Title

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The economic sociology of the home mortgage interest deduction.

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Abstract

The home mortgage interest deduction (HMID) is a provision of U.S. federal personal income tax law that permits personal income tax payers to deduct from their annual income the interest accrued on mortgage debts of up to $1 million that were incurred to purchase a first or second home. This paper presents new evidence concerning the effects of the HMID on family income over the income distribution and by racial identity. The method identifies distributional effects of the HMID by drawing on economic sociology to model counterfactual resource distributions that might obtain in its absence. The effect of the HMID on inequality across the income distribution is sensitive to assumptions about how the foregone revenue would be spent, but its effect is close to that of the most inegalitarian policy possible. Its effect on categorical inequality between white and black families is insensitive to a range of assumptions about counterfactual fiscal policy and housing market behavior in its absence. The HMID appears to approximate a target-efficient racial subsidy for white families.

The home mortgage interest deduction (HMID) is a provision of U.S. federal personal income tax law that permits personal income tax payers to deduct from their annual income the interest accrued on mortgage debts of up to $1 million that were incurred to purchase a first or second home (see 26 U.S.C. §163). This deduction is the largest federal housing subsidy in the United States. Social scientists have argued that it is also the most inegalitarian. Sociologists of stratification and inequality have described this provision of the tax code as "a quintessential example of the invisible ways American policy subsidizes the middle class and the wealthy" (Fischer et al. 1996: 136) and as as a prime example of "the racialization of the welfare state" (Oliver and Shapiro 2006: 187) insofar as it disproportionately benefits white people. Urban sociologists have characterized it as a form of legislative discrimination against renters (Pattillo 2013: 519); as a policy that "contributes to patterns of segregation by encouraging citizens to view their homes primarily as financial investments" (McCabe 2016: 143); and as "what may very well be the most regressive piece of social policy in America" (Desmond 2017).

But how regressive is the HMID, exactly? Despite the apparent consensus among sociologists that the HMID is inegalitarian, we know surprisingly little about the magnitude of its effects on the distribution of income in the U.S. Most sociologists who have weighed in the distributional effects of the HMID, and most commentators about this question, appear to have relied on reports of the total dollar value of the deduction claimed by taxpayers in various income classes (see, e.g., Desmond 2017; Marshall-Genzer 2017; Woo and Salvati 2017). Sometimes, as in the pathbreaking work of Moran and Whitford (1996), sociologists have inferred the incidence of the HMID even more indirectly from data on the distribution of

eligibility to claim this deduction. These methods of measuring the distributional impact of the HMID are inconclusive for several well-known reasons. Not everyone eligible to claim a deduction can be expected to claim it. The economic benefit of a deduction may accrue to someone other than the taxpayer who claims it (for example, a deduction that encourages spending on luxury housing might increase the incomes of luxury home builders). The deduction may induce inefficient economic behavior that reduces aggregate market income relative to what it would be in the absence of the deduction. Finally, in the absence of the deduction, the additional income tax owed might yield additional revenue, which could, in principle, be redistributed to others. In short, although we know something about who is eligible for the HMID and who claims it, we know very little about how different their net incomes would be if this deduction were not permitted, and therefore we know surprisingly little about the net effect of the HMID on income distribution.

This paper has two aims. The first is to answer the question of just how unequal the HMID is, by presenting an updated analysis of the distributional effects of the mortgage interest deduction. The second is to illustrate a more generally applicable approach to tax incidence analysis that takes economic sociology seriously. Conventional approaches to tax incidence analysis in economics are constrained by some assumptions that are sociologically untenable, and unconstrained by other assumptions that a sociologist familiar with the disciplinary literature on housing markets might regard as minimally necessary for realism. The approach taken here is to accept a great deal of the relevant economics, while modifying a conventional approach to partial equilibrium HMID incidence analysis by incorporating a few key principles of economic sociology. The model is applied to data from the 2011 wave of the Panel Study of Income

Dynamics (PSID), with individual tax liabilities computed with the NBER's TAXSIM model (Feenberg and Coutts 1993).

The central findings are two. First, the effect of the HMID on the inequality of income is indeterminate, because that effect depends on other policy decisions, most importantly on how the foregone income tax revenue would be spent (or refunded), were it available. Second, regardless of how the foregone revenue would be spent, the HMID exacerbates racial inequality. White families would have less income and black families would have more income in virtually any sociologically tenable counterfactual scenario without the HMID.

