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Nonprofit Research Project

April 2014

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MPRA Paper No. 56940, posted 29 Jun 2014 05:50 UTC

Comparing Itemized Tax Deductions across States: A Simple Decomposition Applied to Mortgage Interest Deductions

Quentin Wodon¹

April 2014

[Paper presented at the 20th Federal Forecasters Consortium Conference]

Abstract

This paper proposes a simple multiplicative decomposition that can help in comparing the levels of mortgage interest tax deductions observed in different states or areas, and some of the reasons leading to different levels of deductions. The key parameters in the decomposition are a state's population, its number of tax filers, the share of filers claiming a specific deduction, the average taxes paid by filers, and the average deduction among claimants. The idea is that such simple decompositions can be useful for states and local authorities to better understand some of the reasons why they may have comparatively high or low deductions in their state, and whether the levels of deductions observed are as one might have expected given their overall tax receipts.

Keywords: Itemized tax deductions, mortgage interest, states, District of Columbia.

¹ Wodon is with the World Bank and the Nonprofit Research Project. This paper reflects the analysis and opinions of the author only, and need not represent the views of the organizations he is affiliated with. Comments and suggestions from Fitzroy Lee, Farhad Niami, Marvin Ward and staff from the Office of Revenue Analysis of the District of Columbia are gratefully acknowledged.

1. Introduction

About a third of US taxpayers choose to itemize their deductions rather than claim the standard deduction. Tax payers with a higher adjusted gross income are much more likely to itemize and among itemized deductions, the deduction for mortgage interest is by far the largest, expected to amount to 6.5 percent (\$71.1 billion) of annual federal tax expenditures in fiscal year 2014 (Joint Committee on Taxation, 2013)². This compares to 4.7 percent (\$51.8 billion) of federal tax expenditure for the local and state tax deduction, 3.9 percent (\$43.6 million) for the charitable deduction, and 2.6 percent for the real estate taxes deduction (\$28.6 million). The mortgage interest deduction is at the federal level the fourth largest overall tax expenditure after the exclusion of employer contributions for health care, health insurance premiums, and long-term care insurance premiums. Even after accounting for incentive effects whereby households would reduce their mortgage debt in the absence of the deduction, the tax revenues that would be generated by a repeal of the deduction would be very large (Poterba and Sinai, 2011).

Itemized deductions have substantial costs in terms of foregone tax revenues not only at the federal level, but also at the state and local levels. In the case of the District of Columbia which is discussed in more details as a case study in this paper, Juffras (2013) distinguishes between three types of tax expenditures: those mandated by local law, those provided to other governments by virtue of the District's unique role as the country's capital city (this includes for example tax breaks to embassies, government agencies, and multilateral organizations), and those related to conformity of the tax code with federal provisions. In that last category, the home mortgage interest deduction was in fiscal year 2012 the third largest tax expenditure (\$87.0 million) after employer contributions for medical insurance and medical care (\$109.4 million) and employer pension contributions and earnings plans (\$90.7 million). While tax expenditures for mortgage interest deductions of \$87.0 million may seem low in comparison to the total of \$2.9 billion in tax expenditures for the District, it is still a substantial investment.

The mortgage interest deduction originated in 1913 from a general provision allowing a deduction for all interest in individual tax returns, but as noted by Ventry (2011) it is not clear that Congress meant the deduction to offset part of the cost of home ownership. Researchers as well as critiques of the deduction have pointed out repeatedly that most of its benefits go to the upper segments of the distribution of income who might not need them (e.g., Poterba, 1992; Follain, Ling, and McGill, 1993; for more recent estimates, see among others Cole, Gee, and Turner, 2011; Hanson, 2012). The regressivity of the mortgage interest deduction results in part from the progressivity of marginal income tax rates which generates larger breaks for higher income households with larger mortgages. But it also results from the possibility of opting for the standard deduction among low and middle class families for whom the mortgage deduction may not bring additional benefits because the amount of interest they pay is too low.

Given its size and its regressivity, it is not surprising that the mortgage interest deduction has been at the center of recent discussions of tax reforms. In 2005, President Bush's Advisory

² In the year for which data are used in this paper, the Joint Committee on Taxation (JCT) estimated the tax relief provided by the mortgage interest deduction to be \$91 billion. The concept of tax expenditure was initially introduced in 1967 by Assistant Treasury Secretary Stanley Surrey and later defined more precisely by the Congressional Budget Act of 1974 as follows: "Revenue losses attributable to provisions of the ... tax laws which allow a special exclusion, exemption, or deduction from gross income or which provide a special credit, a preferential rate of tax, or a deferral of tax liability" (quote reproduced from Juffras, 2013).

