Geographic Variation in Schedule H Filing Rates: Why Should Location Influence the Decision To Report "Nanny" Taxes?

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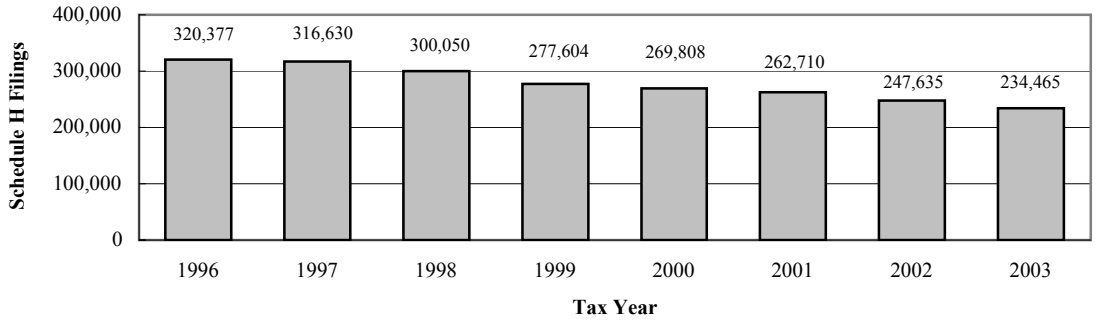
The Schedule H is the Internal Revenue Service (IRS) form used to report Social Security and Medicare taxes on wages of $1,400 or more paid to household employees. The IRS defines a household employee as someone whose work details are controlled by the employer. A Schedule H is not required to be filed when household work is performed by an agency employee or by a self-employed individual. In the former case, the agency is responsible for work-related details such as who does the work and how it is done. Similarly, a self-employed individual is someone who controls his or her work schedule, provides their own tools or equipment, and offers services to the general public.

The Schedule H has been referred to as the "nanny tax" form since the early 1990s when several of President Clinton's political appointees were discovered to have either hired undocumented workers or failed to pay Schedule H employment taxes on former housekeepers. More recently, President George W. Bush's initial Cabinet head selections for the departments of Homeland Security and Labor were scuttled, in part, for "nanny tax" violations.

These high-profile cases reinforce the commonly-held belief that people perceive little risk in not paying household employment taxes (barring the possibility of being asked to serve as a Cabinet secretary). This perception is supported by industry experts with first-hand knowledge of compensation practices in this area. Pat Cascio, Board President of the International Nanny Association, recently stated, "A high percentage of nannies are not paid legally. Some people don't want the extra work or hassle of dealing with taxes. They'd rather pay their nannies out-of-pocket."[1] If such attitudes are common among people who can afford to hire full-time nannies, it is probably true also for many middle and upper-middle income families who would like to hire someone to provide part-time care for an elderly parent or younger children.

The *Wall Street Journal* recently pointed to the large drop in the number of Schedule H filings (Figure 1) as an indicator of a growing evasion problem.[2] While this is one possibility, there are other possible explanations for this phenomenon. For example, a decline in Schedule H filings would result if more work in the household sector is being done either by the self-employed or employees of service firms. As noted above, this could relieve the householder of the legal requirement for filing a Schedule H. However, data from the Bureau of Labor Statistics show that between 1999 and 2004 the number of child care workers (i.e., individuals who are not self-employed) grew from 377,110 to 513,110 and the number of personal and home care aides rose from 300,500 to 532,490.[3] These figures likely include at least some workers who are non-agency employees and sug-

Figure 1.--Number of Schedule H Filings: TY 1996-2003



Source: Individual Return Transaction File, various years

gest that employment growth in these occupations has been strong even as Schedule H filings have declined.

A second possible explanation for the decline in Schedule H filings not related to evasion could be a fall in demand for the kinds of services offered by household workers. But, the recent strong employment growth for child-care and home health-care aides runs counter to this view. Also, as we shall see in the next section, Schedule H filing is strongly correlated with high-income households. Between TY 1996 and 2003, the number of taxpayers reporting adjusted gross income (AGI) of $500,000 or more grew from 333,896 to 559,068, an increase of 67 percent. In addition to the jump in number of high-income earners, the Census Bureau reports that the number of family households grew from 69.3 million in 1995 to 75.6 million in 2003. Presumably, at least some of these new families would increase the demand for nannies and other household services.

A third possible explanation for the decline in Schedule H filings is the "outsourcing" of jobs to non-U.S. citizens. One example of this is the growing popularity of au pairs as an alternative to nannies for in-home child care. Au pairs are foreign citizens between 18 and 26 years old and must live with their host U.S. family for a period of not more than two years. The U.S. State Department, which issues J-1 visas to au pairs, reports the number of such visas increased from 11,171 in 2003 to 15,297 in 2004.[4] However, even if the entire increase in au pair visas displaced an equivalent number of nannies, this could only account for one-third of the drop in Schedule H filings between these two years (see Figure 1).