THE ECONOMIC SOCIOLOGY OF TAX INCIDENCE

The standard analysis of the incidence of the HMID begins with a model of housing market behavior. The value of the deduction to any given person depends on the amount of qualifying mortgage interest that person paid in the tax year, and the amount of qualifying mortgage interest that person paid depends, in turn, on prior decisions about whether to buy a home, how much to spend on that home, and how to finance the purchase. These decisions may have been taken with knowledge of how the HMID would affect the cost of buying a home. Conclusions about the overall distributional effects of the HMID, then, generally depend on counterfactual assumptions about how those decisions *would* have been made in the absence of the HMID. Those assumptions are used to identify a counterfactual baseline distribution of housing costs in the absence of the HMID. That counterfactual baseline is compared to the observed distribution and the result is an estimate of how the HMID affects the distribution.

The standard approach to identifying this counterfactual baseline is a formal model of housing market behavior called the "user cost model" (Poterba and Sinai 2008, 2011; Hanson 2012; Hanson and Martin 2013). The user cost model assumes that competition equalizes rates of return across asset classes, so that there is no particular speculative benefit to owning a home. The imputed rental income from homeownership—or its value to the consumer—can therefore be equated to the annual cost of homeownership, expressed as a function of tax rates, mortgage interest rates, the value of the house, and the return that could be earned on investing the equivalent capital in an alternative asset. The standard user cost model assumes a single housing market with a unique equilibrium, and brackets the public sector entirely, so that the effects of taxes on public spending need not be considered. Applying the model to estimate HMID incidence can yield an apparently definitive conclusion about the causal effect of the HMID on net income, such as the judgment of Poterba and Sinai (2008: 88) that "the average homeowner saves $1,060 as a result of the mortgage interest deduction."

The approach to HMID incidence analysis taken here also rests on the comparison of the observed distribution of resources to an assumed, counterfactual distribution of resources. The models used to derive those counterfactuals, however, begin from an alternative set of assumptions that are motivated by classic and recent work in the economic sociology of housing markets. These may be summarized as the assumptions that home mortgage markets are *embedded* in mixed economies; that their development is *path dependent*; and that they are *segmented by status*. I will discuss the motivation of each assumption, and its implications for HMID incidence analysis, in turn.

Embeddedness. Large-scale mortgage markets are only viable in the context of mixed economies with substantial public spending. I call this the embeddedness assumption because it

is consistent with Polanyi's (1944) influential assertion that real estate markets are "embedded" in nonmarket institutions (see Krippner and Alvarez 2007; Block and Somers 2014; Gemici 2008; Lauster 2016). Polanyi went beyond the conventional view that market exchange presupposes some legal or normative order (Durkheim 2015 [1950]: 301) to make the stronger claim that no such normative order can be sustained in the absence of complementary, non-market modes of distributing resources. Polanyi reasoned that without such a safety net, any systemic failure in the housing market might cause mass death by exposure, or at least displace enough people to destroy the trusting human relationships that are necessary for the reproduction of society.

The embeddedness assumption imposes a constraint on the simulation of counterfactual worlds without the HMID. Such counterfactuals, to be sociologically tenable, must include a public sector that spends money. Another way to say this is that the additional tax revenues that would be collected in the absence of the HMID cannot be assumed to vanish into the ether. If the average homeowner would pay $1,060 in additional taxes in the absence of the HMID, for example, the embeddedness asssumption implies that at least some of that additional $1,060 in tax revenue per homeowner might be spent on something, and might accrue to someone as income, so that the net benefit of the HMID per homeowner might be less than $1,060. Our conclusions about the distributional impact of the HMID will depend on our assumptions about how the federal government would spend the counterfactual taxes that would otherwise be collected.

