic control	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Education and income control	No	No	Yes	No	No	Yes	No	No	Yes
N		4,701			3,503			2,339	
First-stage F statistics									

See note to table 1

Table 3 House Value Regressions, by Race

	1923-30 cohort		1925-30 cohort		1927-30 cohort	
(a) Whites						
OLS		97.87 (76.49)		46.97 (87.55)		-82.06 (106.14)
Instrumented						
2SLS	587.07 (390.36)	318.62 (328.33)	746.20 (405.01)	443.49 (340.44)	123.09 (551.42)	-213.28 (462.76)
Treatment Regression	435.76 (396.43)	265.92 (330.79)	709.63 (402.09)	420.73 (337.67)	433.12 (521.72)	-147.50 (440.26)
N	35,423		25,400		16,154	
(b) African Americans						
OLS		14.49 (283.86)		-124.39 (343.57)		165.26 (478.98)
Instrumented						
2SLS	119.42 (1,835)	-2.12 (1,648)	436.42 (1,974)	182.52 (1,798)	1,729.23 (3,707)	2,045.20 (3,483)
Treatment Regression	1,745.21 (1,867)	1,078.31 (1,732)	2,635.82 (2,042)	1,646.80 (1,883)	6,415.82 (3,373)	5,771.83 (3,098)
N	1,549		1,113		732	
Demographic control	Yes	Yes	Yes	Yes	Yes	Yes
Education and income control	No	Yes	No	No	No	Yes

Note: See note in table 1.

Table 4 Estimates of Homeownership and House Value, by Region and Race

	1923-30 cohort		1925-30 cohort		1927-30 cohort	
	South	non-South	South	non-South	South	non-South
(a) Whites						
Probability of Ownership	0.067 (0.044)	0.068* (0.022)	0.086 (0.047)	0.089* (0.025)	0.155* (0.053)	0.097* (0.036)
N	16,551	45,572	12,348	33,604	8,181	22,256
House Value	-282.65 (667.59)	531.22 (375.17)	-357.35 (683.37)	685.65 (385.31)	11.23 (829.55)	-194.64 (515.12)
N	9,188	26,235	6,666	18,734	4,245	11,909
(b) African Americans						
Probability of Ownership	0.202 (0.115)	0.432* (0.069)	0.128 (0.142)	0.368 (10.31)	0.259 (0.218)	0.446 (3.315)
N	3,595	1,106	2,640	863	1,746	593
House Value	1,182.7 (1,708)	-265.03 (1,913)	1,342.8 (1,884)	205.64 (2,230)	2,981.3 (3,390)	6,121.4 (5,579)
N	1,159	390	822	291	534	198

Note: See note in table 1. The South is defined as Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, South Carolina, Tennessee, Texas, and Virginia.

\* significant at the 1% level

Table 5 Estimates using the 1980 Census Data, by Race

	1923-30 cohort		1925-30 cohort		1927-30 cohort	
	(1)	(2)	(3)	(4)	(5)	(6)
(a) Whites						
Probability of Ownership	0.012 (0.008)	0.004 (0.008)	0.009 (0.009)	0.000 (0.008)	0.016 (0.012)	-0.002 (0.012)
N	132,748		101,955		69,415	
House Value	2,593** (1,116)	66.22 (921.2)	3,090* (1,167)	392.0 (960.2)	8,787* (1,650)	2,096 (1,348)
N	96,423		74,124		50,485	
First-stage F statistics	5126.02		4648.71		2544.12	
(b) African Americans						
Probability of Ownership	0.175* (0.063)	0.160* (0.059)	0.144** (0.071)	0.138** (0.067)	0.165 (0.101)	0.185** (0.079)
N	8,168		6,314		4,385	
House Value	2,178 (4,240)	-2,191 (3,974)	-1,305 (5,225)	-6,125 (4,871)	-3,373 (8,471)	-5,251 (18,038)
N	4,677					
Fist-stage F statistics	82.2		65.4		29.19	
Demographic control	Yes	Yes	Yes	Yes	Yes	Yes
Education and income control	No	Yes	No	No	No	Yes

\*\* significant at the 5% level

\* significant at the 1% level

Figure 1 A Sample of Levittown Advertisements in New York Times

Display Ad 177 -- No Title

New York Times (1857-Current file); Aug 21, 1949; ProQuest Historical Newspapers The New York Times (1851 - 2004)  
pg. R3

# THIS IS LEVITTOWN! ALL YOURS FOR \$58!

YOU'RE A LUCKY FELLOW, Mr. Veteran. Uncle Sam and the world's largest builders have made it possible for you to live in a charming house in a delightful community without paying for them with your eye teeth.