Panel on Tax Reform recommended to limit the mortgage interest deduction to 15 percent of the interest paid, while Domenici and Rivlin (2010) proposed to cap the mortgage interest deduction at \$25,000. Various assessments (many on-going) have been undertaken to estimate the costs and benefits for various parties of these and other proposals (e.g., Cole et al., 2011; Poterba and Sinai, 2011; Gravelle and Lowry, 2013; Pew Charitable Trusts, 2013). Regional politics play a role in these policy discussions not only as matters of principle, but also because not all states stand to gain or lose equally. Apart from being concentrated in upper income brackets, the benefits from the mortgage interest deduction also tend to be higher in ‘blue’ states (Sullivan, 2011), including California and major cities of the Mid-Atlantic region, from Washington, DC, to Boston (e.g., Gyourko and Sinai, 2003, 2004). Spatial differences in benefits from the deduction are large as demonstrated in a recent report by the Pew Charitable Trusts (2013), and they relate to differences in demography and income levels, as well as to differences in home prices and state and local income and property taxes (Brady et al., 2003).

This paper is also about geographic disparities in the mortgage interest deduction. Its objective is to provide a simple multiplicative decomposition that helps in comparing the levels of mortgage interest tax deductions observed in different states or areas, and some of the reasons leading to different levels of deductions. The idea is that such simple decompositions can be useful for states and other local authorities to better understand some of the reasons why they may have comparatively high or low deductions in their state, and whether these levels of deductions are as one might have expected given their overall tax receipts. Apart from the decomposition, simple graphical visualizations are used to provide a rough assessment as to whether the parameter values for the various factors contributing to observed levels of mortgage interest tax deduction appear to be as one might have expected in various states. On purpose, the analysis is carried in such a way that it can be easily replicated for many other itemized deductions apart from the mortgage interest deduction considered for the illustration.

The structure of the paper is as follows. Section 2 presents the decomposition. Section 3 provides the results of the decomposition as applied to the levels of mortgage interest deductions per person observed by state. Those levels are decomposed into a number of factors contributing to them – namely a state’s share of the population that files tax returns, the share of filers who claim the mortgage interest deduction, the average taxes paid by filers, and the average mortgage interest deduction among claimants. Section 4 visualizes differences between states in the parameters of the decomposition through simple graphs that help to assess whether some states are outliers in terms of the decomposition’s parameter values. The discussion focuses on the case of the District of Columbia for illustrative purposes. A brief conclusion follows.

2. Decomposition

Define the total amount of mortgage interest deductions in a state by TD , which stands for total deductions. If P is the population of the state, F is the number of income tax filers, D is the number of filers who claim a mortgage interest deduction, AT is the average federal tax paid by filers, and $AD|D$ is the average mortgage interest deduction claimed among those filers who claim a mortgage interest deduction, the following accounting identity holds:

$$TD = \left(P \times \frac{F}{P} \times \frac{D}{F} \right) \times \left(AT \times \frac{AD|D}{AT} \right) \quad (1)$$

In equation (1), the first term in bracket is simply the number of individuals who claim the mortgage tax deduction, and the second term is the average deduction claimed among claimants. The use of the conditional symbol “|” simply underscores the fact that for the last term in the decomposition, the average mortgage interest deduction is estimated among filers with a mortgage interest deduction and not among all filers. For comparisons between states, given that there are large differences in population between the various states, it makes more sense to compare mortgage interest deductions per capita, which are denoted by PCD, with:

$$PCD = \frac{TD}{P} = \left(\frac{F}{P} \times \frac{D}{F} \right) \times \left(AT \times \frac{AD|D}{AT} \right) \quad (2)$$

Since the decomposition is multiplicative, for small enough changes, the proportional change over time in deductions between two states i and j or between any state i and a reference state or the United States as a whole (or alternatively all other states apart from the state being considered) can be approximated in additive terms. Considering the case of comparisons between an individual state i and the United States as a whole, one has:

$$\begin{aligned} (PCD_i - PCD_{US}) / PCD_{US} &\approx \left(\ln \frac{F_i}{P_i} - \ln \frac{F_{US}}{P_{US}} \right) + \left(\ln \frac{D_i}{F_i} - \ln \frac{D_{US}}{F_{US}} \right) \\ &+ \left(\ln AT_i - \ln AT_{US} \right) + \left(\ln \frac{AD|D_i}{AT_i} - \ln \frac{AD|D_{US}}{AT_{US}} \right) \end{aligned} \quad (3)$$

The potential usefulness of the decomposition is that it highlights four different factors that may affect differences deductions per person between states: differences between the shares of the population that file, differences in the shares of filers claiming a mortgage interest tax deduction, differences in the average taxes paid by filers, and differences in the average deductions of filers among those who deduct as a proportion of the average taxes paid by filers. Note that while in this paper we consider average taxes paid AT as a parameter in the decomposition, other normalizing factors could be used as well, such as average income.