The use of undocumented workers represents another avenue to outsource jobs in the household sector. When an undocumented worker is hired both the employer and employee have an incentive not to report employment taxes. By evading taxes, employers can pay higher cash wages and workers can stay "invisible" to both tax and immigration authorities. Reports of the growing numbers of undocumented household employees recently prompted even the *Wall Street Journal* to declare, "Nannies are among the most exploited workers in the country."[5] As evidence of the growing practice of hiring undocumented workers we need look no further than the aforementioned high profile political appointee cases, all of whom paid undocumented aliens to work in their homes.

However, it is unclear if the mere presence of a large supply of willing undocumented workers is contributing to the falling trend of Schedule H filing. For example, if the cost of hiring a citizen or documented non-citizen to perform household tasks is prohibitive, households may forgo hiring domestic help altogether and do the work themselves or with other family members. By lowering the cost of labor, a large undocumented workforce may induce demand for household help that wouldn't otherwise exist. In other words, if all undocumented household workers were somehow removed from the workforce, this would not necessarily produce an increase in Schedule H filing.

The purpose of this paper is to identify factors associated with Schedule H filing and to determine if these factors can account for the recent decline in filing activity. In the next section we examine tax return and other data to identify socioeconomic characteristics of Schedule H filers. The third section presents our analysis of the data using a probit specification of Schedule H filing rates for TY 2003 by 3-digit zip codes and an OLS model of the change in state filing rates between TY 1996 and 2003. The fourth section discusses the implications of our empirical findings and offers several hypotheses to account for the geographic variation in filing behavior that does not appear to be explained by other factors. Finally, we summarize our main findings and briefly outline our plans for future research on this topic.

▶ Schedule H Filer Characteristics

We obtained data for this study from individual tax returns filed between 1997 and 2004 (corresponding to TYs 1996 to 2003). Table 1 displays selected characteristics of TY 2003 taxpayers by Schedule H filing status. The characteristics were chosen based on a priori judgment regarding the types of taxpayers who employ household labor and the kinds of services provided.

Table 1 shows a majority (54 percent) of Schedule H filers reported AGI of $150,000 or more in TY 2003. Perhaps because married taxpayers also tend to have higher incomes we see that Schedule H filers are more likely

Table 1.--Selected Taxpayer Characteristics: TY 2003

Filed Schedule H?	Taxpayers Count	Reported AGI Over $150,000 Percent	Married Filing Joint Filing Status Percent	Taxpayer Age 65+ Percent	Children Living at Home Exemptions Average
No	131,792,518	3.47%	41.46%	12.50%	0.612
Yes	234,465	54.18%	68.06%	38.77%	0.914
Total	132,026,983	3.56%	41.51%	12.54%	0.613

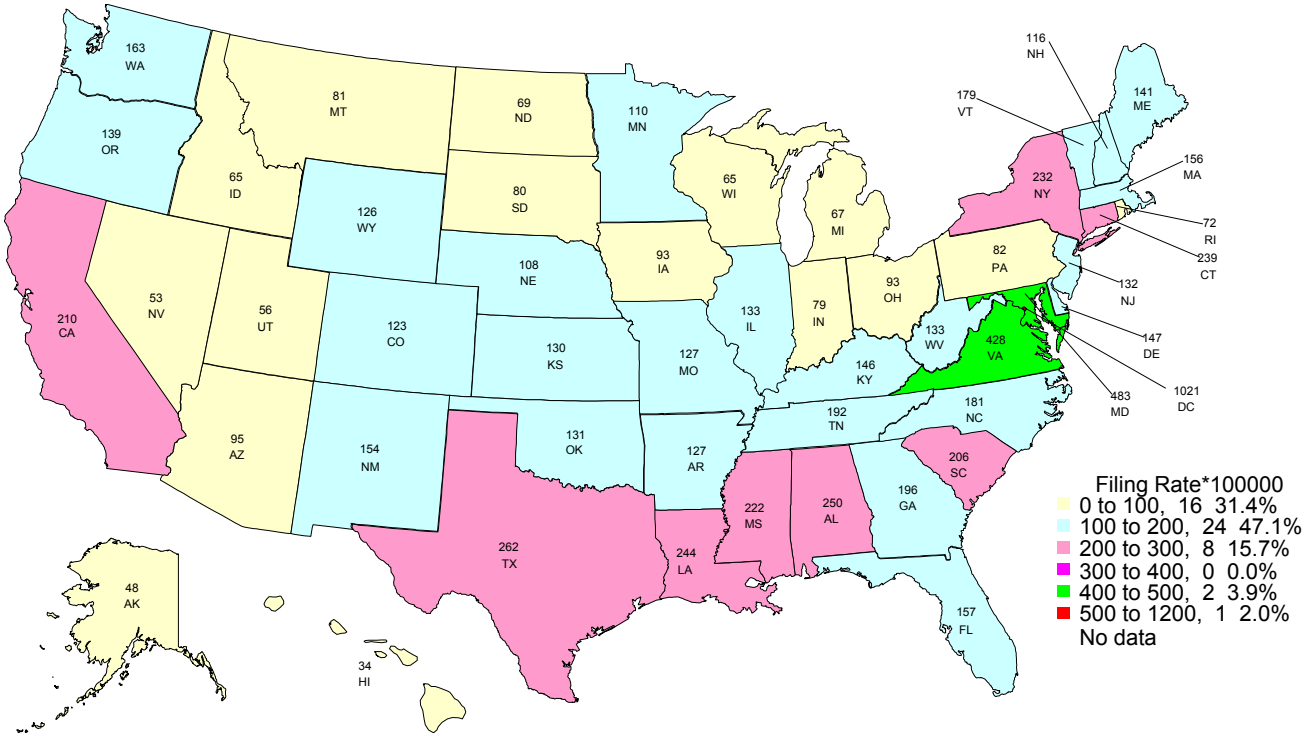
Source: Individual Return Transaction File