Path dependence. There are multiple possible equilibria for any home mortgage market, associated with different feasible policy frameworks in which it might be embedded. I call this the path dependence assumption because it is consistent with work that documents how small

variation in initial conditions can set otherwise similar markets on different developmental paths. Some recent works in economic sociology, for example, have emphasized variation over across national contexts in the institutional arrangements for housing finance (Aalbers 2011, Gemici 2016). Others have taken a historical approach and have aimed to discover the critical junctures at which peculiar features of the U.S. mortgage market crystallized (McCabe 2016, Prasad 2012, Quinn 2010, Krippner 2011). As these examples suggest, economic sociologists have generally established the existence of multiple institutional equilibria inductively rather than deducing them from formal models. This inductive approach comes at a price in formal rigor, but economic sociologists have defended it as an appropriate posture of epistemic humility in the face of unknown possibilities (Block and Somers 2014). We may not know the precisely which market orders are possible, but we can discover by induction that they are many.

The path dependence assumption implies that the question of HMID incidence will not have a unique solution. There is more than one sociologically tenable counterfactual scenario for the organization of a housing market in the absence of the HMID. The appropriate aim of incidence analysis, therefore, is not an absolute statement about who benefits from the existence of the HMID, but instead a relative statement about who benefits compared to a given counterfactual scenario without it. Some recent work in the economic analysis of HMID incidence adopts this position in practice, by comparing the observed distribution of housing costs with the HMID to the simulated distribution of housing costs under a variety of alternative scenarios (Hanson and Martin 2013, Martin and Hanson 2016). The selection of such scenarios may be ad hoc, or may reflect contemporary policy debates at the time the research was undertaken. The approach taken here is to generalize this approach by simulating bounds on the

distribution of the HMID relative to logically tenable counterfactual scenarios at the egalitarian and inegalitarian extremes.

Status segmentation. Buyers who belong to different status groups may face different prices for housing of equivalent quality; they may even be prevented altogether from competing for housing of equivalent quality. A status group here is a group of people who are perceived to share one or more characteristics that confer a common position in a widely shared ranking of honor or esteem (Weber 1946: 186-7). Economic sociologists have identified several mechanisms that can segment markets by status. Tastes may vary systematically across status groups in part because the desire to maintain status group boundaries affects taste—including perhaps especially taste in housing (Bourdieu 2005; Halle 1984). People making expensive and risky purchases such as homes often seek out trusted brokers (DiMaggio and Louch 1998), and relations of trust and brokerage often conform to the boundaries between status groups. Status boundaries also may be enforced by practices of geographic exclusion, such as legal zoning rules or extralegal violence, which block opportunities for market exchange (Bonacich 1972).

Perhaps *the* classic example of market segmentation by status in sociology is housing market segmentation by race. This segmentation of the market appears to result from multiple redundant mechanisms, any one of which might be sufficient to produce the outcome. Many potential renters and homebuyers of all racial and ethnic groups rank neighborhoods according to a status hierarchy in which white neighbors are perceived as more desirable than others (Charles 2003). Mortgage lenders may offer different terms to borrowers depending on their perceived race (Massey et al. 2016). Real estate brokers steer homeowners of different racial and ethnic groups to different neighborhoods (Yinger 1995). Sellers discriminate on the basis of race. The result of all of these practices is that spatial segregation by racial status is pervasive, unusually

durable, and extreme relative to other forms of spatial segregation (Nightingale 2012; Massey and Tannen 2015).

The status segmentation assumption bears on the incidence of the HMID because it implies that the elasticity of mortgage interest with respect to the availability of the HMID may vary systematically with the status of the borrower. Conventional models of HMID incidence typically incorporate the responsiveness of home prices or mortgage terms to the availability of the HMID (Martin and Hanson 2016)—but they generally omit all information about racial status, and thereby implicitly assume all potential buyers are competing for mortgage loans and homes on the same terms in the same market. To be consistent with the assumption of status-segmented markets, any model of HMID incidence should instead, at a minimum, permit some of the relevant parameters to vary by the race of the homeowner.

DATA AND ANALYTIC APPROACH

The foregoing discussion implies that an approach to modeling the incidence of the HMID that is consistent with recent economic sociology should satisfy three desiderata. First, it should compare the observed distribution of tax and housing costs to multiple counterfactual scenarios, rather than assuming a unique counterfactual baseline. Second, it should incorporate explicit assumptions about the distribution of federal spending into those scenarios, rather than assuming that the additional tax revenue collected in the absence of the HMID would go unspent. Third, it should model housing costs under the assumption that housing and mortgage markets may be segmented by race.