Although this is not done in this paper, the same decomposition could be used to decompose changes over time in mortgage interest deductions within any given state. In that case it could make more sense to look at total deductions for a state as opposed to deductions per capita, and this would yield a fifth term in equation (2) that would account for changes in the population of the state over time. The decomposition can also be used to look at the sources of difference between income groups in deduction levels, although this is also not done here to keep the paper short and focused.

3. Results

The decomposition was estimated using data on itemized tax deductions for mortgage interest by state for the year 2010. The population data is from the 2010 census. The estimates of the number of tax filers, itemizers, the amount of taxes paid, and the deductions claimed for

mortgage interest are obtained through simple computational manipulations from the data provided in the statistical appendix of the report compiled by Pew Charitable Trusts (2013).

Table 1 presents the key results. The first column provides the amount of mortgage interest deductions by state in US\$ millions. The second column provides the deductions per capita. The third column gives the share of the population that files a tax return, while the fourth column gives the share of filers who itemize the mortgage interest deduction. The next column provides the average taxes paid by filer in the state, and the following column gives the ratio of the average mortgage interest deduction claimed (among claimants) divided by the average taxes paid by filers. All these variables are used in equations (1) and (2). Finally, the last sets of columns give the proportional differences between a state and the average for the United States in the key variables, which corresponds to differences in logarithms as expressed in equation (3).

There are large differences in the variables used for the decomposition between states. The average mortgage interest deduction claimed ranges from \$516 in West Virginia to \$2,211 in Maryland. The number of filers as a share of a state's population ranges from 41.1 percent in Utah to 53.7 percent in the District of Columbia, while the share of tax filers deducting mortgage interest ranges from only 15.0 percent in West Virginia and North Dakota to 36.8 percent in Maryland. The average tax paid per filer ranges from \$1,192 in North Dakota to \$4,580 in Maryland, and the ratio of the average mortgage interest deduction among claimants divided by the average taxes paid among filers ranges from 2.72 in Maryland to 6.67 in West Virginia. It is clear from these few cases that there is an inverse relationship between some of the parameters. For example, states that have lower incomes and thereby lower amounts of taxes paid per person tend to have lower shares of filers who itemize, and a higher average ratio of the mortgage deduction among claimants to the average taxes paid by filers (this is because in poorer states deductions tend to be concentrated even more than elsewhere in the upper income groups).

In order to see how the decomposition (2) and the resulting additive decomposition in growth rates (3) work, consider the last state in the table, Wyoming. The total mortgage interest deductions for the state were at \$581 million in 2010, and the average deduction per person (inhabitant) was \$1,031. This compares to \$1266 for the United States, so that the proportional difference between the two values is -18.6 percent (that is, $-0.186 = (1,031 - 1266) / 1266$). This is approximated in the "Comparisons" part of table 1 by the difference in logarithms indicated in the column "TD/P", which takes a value of -0.20. That difference in logarithms is itself the sum of four differences, as expressed in equation (3): the difference in the share of the population that files (value of 0.05), the difference in the share of filers who itemize (-0.23), the difference in the average taxes paid by filers (-0.26), and the difference in the average deduction among filers who itemize divided by the average tax paid by filers (0.23). In other words, while Wyoming has a lower share of filers who itemize the mortgage deduction, this is compensated by a larger average deduction among claimants as a share of the average taxes paid among filers. If one controls for these two offsetting factors in the decomposition, the fact that average taxes paid in Wyoming are substantially lower than in the United States accounts for much of the difference in total mortgage deductions per person between the state and the national average.

The fact that any given state may have a high or low level of mortgage interest deductions per person in comparison to the average for the United States does not however mean that the state is necessarily an outlier given the state's characteristics. In order to explain why this is the case, apart from providing the decomposition, it is also useful to visualize its various parameters graphically. This is done in Section 4 to provide additional intuition – in the form of a basic visual diagnostic – as to whether some states are outliers for specific parameter values.