to file jointly than non-Schedule H filers. Persons 65 or more years old accounted for 38.8 percent of all Schedule H filings even though this age group represented only 12.5 percent of all taxpayers. Finally, Schedule H filers also claim more exemptions for children living at home than other filers (an average of 0.914 exemptions versus 0.612 exemptions for non-Schedule H filers).

Figure 2 displays TY 2003 Schedule H filing rates by state. The filing rate (per 100,000 taxpayers) is defined as the number of Schedule H filings divided by the total number of individual income tax filers (including Forms 1040, 1040A, and 1040EZ). From Figure 2, we see that the District of Columbia, Maryland, and Virginia have the nation's highest filing rates. The three-state combined average of 508 Schedule H filings per 100,000 returns is 3.1 times the national average of 161 filings.[6] The filing rate for the District of Columbia (1,021 filings per 100,000 returns) is more than six times the national average.

A second feature of Figure 2 appears to show that taxpayers in Southern states are more likely to file a Schedule H than taxpayers in Midwestern and Northern

Figure 2.--Schedule H Filing Rates by State: TY 2003



states. A difference of means test for Schedule H filing rates finds that the average filing rate of 226 filings per 100,000 taxpayers in 11 southern states[7] is statistically distinct ($p < 0.001$) from the national average. Finally, higher filing rates also occur in the northeastern states of Connecticut and New York and in California.

Spatial Variation in Filing Rates

To examine the spatial variation of Schedule H filing in greater detail, we disaggregated the data by 3-digit zip code. For example, in California the zip codes with the highest filing rates are clustered near Los Angeles and San Francisco. Other major urban areas with high filing rates include New York City, Chicago, and Houston. From the analysis of tax return data we were not surprised to find Schedule H filers concentrated in high-income urban centers. However, we were surprised to find elevated Schedule H filing rates in a number of small southern cities such as Farmville, VA, Selma, AL, Greenville, MS, and Shreveport, LA. Table 2 lists the 20 zip code areas with the highest filing rates.

The unusually high Schedule H filing rates in and near the nation's capital and, to a lesser extent, in the southern states appear puzzling given relative levels of per capita income (Table 2). In the case of Washington, D.C., we hypothesized that the high Schedule H filing rates could be related to the region's role as the seat of Federal authority and the large population of Federal civilian and military personnel living in the area. There are several reasons why this might be the case. First, due to their choice of career, Federal government workers might identify more with the government obligation to report and pay taxes than non-Federal taxpayers (Akerlof and Kranton, 2000, 2002 and 2005). According to Akerlof and Kranton, the concept of identity implies that if an individual's actual behavior deviates from the

Table 2.--Twenty Zip Code Areas with the Highest Schedule H Filing Rates: TY 2003

Region	State	Zip Codes	Filing Rate (per 100,000)	Percent of National Average Filing Rate	Per Capita Income (1999)
Bethesda/Silverspring	MD	208-209	1,993	1238%	$35,538
DC	DC	200&202-205	1,841	1144%	$28,569
New York	NY	100-102	1,265	786%	$43,077
Greenwich/Norwalk	CT	068-069	822	510%	$45,815
Alexandria/Fairfax	VA	201&220-223	778	483%	$34,499
Charleottesville	VA	229	728	452%	$22,547
Scarsdale/White Plains	NY	105-108	708	440%	$36,194
Dallas	TX	752-753	694	431%	$23,489
Morristown	NJ	079	649	403%	$48,839
Great Neck	NY	110	602	374%	$35,869
Beverly Hills/Culver City/Torrance	CA	902-905	552	343%	$24,897
Pasadena	CA	910-912	530	329%	$27,069
San Francisco/Palo Alto	CA	940-941&943-944	517	321%	$36,949
Houston	TX	770&772	497	309%	$20,830
Los Angeles	CA	900-901	472	293%	$18,041
Mill Valley	CA	949	451	280%	$38,630
Selma	AL	367	443	275%	$13,347
Greenville	MS	387	409	254%	$12,370
Shreveport	LA	710-711	402	250%	$16,965
Farmville	VA	239	385	239%	$15,384