I apply these principles to the estimation of the incidence of the HMID in 2011, using data from the 2011 wave of the Panel Study of Income Dynamics (PSID). The PSID is a nationally representative, longitudinal survey of families. The PSID is among the best available data sources for studies of housing and social policy (for a review, see McGonagle and Sastry 2016). It includes sufficiently detailed data on income and housing expenditures to permit estimates of the value of the HMID to individual respondents. All aggregate results reported here use 2011 cross-sectional survey weights to approximate totals for the U.S. population as a whole. To estimate state and federal income taxes paid, I rely on Kimberlin, Kim and Shaefer's (2015) method for calculating federal income taxes of PSID respondents with NBER's Internet TAXSIM program (Feenberg and Coutts 1993; see http://users.nber.org/~taxsim/taxsim9/). Their method uses information about age and family relationships in the PSID to assign coresident individuals to tax units and tax filing statuses (either as dependents, as unmarried individual tax filers, or as married couples filing jointly). Then the tax items computed from TAXSIM for each tax unit are aggregated to the level of the co-resident family unit, and assigned to the record of the family member designated by the PSID as the family unit head. I model the counterfactual baseline amount of federal income tax due in the absence of the HMID by invoking the TAXSIM model a second time for each respondent on the counterfactual assumption that no one claimed any deductible mortgage interest.

I model the counterfactual distribution of housing costs in the absence of the HMID by replacing observed values of mortgage interest paid in the tax year with simulated values of mortgage interest that *would be* paid absent the existence of a HMID. The simulated values are computed from hierarchical linear regression models that treat the mortgage interest that the respondent deducted from federal taxes as a function of the maximum marginal subsidy rate

(MSR) that a taxpayer in that state could expect from the combined state and federal HMID for very high-income taxpayers in the state. The MSR is the inverse of the marginal combined state and federal income tax rate on an additional dollar of mortgage interest. The values of the MSR used in this regression are published computations by the NBER from Internal Revenue Service data, aggregated to the state level (http://users.nber.org/~taxsim/state-rates/). The reason for using the expected MSR for very high-income taxpayers is that it is a measure of a policy parameter that is exogenous to the deductible mortgage interest reported by any individual PSID respondent; the latter depends on the respondent's decisions (e.g., about labor market and housing market behavior) that might in principle be endogenous to the taxation of mortgage interest. The coefficient of income is permitted to vary across states, in keeping with evidence that the responsiveness of housing decisions to income may depend on state-level variation in mortgage subsidies (Hilber and Turner 2014; Brady, Cronin and Houser 2003). The dependent variable is deductible mortgage interest; it is set to zero for respondents who had no deductible mortgage interest. By modeling mortgage interest directly, this equation incorporates net effects of HMID on mortgage interest that operate through a variety of channels, including effects on the decision to take out a mortgage, on the value of the home, and on the interest rates available to the respondent. The models thus have the form:

Eq. 1

$$\text{mortgage interest}_{i,j} = \alpha + \beta_1 * \text{MSR}_j + \beta_2 * \text{age}_{i,j} + \beta_5 * \text{female}_{i,j} + \beta_6 * \text{education}_{i,j} + \beta_7 * \text{family size}_{i,j} + \upsilon_{0,j} + \upsilon_{1,j} * \text{income} + \varepsilon_{i,j}$$

The letter *i* indexes individuals, and *j* indexes states. The Greek letter α is a constant term, and $\upsilon_{0,j}$ and $\varepsilon_{i,j}$ are normally distributed errors at the levels, respectively, of the state *j* and the individual respondent *i*. The random slope coefficient $\upsilon_{1,j}$ varies from state to state and is assumed to be normally distributed. After modeling the dependence of reported mortgage interest on the MSR (which dependence is represented by the slope coefficient β_1), I use the resulting equations to compute the counterfactual mortgage interest for each respondent if the MSR were set to zero.

The assumption of status-segmented markets is incorporated by fitting equation 1 separately to respondents in three racial status groups, corresponding to white, black, and other self-reported racial identities, so that all parameters of the model are permitted to vary by racial status. Racial status was assigned based on the responses of the individual recorded in the PSID as the family unit "head." Families were coded as "white" if white was the first and only racial identity that the head reported when asked; they were coded as "black" if the head reported black as his or her first response, either alone or in combination with other categories; and all other responses and response patterns were coded as "other." The control variables age and education are measured in years; family size is the total number of persons in the family unit; and income is measured as the inverse hyperbolic sine of pre-tax family income (including market income and government transfers) reported to the PSID.[1] Table 1 reports the results from fitting these models to the set of family unit heads in the PSID.