Table 1: Decomposition of Mortgage Interest Tax Deductions by State, 2010

State	Levels						Comparisons (differences in logs)				
	TD (\$ million)	TD/P (\$)	F/P (%)	D/F (%)	AT (\$)	AD D/AT	TD/P (%)	F/P (%)	D/F (%)	AT (%)	AD D/AT (%)
Alabama	4052	848	44.0	22.4	1927	4.47	-0.40	-0.06	-0.13	-0.34	0.13
Alaska	903	1,271	52.6	21.7	2415	4.60	0.00	0.12	-0.16	-0.12	0.16
Arizona	8602	1,359	43.0	28.0	3164	3.57	0.07	-0.08	0.10	0.15	-0.10
Arkansas	1783	611	42.0	18.8	1456	5.33	-0.73	-0.11	-0.31	-0.62	0.31
California	71918	1,930	44.8	27.4	4311	3.65	0.42	-0.04	0.07	0.46	-0.07
Colorado	9124	1,814	47.1	32.8	3850	3.05	0.36	0.01	0.25	0.35	-0.25
Connecticut	6497	1,818	48.3	34.3	3761	2.92	0.36	0.04	0.30	0.33	-0.30
Delaware	1417	1,578	47.6	30.6	3312	3.26	0.22	0.02	0.18	0.20	-0.18
District of Columbia	1222	2,030	53.7	25.3	3784	3.96	0.47	0.14	-0.01	0.33	0.01
Florida	20893	1,111	51.2	19.4	2169	5.15	-0.13	0.09	-0.27	-0.22	0.27
Georgia	11981	1,237	47.4	27.2	2610	3.67	-0.02	0.02	0.07	-0.04	-0.07
Hawaii	2281	1,677	48.0	23.3	3491	4.28	0.28	0.03	-0.09	0.25	0.09
Idaho	1719	1,096	42.3	27.4	2591	3.65	-0.14	-0.10	0.07	-0.05	-0.07
Illinois	16570	1,291	47.1	27.5	2742	3.64	0.02	0.01	0.08	0.01	-0.08
Indiana	5270	813	46.0	22.8	1767	4.39	-0.44	-0.01	-0.11	-0.43	0.11
Iowa	2453	805	46.0	24.4	1752	4.10	-0.45	-0.01	-0.04	-0.44	0.04
Kansas	2470	866	45.8	24.1	1890	4.15	-0.38	-0.02	-0.06	-0.36	0.06
Kentucky	3353	773	42.8	23.9	1806	4.18	-0.49	-0.09	-0.06	-0.41	0.06
Louisiana	3186	703	43.9	17.8	1601	5.63	-0.59	-0.06	-0.36	-0.53	0.36
Maine	1331	1,002	47.1	25.7	2129	3.90	-0.23	0.01	0.01	-0.24	-0.01
Maryland	12766	2,211	48.3	36.8	4580	2.72	0.56	0.03	0.37	0.52	-0.37
Massachusetts	11437	1,747	48.9	31.4	3571	3.18	0.32	0.05	0.21	0.27	-0.21
Michigan	9978	1,010	46.6	26.0	2166	3.84	-0.23	0.00	0.02	-0.23	-0.02
Minnesota	8184	1,543	48.3	32.7	3195	3.05	0.20	0.03	0.25	0.16	-0.25
Mississippi	1686	568	43.3	17.2	1314	5.82	-0.80	-0.08	-0.40	-0.73	0.40
Missouri	5577	931	44.9	24.9	2074	4.02	-0.31	-0.04	-0.02	-0.27	0.02
Montana	999	1,010	48.0	23.4	2104	4.26	-0.23	0.03	-0.08	-0.25	0.08

Source: Author's estimation.

Table 1 (Continued): Decomposition of Mortgage Interest Tax Deductions by State, 2010