Source: Individual Return Transaction File; U.S. Census Bureau (per capita income)

ideal behavior associated with the individual's identification, then the individual experiences a loss of utility. If we apply the concept of identity in the context of tax compliance, the intuition is clear: 1) People are identified with the tax system; 2) The ideal behavior (norms) associated with this identification is that people think they should comply with the tax system and pay the appropriate amount of tax; and 3) If people evade tax and thus their actual behavior departs from the ideal behavior, they will lose utility. Under this interpretation, people would differ by whether they are identified with the tax system or not and to what extent.

A second reason why Federal employees might be motivated to comply is a belief that they would face harsh penalties for modest infractions of the law. For example, Section 1203b of the Revenue Reform Act (RRA) of 1998 requires termination of employment for any IRS employee who fails to timely file a tax return; even if a refund is owed. In addition to potentially career-ending penalties, Federal employees might believe they are subject to a higher level of tax scrutiny than members of the general public – a belief that is not entirely unfounded. In order to allocate its staff to those cases it deems the highest priority, the IRS classifies each new collection case. In recent years, the top three priority categories – in decreasing order of importance – have been: (1) open criminal investigations, (2) IRS employees, and (3) Federal employees and retirees. Other things being equal, collection cases assigned a higher priority are more likely to be worked. Therefore, Federal employees and retirees who fall behind in their tax obligations stand a greater chance of being contacted by the IRS than most other taxpayers.

This explanation is consistent with the standard model on tax compliance (Allingham and Sandmo, 1972). The standard tax compliance model is based on traditional expected utility theory. In this model, a rational individual takes his income (W) that is unknown to the tax authorities, the tax rate (t), the audit probability (p), and the penalty rate (f) as given and chooses his declared income (X). After the individual declares his income, and if his declared income is less than his true income, he faces two possibilities: 1) With probability $(1-p)$, he will not be audited by the tax authorities so that he gains by $t(W-X)$; and 2) With probability p, he will be audited and the tax authorities will then know his true income. The consequence is that he will have to pay tax on the undeclared income $(W-X)$ at penalty rate (f) that is greater than tax rate (t). In other words, he will lose by $(f-t)*(W-X)$. The individual chooses his optimal declared income $(X*)$ by maximizing his expected utility function: $E(U)=(1-p)u(W-tX)+pu(W-tX-f(W-X))$. The model implies that increasing audit probability (p) or penalty rate (f) can reduce tax evasion.

In order to test the hypothesis of higher filing compliance by Federal employees, we compared Schedule H filing rates for IRS employees who reported more than $150,000 AGI in TY 2003 to non-IRS employee filers in the same income category. [We wanted to use data on all Federal employees but were unable to obtain payroll data from the Office of Personnel Management in time for this study.] Table 3 displays the frequency counts of Schedule H filers by IRS employment status. A Chi-Square value of 16.298 indicates that IRS employees with reported AGI over $150,000 are more likely to file a Schedule H than non-IRS employees[8] in the same income group. However, the motive for this behavior (whether identification with government as in Akerlof and Kranton (2000, 2002 and 2005) or fear of detection as in the traditional evasion literature) remains an open question.

Besides Federal employees, other D.C. area residents whose careers are tied directly or indirectly (e.g., lobbyists) to the Federal sector also might be motivated to comply with tax laws covering household employees. Barbara Kline, owner of a nanny placement service in the Washington, D.C. area, observed the following about the Bernard Kerik situation, "Maybe his illegal nanny didn't seem like a problem in New York, but any professionally ambitious Washington parent knows enough by now to play strictly by the rules. They make sure to hire either domestic or documented foreign help, and pay their social security, disability, and unemployment 'nanny' taxes" (Kline, 2005). Another factor enhancing awareness of this issue in the Washington, D.C. area is the prominent press coverage in the Washington Post and other media outlets. Therefore, we believe that the high

Table 3.--Schedule H Filing by IRS Employees and Others with Reported AGI of $150,000 or More: TY 2003

TY 2003 Filers with AGI > $150K

	Schedule H Filer		
IRS Employee	No	Yes	Total
No	4,744,126	126,850	4,870,976
	97.4%	2.6%	100.0%
Yes	5,246	189	5,435
	96.5%	3.5%	100.0%
Total	4,749,372	127,039	4,876,411
	97.4%	2.6%	100.0%

Source: Individual Return Transaction File

Schedule H filing rates in Washington, D.C. and in the bordering states of Maryland and Virginia, could reflect, in part, a stronger imperative in the minds of taxpayers living in and near the nation's capital of the obligation to report and pay Federal household employment taxes.