The results are consistent with the hypothesis of status-segmented housing markets. The mortgage interest reported by white and black family unit heads does not respond measurably to

[1] Like the log transformation ln (x), the inverse hyperbolic sine of $x = \ln (x + (x^2+1)^{1/2})$ reduces skewness. Unlike the log transformation, the inverse hyperbolic sine is also defined for $x \leq 0$.

the MSR. The mortgage interest reported by “other race” family unit heads, by contrast, is strongly responsive to income and to the MSR; a greater subsidy rate is associated with greater mortgage interest, and the association decreases with income. The mortgage interest reported by black family unit heads varies little from state to state and is almost entirely unresponsive to income or to the MSR (and is, thus, unaffected by the HMID). This is the pattern we might expect to see if black identity is a master status that determines the terms on which people are granted access mortgage and housing markets.

I use the resulting counterfactual estimates of tax and housing expense in the absence of the HMID to compute income *net* of income tax, payroll tax, and housing expense under alternative counterfactual scenarios. I report measures of the distribution of net income, including 90/10 ratios, Gini coefficients, and ratios of the median income of black families ot the median income of white families. All measures of income refer to family income (including market income and government transfers), standardized on the square root of family size, a common convention in studies of the effects of social policy on poverty and inequality (cf. Smeeding and Rainwater 2003). Housing expenditures for the purposes of these comparisons include rent, property taxes, and mortgage interest payments; in the counterfactual no-HMID scenarios, the mortgage interest payments are replaced by predicted values from Equation 1, under the counterfactual assumption that the MSR equals zero. Although the focus of the effects on HMID incidence dictate the focus on income net of income and payroll taxes and housing expense, I also report estimates of standardized family income net of taxes and *gross* of housing expense, for comparison to more familiar measures of income inequality. The latter estimates are, by design, unaffected by the simulated effects of the HMID on housing markets.

The assumptions of path dependence and embeddedness are incorporated by simulating alternative distributions of federal tax revenue that would be collected if respondents could not claim the HMID. I simulate two counterfactual scenarios that illustrate a range of possible conclusions about the distributional effects of the HMID. The first is the scenario represented by some conventional incidence analysis in which the income tax rate structure is held constant, and federal revenues are therefore greater than in the presence of the HMID, but the additional revenue collected from borrowers who cannot claim the HMID is neither spent nor applied to federal debt service. I call this the "Treasury Hoard" scenario, to characterize the implicit assumption that the additional revenue simply disappears into the Treasury and accrues to no individual. The second is a scenario in which federal income tax revenues are held constant, and tax rates are therefore lower than they would be in the presence of the HMID; specifically, I assume every taxpayer's personal income tax obligation is reduced by the same proportion. This simulates one version of a base-broadening tax reform that would eliminate the deduction in exchange for lower rates across the board. I call this the "Lower Rate" scenario.

I also estimate two extreme counterfactual scenarios to establish outer bounds on how the embeddedness assumption might affect our esimates of the effects of the HMID on income inequality. The first is the maximally egalitarian scenario, in which the tax rate structure remains the same, and the additional revenue accruing to the federal government in the absence of an HMID is distributed tax-free among families beginning with those who report the least adjusted gross income to the Internal Revenue Service (IRS), in accord with Rawls's (1971) maximin principle. (The additional revenue collected because of the absence of the HMID is distributed to the poorest family, until its income is equal to that of the next poorest family; then the remaining revenue is distributed equally to these two poorest families until their incomes are equal to that

of the third poorest family; and so on, gradually raising the floor under the income distribution until the additional revenue is exhausted.) I call this scenario “Maximin.” The second is the maximally inegalitarian scenario, in which the tax rate structure remains the same, and the additional revenue accruing to the federal government in the absence of an HMID is distributed tax-free to the single family reporting the greatest adjusted gross income to the IRS. This is the opposite of the Maximin scenario; I call this scenario “Mad Max.”