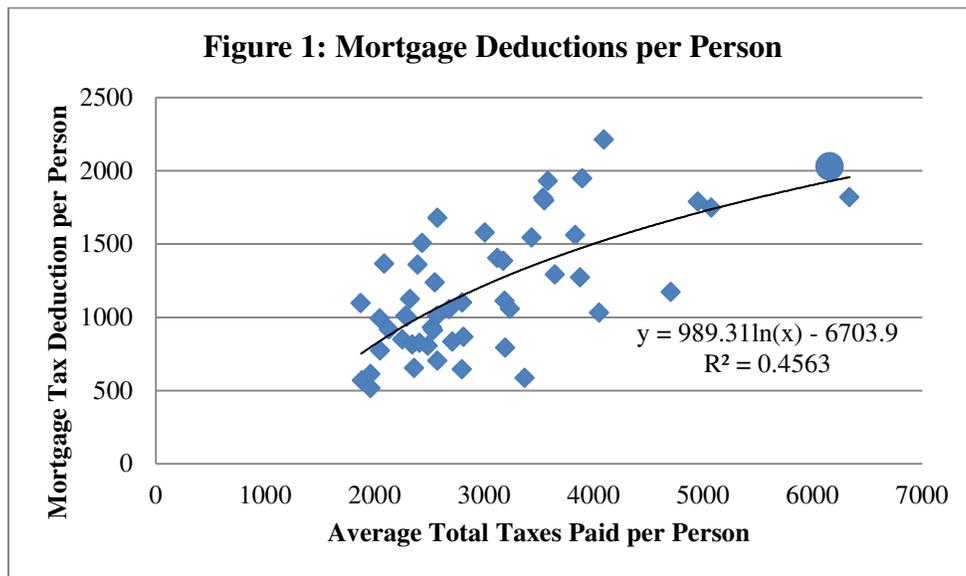
State	Levels						Comparisons (differences in logs)				
	TD (\$ million)	TD/P (\$)	F/P (%)	D/F (%)	AT (\$)	AD D/AT	TD/P (%)	F/P (%)	D/F (%)	AT (%)	AD D/AT (%)
Nebraska	1520	832	46.8	23.8	1780	4.20	-0.42	0.00	-0.07	-0.42	0.07
Nevada	3792	1,404	46.8	24.6	3001	4.06	0.10	0.00	-0.04	0.10	0.04
New Hampshire	2055	1,561	50.4	30.3	3095	3.30	0.21	0.08	0.17	0.13	-0.17
New Jersey	15717	1,788	48.7	32.1	3667	3.11	0.35	0.04	0.23	0.30	-0.23
New Mexico	1887	916	44.3	21.0	2067	4.77	-0.32	-0.05	-0.20	-0.27	0.20
New York	22724	1,173	47.8	23.0	2451	4.34	-0.08	0.03	-0.10	-0.10	0.10
North Carolina	10714	1,124	44.1	28.2	2549	3.55	-0.12	-0.06	0.10	-0.06	-0.10
North Dakota	394	586	49.1	15.0	1192	6.64	-0.77	0.05	-0.53	-0.82	0.53
Ohio	10511	911	47.1	25.6	1933	3.91	-0.33	0.01	0.00	-0.34	0.00
Oklahoma	2448	653	42.4	20.1	1539	4.97	-0.66	-0.10	-0.24	-0.57	0.24
Oregon	5771	1,506	45.5	31.4	3311	3.18	0.17	-0.02	0.21	0.20	-0.21
Pennsylvania	13415	1,056	48.3	24.8	2188	4.04	-0.18	0.03	-0.03	-0.21	0.03
Rhode Island	1456	1,383	48.4	29.7	2860	3.37	0.09	0.04	0.15	0.05	-0.15
South Carolina	4587	992	44.4	24.8	2236	4.04	-0.24	-0.05	-0.03	-0.19	0.03
South Dakota	525	645	48.4	15.5	1334	6.43	-0.67	0.04	-0.49	-0.71	0.49
Tennessee	5228	824	44.9	19.5	1837	5.13	-0.43	-0.04	-0.27	-0.39	0.27
Texas	19885	791	43.7	19.9	1808	5.04	-0.47	-0.06	-0.25	-0.41	0.25
Utah	3771	1,365	41.1	32.6	3324	3.07	0.08	-0.13	0.24	0.20	-0.24
Vermont	660	1,054	50.8	24.4	2075	4.10	-0.18	0.09	-0.04	-0.27	0.04
Virginia	15585	1,948	46.6	33.2	4179	3.01	0.43	0.00	0.26	0.43	-0.26
Washington	12078	1,796	47.1	30.2	3811	3.31	0.35	0.01	0.17	0.34	-0.17
West Virginia	956	516	42.3	15.0	1220	6.67	-0.90	-0.10	-0.53	-0.80	0.53
Wisconsin	6260	1,101	48.2	29.3	2283	3.41	-0.14	0.03	0.14	-0.17	-0.14
Wyoming	581	1,031	49.0	20.2	2102	4.94	-0.20	0.05	-0.23	-0.26	0.23
U.S.	390728	1,266	46.6	25.5	2713	3.92	-	-	-	-	-

Source: Author's estimation.