Finally, from Table 2 we note that communities such as Greenville, MS and Selma, AL neither have large high-income sub-populations or a significant Federal presence which might account for the higher observed Schedule H filing rates. Therefore, our tentative working hypothesis is that the higher filing rates in the southern states is a relic of historical and cultural factors that have traditionally viewed the hiring of household help as more socially acceptable than in other parts of the nation.[9] In support of this view, we point out that the combined Schedule H filing rate for high income taxpayers (i.e., with reported AGI of $150,000 or more) in Puerto Rico and the Virgin Islands is nearly 100 times the U.S. average. Although both Puerto Rico and the Virgin Islands are not included in this study due to their unique taxpayer populations, such large differences in Schedule H filing activity suggest that cultural factors could also be responsible for the higher filing rates in the South.

Temporal Change in Filing Rates

Figure 3 and Table 4 show the change in Schedule H filing rates by state from TY 1996 to 2003. The national trend of declining filing activity is reflected in every state without exception. The states with the largest rate declines are located in the South and in the Washington, D.C. area. However, bear in mind states in these regions had higher initial levels of filing meaning that a change with the same relative impact on all states would result in disproportionate absolute rate changes in states in the South and in the D.C. area.

This relationship is seen more clearly in Table 4. For example, both Michigan and Alabama experienced a 43.7 percent decline in Schedule H filing rates between 1996 and 2003. However, the filing rate for Alabama fell by 194 Schedule H filings per 100,000 returns whereas for Michigan the equivalent relative change resulted in a decline of only 52 filings per 100,000 tax returns.

However, these regional differences do not explain why Schedule H filing rates fell in all states during this period. To shed some light on this issue we turn to Table 5 which shows the change in Schedule H filing by reported AGI in TY 1996 and 2003. The number of Schedule H filings has declined in all AGI categories except for those households that reported AGI of $500,000 or more. In TY 1996, households reporting less than $100,000 AGI accounted for 43 percent of all Schedule H filings, but by 2003 this group's share had fallen to 33 percent of a smaller total. Taxpayers with reported AGI less than $100,000 accounted for over 70 percent of the total decline of 85,912 Schedule H filings between TY 1996 and 2003. Although the number of Schedule H filings grew among taxpayers with more than $500,000 in reported AGI, the overall filing rate fell because the number of filers in this income group grew faster than the number of new Schedule H filers.

Although taxpayers with AGI less than $100,000 account for most of the decline in number of Schedule