THE DISTRIBUTIONAL EFFECTS OF THE HMID

How regressive is the HMID? That depends on how the tax revenue foregone as a result of this deduction would otherwise be spent. Table 2 illustrates this point with selected measures of the observed distribution of standardized net family income, compared to the simulated distribution of standardized net family income under each of the four counterfactual scenarios described in the previous section. The first panel reports the distribution of disposable income net of federal taxes and housing expenditures, to capture the indirect effect of the HMID on disposable income via its effects on the cost of housing. As might be expected, the HMID increases inequality of disposable income relative to the Maximin scenario. It is more egalitarian than a Mad Max income tax regime. The distribution of disposable income resulting from the HMID is barely distinguishable from the distribution that would result from the Treasury Hoard scenario contemplated in some of the conventional incidence literature. We can infer that most of the net effect of the HMID on disposable income comes from its effect on federal revenues—and specifically from the foregone possibilities for other tax rebates or social spending that it entails.

What if we assume that additional housing expenditure of HMID claimants to be a consumption expenditure that increases their welfare? Then the relevant comparisons are in the second panel of Table 2, which reports the distribution of standardized family income *gross* of housing expenditures. These comparisons illustrate the purely fiscal effects of the HMID, ignoring any indirect effects it might have on the family budget via its effects on the cost of housing. By this measure of income, the HMID is closer to the maximally inegalitarian end of the spectrum of possibilities. The observed Gini coefficient (0.386) is approximately the same as the Gini coefficient in the simulated scenario that maximizes inequality (0.388). It is theoretically possible to spend the equivalent tax revenues in a way that is even more regressive—the Mad Max scenario would do the trick—but only just barely.

The claim that the HMID exacerbates racial inequality receives unqualified support from this analysis. Table 3 illustrates comparisons of the median standardized net family income of white, black and "other race" families under each scenario. The HMID increases the observed ratio of median white family income to median black family income—the "W/B Ratio" of the table—relative to *every* other scenario considered here. The same is true for the ratio of median white family income to median income of families in the residual "other race" category. This conclusion is independent of whether or not disposable income is adjusted for the indirect effects of the HMID on the family budget via its effects on the cost of housing. It also does not matter how the foregone revenue would be spent. Median family income of white families would be less, and median family income of all other families would be greater or approximately equal, under every alternative counterfactual scenario without the HMID considered here. Regardless of who pays, the HMID appears to approximate a target-efficient racial subsidy for white families.

IMPLICATIONS FOR EGALITARIANS

The approach to incidence analysis taken here brackets several other questions of interest to scholars of the HMID. While the simulations presented here have shown that the HMID may increase housing expenditures relative to a no-HMID counterfactual, for example, they have set aside the question of how much of that increased spending accrues to mortgage lenders (who may charge higher interest rates) or builders (who may charge higher prices for homes). Any indirect or long-term effects of the HMID on savings and the distribution of wealth—and on inequalities of wealth based on access to more and less advantaged places—are also ignored in the approach taken here. When it comes to such long-run effects of the HMID, a comparative macrosociology of housing markets in Canada and the United Kingdom might prove particularly informative. Such research might affect our conclusions about how the HMID affects aggregate well-being. It is unlikely, however, to change the finding that the HMID exacerbates the categorical inequality associated with racial status in the U.S.

Should egalitarians sign on for repeal of the HMID? The answer depends on what would replace it. Consider the transition to a Mad Max scenario—i.e., repeal of the HMID, and its conversion into a massive revenue windfall for one rich family. This scenario illustrates the possibility, in principle, that HMID repeal could increase inequality. To be sure, even this scenario would equalize disposable family income between the median white and black families in the United States, but it would do so almost entirely by redistributing income among white families, further enriching the family at the top, while leveling the income of the median white family down toward the income of the median black family. Few egalitarians will find any

reason to admire a tax reform that trades away the HMID for other tax reductions that benefit only the richest.

That is not to imply that any egalitarian would find much to admire in the HMID. Although the findings of this analysis qualify some of the claims that have been made by sociologists about the inegalitarian effects of this social policy, they emphatically vindicate others. It may or may not be the "most regressive piece of social policy in America," e.g., but it appears to be among the most regressive ways to rebate this much tax money, relative to the full range of sociologically tenable counterfactuals. It is also a particularly dramatic example of racialized social policy—a policy that is facially neutral with respect to race, but racially biased in its effects (Oliver and Shapiro 2006; Moran and Whitford 1996). The HMID exacerbates inequality between black and white families. That may be the most definite thing that can be said about its incidence.