4. Visualization of Differences between States

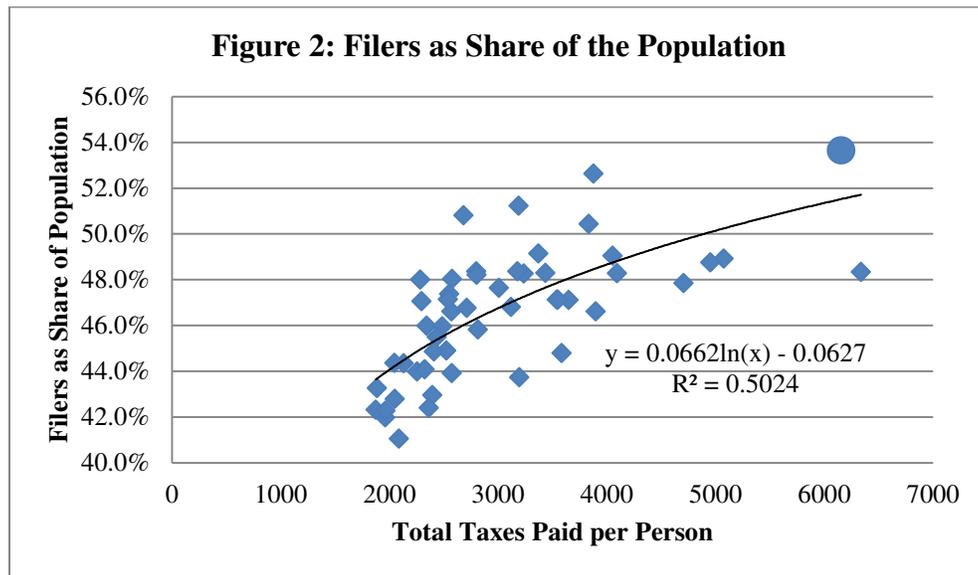
A simple way to visualize the results from the decomposition is to look at scatter plots of the parameter values obtained for various states as a function of a separate variable which is likely to be correlated with these parameter values. This is done in Figures 1 to 5 with the variable used for the horizontal axis being the average amount of taxes paid per inhabitant in a state (this is interesting for its own sake given a focus on taxes, but it is also to some extent a proxy for the average level of income in the state). Each state is represented by a dot on the Figures, but the District of Columbia, which will be discussed in more details for the illustration, is represented by a larger dot. The choice of the District of Columbia for the illustration stems from the fact that it appears to be an outlier when simply looking at the values in table 1 since it has the second highest mortgage interest deduction per person after Maryland. But on closer inspection, it is less of an outlier than one might think. To show this through simple visualizations, each scatter plot includes a logarithmic line (or curve) of best fit, which gives an indication of where a state is expected to be for a parameter value given its average level of taxes paid per person. There is of course quite a bit of variability across states, with the R-squared values for the curves of best fit ranging from 0.12 in Figure 5 to 0.50 in Figure 2. But the results still provide some valuable intuition for discussing the parameters obtained for any given state.

What story do the Figures tell in the case of the District of Columbia? Figure 1 suggests visually that the District has both one of the highest levels of average taxes paid per person and one of the highest mortgage deductions per person nationally. Only one state has a higher level of taxes paid per person (Connecticut), and only one state has a higher level of mortgage deductions per person (Maryland, as already mentioned). At the same time, the District is about at the level of mortgage deductions that would be expected for a state with its level of taxes paid per person – this is illustrated by the fact that the District is near the line of best fit in the Figure.



Source: Author based on data in table 1.