Figure 3.--Change in Schedule H Filing Rates: TY1996-2003

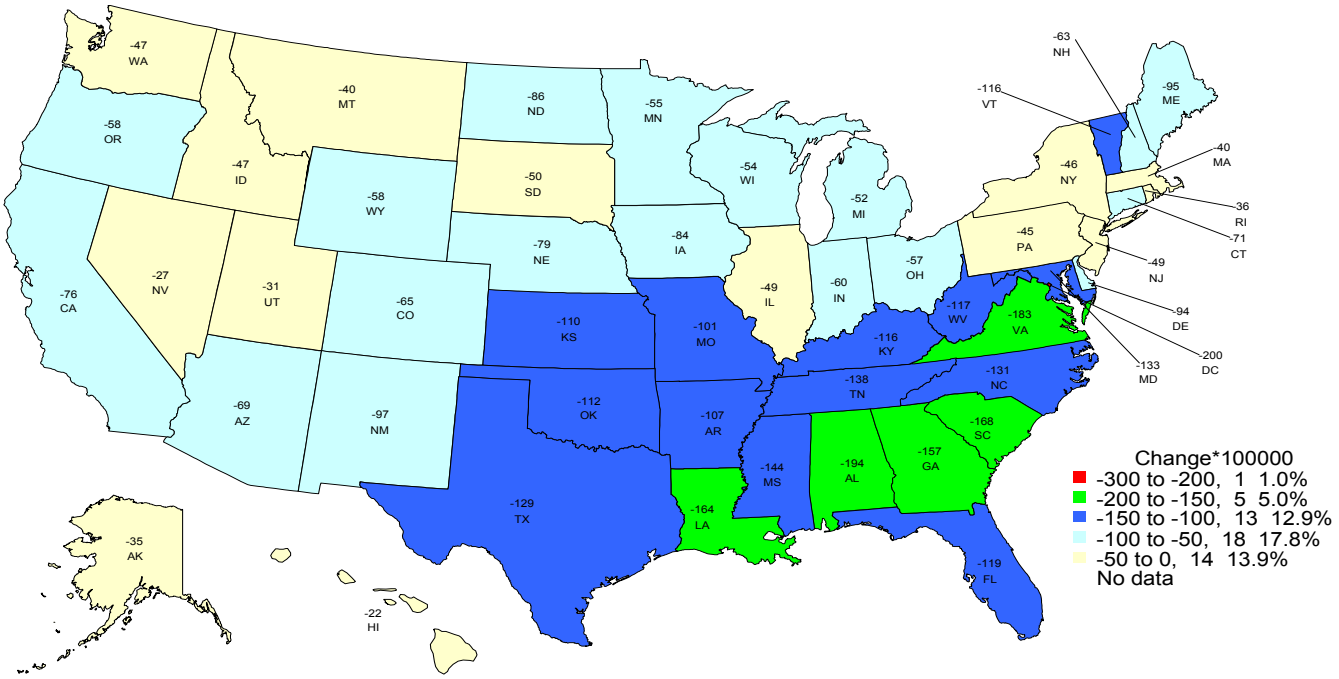


Table 4.--Change in Schedule H Filing Rates per 100,000 Taxpayers: TY 1996-2003

State	Filing Rate Change Number	Filing Rate Change Percent	State	Filing Rate Change Number	Filing Rate Change Percent
North Dakota	-85.7	-55.3%	Delaware	-94.3	-39.1%
Iowa	-83.8	-47.4%	New Mexico	-96.5	-38.5%
West Virginia	-117.4	-46.9%	South Dakota	-49.5	-38.3%
Oklahoma	-111.7	-46.0%	Ohio	-57.2	-38.1%
Kansas	-110.4	-45.9%	Utah	-31.2	-36.0%
Arkansas	-107.2	-45.8%	Pennsylvania	-44.7	-35.3%
Wisconsin	-53.7	-45.1%	New Hampshire	-63.1	-35.2%
South Carolina	-168.3	-45.0%	Colorado	-65.1	-34.6%
Georgia	-156.7	-44.4%	Nevada	-26.7	-33.5%
Kentucky	-115.9	-44.3%	Rhode Island	-35.8	-33.4%
Missouri	-101.0	-44.3%	Minnesota	-54.8	-33.3%
Michigan	-52.2	-43.7%	Texas	-128.9	-33.0%
Alabama	-193.6	-43.7%	Montana	-39.9	-32.9%
Indiana	-60.4	-43.3%	Wyoming	-57.8	-31.4%
Florida	-119.3	-43.1%	Virginia	-182.7	-29.9%
Nebraska	-78.8	-42.1%	Oregon	-57.7	-29.3%
Idaho	-47.5	-42.1%	Illinois	-49.2	-27.0%
Arizona	-68.8	-42.0%	New Jersey	-48.9	-27.0%
Alaska	-34.7	-42.0%	California	-75.7	-26.5%
North Carolina	-131.1	-41.9%	Connecticut	-71.3	-23.0%
Tennessee	-138.1	-41.8%	Washington	-46.8	-22.3%
Maine	-95.2	-40.2%	Maryland	-133.5	-21.6%
Louisiana	-164.0	-40.1%	Massachusettes	-40.5	-20.6%
Mississippi	-144.2	-39.4%	New York	-46.1	-16.6%
Vermont	-116.4	-39.4%	District of Columbia	-200.4	-16.4%
Hawaii	-22.2	-39.4%			

Source: Individual Return Transaction File

H filings, Table 5 also shows that filing rates are lower among all income groups. This could indicate that households are either: (1) no longer reporting to the IRS wages paid to legal or illegal workers, or (2) are changing their lifestyles to reduce their dependence on paid household help, or (3) a combination of the above. As an example of a lifestyle change, the *Wall Street Journal* recently reported that many parents are working flex-time schedules in order to reduce the number of hours needed for a baby-sitter or nanny.[10] In other cases, parents have tried sharing a full-time nanny among several families or enrolling their children in pre-school at an earlier age. Child-care providers involved in such sharing arrangements may be considered self-employed under IRS rules if they control their work conditions (i.e., where and how the work is performed). However, no comprehensive data are available to measure how widespread such practices have become or whether this development alone could account for the large observed drop in Schedule H filings. We suspect that even with these arrangements it is likely that hiring legal domestic help is becoming increasingly a luxury good that is out of reach of most middle and high-middle income households and that the appeal of evasion is growing for many who cannot find legal substitutes among the self-employed or agency employees. As an indicator, the same *Wall Street Journal* article cites hourly rates for part-time nannies from $13 to $25, plus benefits such as paid vacations.