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Table 1. Coefficients from hierarchical linear regression models of deductible mortgage interest, with random intercepts and coefficients at the level of the state

	White	Black	Other
MSR	260.1 (235.5)	-6.3 (217.7)	900 (389.4)*
Income	506.2 (443.8)	239.5 (438.9)	-1266.3 (737.4)
MSR * Income	-22.2 (20.5)	-0.5 (20.3)	-87.0 (35.6)*
Age	9.3 (3.9)*	34.1 (9.5)**	11.7 (10.8)
Female	-534.2 (169.3)**	-371.8 (282.4)	-1209.1 (415.4)**
Education	241.6 (27.8)**	403.6 (66.2)**	218.2 (53.2)**
Family size	578.4 (51.7)**	80.9 (93.7)	181.5 (113.7)
Constant α	-8395.3 (5103.6)	-8196.1 (4780.9)	10972.2 (8201.5)
s.d. of $\upsilon_{0,j}$	0 (0)	0 (0)	0 (0)
s.d. of $\upsilon_{1,j}$	44 (29.3)	10.7 (36.6)	56.4 (25.5)*
N	5,075	3,258	695

Table 2
Inequality of standardized family income, with and without the HMID:
Simulations using the 2011 wave of the Panel Study of Income Dynamics (PSID)

Panel A. Family income net of income and payroll taxes and housing expense

	10th percentile	Median	90th percentile	90/10 ratio	50/10 ratio	Gini coefficient	Relative change in Gini coefficient
Scenario							
Maximin	11,191	29,395	65,179	5.82	2.63	0.376	-4%
Treasury hoard	9,607	29,242	65,179	6.78	3.04	0.389	0%
Lower rate	9,510	29,345	66,159	6.96	3.09	0.393	1%
Mad Max	9,607	29,371	66,056	6.88	3.06	0.398	2%
Observed, with HMID	**9,838**	**29,617**	**66,745**	**6.78**	**3.01**	**0.39**	**0%**

Panel B. Family income net of income and payroll taxes, but gross of housing expense

	10th percentile	Median	90th percentile	90/10 ratio	50/10 ratio	Gini coefficient	Relative change in Gini coefficient
Scenario							
Maximin	12,247	31,548	68,924	5.63	2.58	0.368	**-5%**
Treasury hoard	10,562	31,427	68,924	6.53	2.98	0.381	**-1%**
Lower rate	10,517	31,574	69,922	6.65	3.00	0.384	**-1%**
Mad Max	10,562	31,556	70,106	6.64	2.99	0.388	**1%**
Observed, with HMID	**10,562**	**31,614**	**71,407**	**6.76**	**2.99**	**0.386**	**0%**

Table 3
Inequality of net family income by race, with and without the HMID:
Simulations using the 2011 wave of the Panel Study of Income Dynamics (PSID)

Panel A. Family income net of income and payroll taxes and housing expense

Scenario	White	Black	Other	W/B Ratio	W/O Ratio	O/B Ratio
Maximin	31,411	20,428	24,805	1.54	1.27	1.21
Treasury hoard	31,358	20,262	24,805	1.55	1.26	1.22
Lower rate	31,498	20,320	24,879	1.55	1.26	1.23
Mad Max	31,445	20,306	24,805	1.55	1.27	1.22
Observed, with HMID	**32,092**	**20,374**	**24,054**	**1.58**	**1.33**	**1.18**

Panel B. Family income net of income and payroll taxes, but gross of housing expense

Scenario	White	Black	Other	W/B Ratio	W/O Ratio	O/B Ratio
Maximin	34,016	21,987	25,830	1.55	1.32	1.17
Treasury hoard	33,972	21,589	25,829	1.57	1.32	1.20
Lower rate	34,116	21,593	25,857	1.58	1.32	1.20
Mad Max	34,046	21,597	25,830	1.58	1.32	1.20
Observed, with HMID	**34,165**	**21,597**	**25,830**	1.58	1.32	1.20