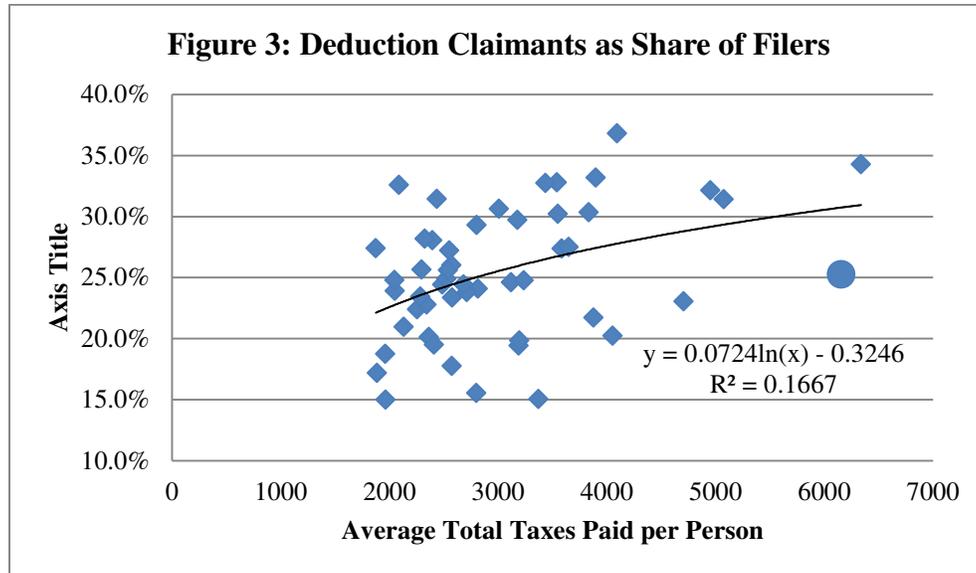
The first factor or parameter in the decomposition of the average mortgage deduction per person is the share of the population that files a tax return. As shown in Figure 2, the District has the highest share of filers among all states, and this parameter value for the District appears to be an outlier given its level of average taxes paid per person. A reason for this may be the fact that the population of the District now tends to be relatively young, in part because after many years of population decline, the District has reversed its fortunes over the last decade, in part with a new influx of young and single professionals coming to work in the capital city. This naturally leads to a larger share of the population not only earning incomes that warrant tax returns, but also a larger number of tax returns being filed by a relatively young population (for established families, the number of tax returns being filed might be smaller due to spouses filing jointly).



Source: Author based on data in table 1.

Next, Figure 3 visualizes the position of the District in terms of the share of filers who claim the mortgage deduction. For this parameter, the District seems again to be an outlier, but this time with a lower than expected parameter value, which may seem surprising given that as noted by Rivers (2013), the level of the standard deduction is low in the District, which should lead to more tax filers itemizing deductions. The low level of itemization for mortgage interest in the District is likely related to the peculiar nature of the District as city-state, that is an urban center with a higher concentration of rental properties as compared to properties owned by their occupant. The average price of apartments and single family homes is also relatively high in the District, which discourages ownership especially for the substantial part of the workforce that is transitory, and this applies especially for the younger and growing segment of the workforce living in the city. In effect, the higher than expected share of filers in the population (with expectations based on the average level of taxes paid per person), and the lower than expected share of filers claiming the mortgage deduction are related at least in part to similar circumstances and they tend to cancel each other. The district has implemented various policies in order to try to boost ownership rates, including some of the lowest average property taxes in

the region³ as well as a Homestead Deduction, but the impact of such policies cannot offset the larger impact of more fundamental demographic and housing market factors leading the mortgage deduction rate among tax filers in the District to be relatively low.

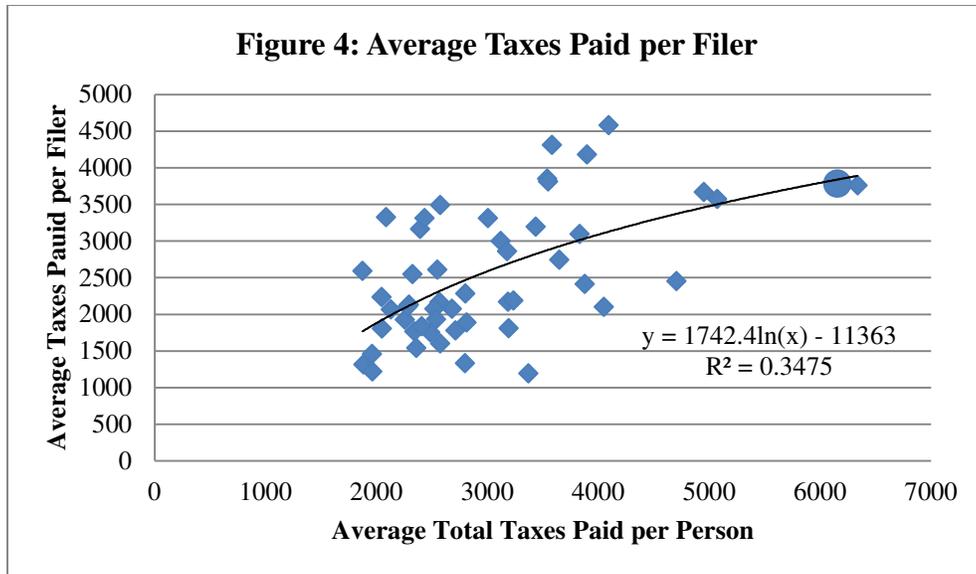


Source: Author based on data in table 1.