► Model Estimation

In this section, we estimate two empirical models of Schedule H filing activity. First, we estimate a probit model of TY 2003 Schedule H filing rates for 576 3-digit zip code areas. Model specification A includes the four indicators of Schedule H filing propensity identified from tax return data (see Table 1). These are: percentage of taxpayers that report more than $150,000 AGI (*PctHiInc*), percentage of taxpayers whose filing status is married filing joint (*PctMFJ*), percentage of taxpayers age 65 years or older (*PctAge65+*), and average number of exemptions for children living at home (*AveChHomeEx*). A priori, we expect positive signs on all four variables.

Model specification B adds the percentage of the resident population who are non-citizens (*PctNonCitizen*) and Federal employment as a percentage of total employment (*PctFedEmp*). We include *PctNonCitizen* to account for the possible influence of undocumented workers on the decision to file a Schedule H. Since it is unclear based on the earlier discussion (on page 3) if the mere presence of undocumented workers alone would influence taxpayers' willingness to file a Schedule H, we are uncertain about the sign on *PctNonCitizen*.

We include *PctFedEmp* to represent the hypothesized link (whether due to identification or a heightened sensitivity to the consequences of IRS enforcement actions) between Federal employees and the obligation to pay Federal taxes. Based on the earlier discussion we anticipate a positive sign on this coefficient. We use Census 2000 data as the source for both *PctFedEmp* and *PctNonCitizen*. For this study, we assumed there was no difference within observations on these two variables between 2000 and 2003.

Table 5.--Change in Schedule H Filing by Reported AGI Category: TY 1996 and 2003

	All Filers				Schedule H Filers				Schedule H Filing Rate (per 100,000 filers)			
			Change				Change				Change	
Reported AGI Category	TY 1996	TY 2003	Number	Percentage	TY 1996	TY 2003	Number	Percentage	TY 1996	TY 2003	Number	Percentage
Under $100K	115,180,718	120,163,036	4,982,318	4.3%	137,097	76,395	-60,702	-44.3%	119	64	-55	-46.6%
$100-$200K	4,659,894	9,152,043	4,492,149	96.4%	77,692	52,840	-24,852	-32.0%	1,667	577	-1,090	-65.4%
$200-$500K	1,221,645	2,152,836	931,191	76.2%	66,507	60,355	-6,152	-9.3%	5,444	2,804	-2,641	-48.5%
$500K or More	333,896	559,068	225,172	67.4%	39,081	44,875	5,794	14.8%	11,705	8,027	-3,678	-31.4%
Total	121,396,153	132,026,983	10,630,830	8.8%	320,377	234,465	-85,912	-26.8%	264	178	-86	-32.7%

Source: Individual Return Transaction File

Finally, we also include two regional dummy variables. *South* takes on a value of 1 for 3-digit zip codes located in any of the 11 southern states, 0 otherwise. Again, this variable takes into account any unique cultural or historical factors we believe could be responsible for the higher filing rates in these states. Similarly, *DCRegion* equals 1 for all 3-digit zip codes in D.C., Maryland, and Virgina, else 0. This variable is used to pick up any difference in compliance behavior on the part of non-Federal employee taxpayers living in and near Washington, D.C. We expect positive signs for both *South* and *DCRegion*.

The estimated coefficients for the three models along with the Chi-Squared values are shown in Table 6. The parameter labeled _C_ in Table 6 is the "natural response" rate which we assumed was equal to 0.0001 in both specifications. In specification A, three of the four tax return variables are statistically significant. The negative sign on *PctMFJ* could indicate, as we mentioned above, that high-income households also tend to be married households and that when these characteristics are entered as independent effects, their influence on Schedule H filing propensity changes. Perhaps among low and middle-income married households, the presence of a second adult in the home means routine domestic chores can be performed largely within the family and not require outside paid assistance.

In specification B, *PctAge65+* is not significant but both regional dummies (*South* and *DCRegion*) are significant and with the predicted sign. *PctFedEmp* and *PctNonCitizen* also are significant. The latter finding could indicate that areas with large non-citizen populations also contain a documented labor force available for employment in the household sector. However, this is only speculation on our part as we have not examined this issue in any detail.

A test for normality of the regression residuals finds that spatial autocorrelation is present and, therefore, it is likely the model has not adequately accounted for all of the factors influencing filing behavior. There are pockets of positive spatial autocorrelation are in scattered locations throughout the South, in rural Virginia/West Virginia, and in Southern California. Also present are zones of high negative spatial autocorrelation in New Jersey, Long Island, southern Connecticut, Atlanta and Dallas. The Virginia suburbs of Washington, D.C. and coastal Virginia appear to have lower than expected filings while the Maryland suburbs of D.C. have higher than expected filings along with D.C. itself. The mixed findings for suburban Washington, D.C. might indicate that the residential location of high-income Federal employees, lobbyists, and officers of corporations with Federal government contracts is more important than the mere presence of Federal employee filers. Another factor possibly influencing Schedule H filing rates is the degree of economic inequality present in an area which could influence the demand and supply for household labor. However, we did not explore this hypothesis in this study.