The pictures here will give you some idea of what Levittown is like. The house you see is unbelievably priced at \$7,990. Practically everything you can think of is included in that price. Refrigerator, range, Bendix, Venetian blinds, G.E. oil burner, legal fees, appraisal charges, etc.—yes, sir, the whole works are in.

There are some items, however, so unique that we've got to tell you about them.

This house is planned differently from most you've seen. Most important is the living room. We think it's silly and impractical to have it in the front, on the street, where you have no privacy and no view except automobiles passing. And so it's in the back where an entire glass wall—19 feet long—looks over your lawn and garden and fruit trees, all of which we've planted.

And we've put the kitchen in the front where it belongs, where it's just a step for your wife to answer the door, and where she can see who's there and what's going on. We've thought of the kids, too. When they barge in there's a hall—not the living room—for them to track through.

At the front door is a roofed-over, sheltered entrance to protect your house—and guests—from winds and rain. They, too, won't slip up your carpets. You're getting a nice place and we've planned it so it can stay that way.

Look at the fireplace in the kitchen. Ever see that before? That does a lot of things.

1. It gets rid of the white "hospital" look most kitchens have. It's red brick, has wrought iron pot hooks built right into it.

2. It's ideal for barbecues, steak roasts, weenies, and hamburgers.

3. It gives a cheerfulness unlike anything you've ever experienced before.

And take a look at the closets! They're big, 8 feet long, with sliding ventilated doors. But better still, they've got built-in chests of drawers for storage of linen, blankets, or clothing.

See that big second floor? That's for expansion. Later on when Butch gets a sister or another brother or two you can add two more bedrooms and another bath at very moderate cost.

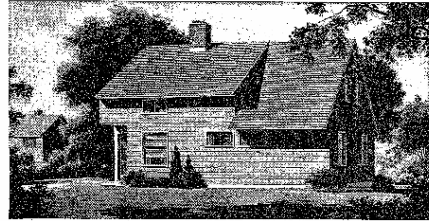
There's a lot more to all this, Mr. Veteran, but you'll have to take a look for yourself. Main thing is the low price—\$7,990, down payment—nothing, monthly carrying charges—\$58 for all taxes, water, insurance, interest, and paying off the complete purchase price!

The Exhibit Home, right on Hempstead Turnpike in Levittown, is open seven days a week from 10 A.M. to 10 P.M. File an application, pay a good-faith deposit of \$100, and you'll move in in December. Houses ready before then have all been sold. Your \$100 will be refunded to you when you take occupancy.

And stop worrying about the weather. If you hurry out maybe next year you'll be in that swimming pool!

Drive out Grand Central Parkway. Turn right on the bend marked "Southern Parkway." Leave at the eastbound exit W-3 marked Levittown. From there you can't miss the Exhibit Home which is right on Hempstead Turnpike.

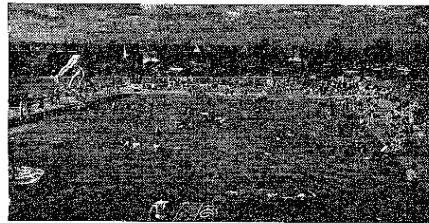
**Levitt & Sons**  
INCORPORATED  
EXECUTIVE OFFICES • MANHASSET • LONG ISLAND



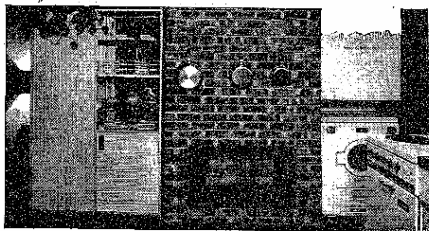
One of five exteriors. Price \$7990, plot 60 x 100 completely landscaped.



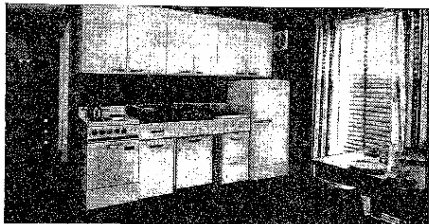
Living room with all-glass wall overlooking garden. Privacy insured because it is in rear; does not face street.



One of eight community swimming pools with kiddie pool in background. Free to Levittown residents.



Red-brick fireplace from kitchen side. Note revolving storage wall on left. Bendix on right. Other side of fireplace opens in living room.



Kitchen, looking at Tracy steel cabinets, G.E. refrigerator and range, stainless steel sink. Note exhaust fan upper centre; dinette space at right.

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Figure 2 Service during WWII and Homeownership of Veterans and Non-veterans