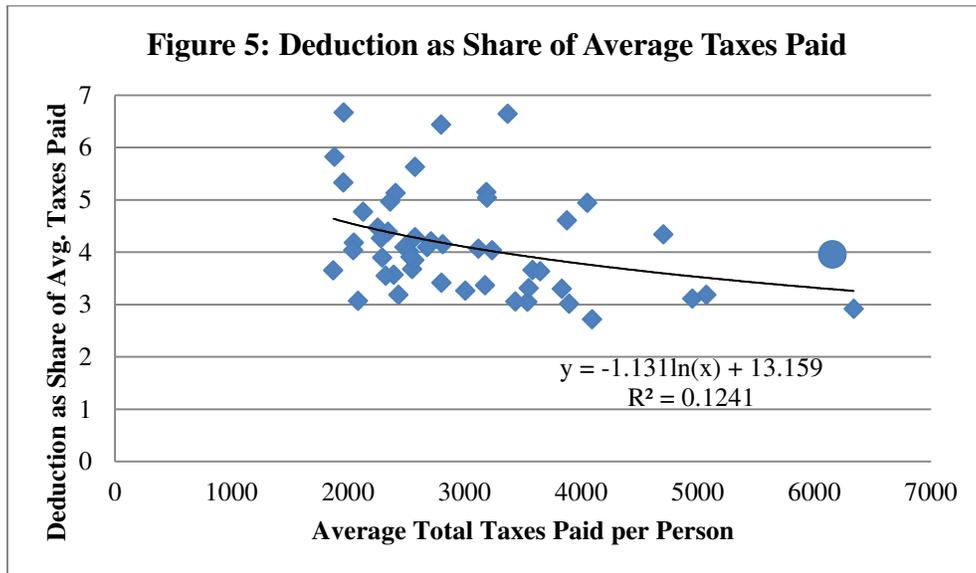
In Figure 4, which represents the third parameter in the decomposition (the average taxes paid by filers) the District is again located essentially on the line of best fit through the scatter plot. By contrast, in Figure 5 the District seems to have a higher than expected ratio of the average mortgage interest deduction among claimants divided by the average taxes paid by filers. Given that ownership rates tend to be lower in a city environment like that of the District, and that the prices of apartments and homes is relatively high by national standards as mentioned earlier, ownership tends to be concentrated among residents with high income levels. This also implies that among claimants, the mortgage deductions are substantial (since home prices are high as well), leading to a higher than expected level, given the District's average taxes per person, of the ratio of the deductions (among claimants) as a share of the taxes paid by filers.

Overall then, the combination of the various factors is such that the level of the mortgage deductions per person observed in the District, while very high in comparison to the United States as a whole (see table 1), is about at the level expected given its average taxes per person.

³ As noted by the DC Fiscal Institute (Kerstetter, 2009), property tax rates are low in the District in comparison to neighboring jurisdictions. In 2008 for example, homeowners with a dwelling valued at \$500,000 paid an average tax of \$2,725 in the District, versus \$3,504 in Montgomery County, \$4,752 in Prince George County, and over \$4,400 in Arlington and Fairfax counties. This is in part because the homeowner property tax rate in the District is lower than in most neighboring counties, with the Homestead Deduction available in the District playing a role as well.



Source: Author based on data in table 1.



Source: Author based on data in table 1.

5. Conclusion

The objective of this paper was to suggest a simple multiplicative decomposition that could help in comparing in a stylized way the levels of itemized tax deductions observed in different states or geographic areas. The decomposition highlights a number of key variables affecting the level of deductions, such as a state's population, its number of tax filers, the share of filers claiming a specific deduction, the average taxes paid by filers, and the average deduction among claimants. Using federal tax as well as population data from 2010, the decomposition was applied to the mortgage interest tax deduction, one of the largest tax expenditure at the federal level in the United States.

The decomposition is purely descriptive and based on an accounting identity. Neither the decomposition, nor its graphical visualization as provided in this paper pretend to imply causality between variables. But it is hoped that using such simple decompositions as a preliminary basic diagnostic tool can be useful for states and local authorities to investigate some of the reasons why they may have comparatively high or low deductions, as well as whether the levels of various deductions are as one might have expected given their overall tax receipts.

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