Using the probit analysis results we estimated an OLS regression model of the percentage change in Schedule H filing rates for the 50 states plus the District of Columbia (right-most column of Table 4). The purpose of this model was to determine if any of the

Table 6.--Probit Estimation Results: TY 2003 Schedule H Filing Rates

	Model Specification		
Parameter	**A**	**B**	**Final**
Intercept	-2.5159***	-2.8913***	-2.8457***
	(697.62)	(1541.81)	(3312.02)
PctHiInc	5.7906***	5.7937***	5.9590***
	(439.42)	(519.86)	(650.67)
PctMFJ	-1.4887***	-1.3152***	-1.2999***
	(91.8)	(91.41)	(151.52)
PctAge65+	-0.9272**	.3944	
	(4.29)	(1.74)	
AveChHomeEx	0.0671	-0.0042	
	(0.43)	(0.00)	
PctNonCitizen		0.6411***	0.5750***
		(22.04)	(25.24)
PctFedEmp		1.7650***	1.6835***
		(28.44)	(26.35)
DCRegion		0.1389***	0.1409***
		(15.37)	(15.95)
South		0.2246***	0.2201***
		(218.69)	(216.53)
_C_	0.0001	0.0001	0.0001
N	576	574	574
DF	571	565	567
-Log Likelihood	1,641,266.45	1,624,315.65	1,624,428.68

Chi-Square values in parentheses. *, **, *** denote significance at the 10%, 5%, and 1% levels respectively. The dependent variable in each regression is the fraction of taxpayers who file a Schedule H.

factors we identified as contributing to the propensity to file a Schedule H could help explain the change in state-level Schedule H filing rates between TY 1996 and 2003. We used state data because we did not have zip code data for non-Census years. For the OLS model, both *South* and *DCRegion* are 0/1 dummy variables for the 11 southern states and the three states (DC, MD, and VA) in the national capital region, respectively. Instead of Census 2000 data for *PctFedEmp*, we use annual Bureau of Economic Analysis (BEA) estimates for state Federal employment to compute the change in percentage of Federal employment (*dPctFedEmp*). Instead of *PctMFJ* (the percentage of married filing joint filers), we calculate the change in percentage of MFJ taxpayers (*dPctMFJ*) from tax return data. Because we did not have non-civilian population data for the beginning and ending years, we used Census Bureau annual estimates to compute the change in percentage of state population from international migration (*dIntMigPctPop*). Finally, we substituted for *PctHiInc* (the percentage of Schedule H files with reported AGI over $150,000) two variables: (1) *pct96H_AGI150* – the percentage of Schedule H filers with reported income less than $150,000 in TY 1996 and (2) *dPct_AGI500* – the change in percentage of filers with more than $500,000 in reported AGI. The variable *pct96H_AGI150* captures the evident change in filing behavior by taxpayers with less than $150,000 in AGI since TY 1996. The variable *dPctAGI500* is included to account for the ameliorating effects on Schedule H filing associated with growth in the number of taxpayers in the category with highest AGI (see Table 5). We predict all variables will have the same signs as determined from the probit analysis and *dPctAGI500* will have a positive sign. We predict *pct96H_AGI150* will have a negative sign; that is, a larger concentration of TY 1996 Schedule H filers with AGI under $150,000 will lead to a smaller filing rate in TY 2003. The OLS regression results are shown in Table 7.

► Discussion

The results from the OLS regression model in Table 7 show that the two income-based variables are highly significant predictors of the change in Schedule H filing behavior and account for most of the adjusted R Square value of 0.68. This is a clear indication that the recent decline in Schedule H filing is linked to a shift away from the employment of household workers by middle and upper-middle income taxpayers. However, because the data also show filing rates have decreased for all income groups, we can not rule out the possibility that evasion is increasing, possibly in relation to the steady influx of undocumented workers entering the U.S.

The significance (at the 5% level) of the change in Federal employment on Schedule H filing behavior is interesting and warrants further analysis. Whether this result is due to Federal employees' identification with the tax system or heightened sensitivity to the consequences of enforcement is unclear. We presented evidence (in Table 3) that high-income IRS employees file the Schedule H more frequently than similarly situated non-IRS employee taxpayers. We will continue efforts to develop a profile of Schedule H filing for all Federal employees. We anticipate this will be accomplished in the near future.

Future research will examine in greater depth the hypothesized relationship between the propensity to file a Schedule H and strength of identification with the

Table 7.--OLS Estimation Results

Parameter	Coefficient
Intercept	-0.0377
	(-0.7491)
p96H_AGI150	-0.5350***
	(-6.7639)
dPctMFJ	0.7330
	(1.1878)
dPctFedEmp	8.2030**
	(2.0932)
dPct_AGI500	0.0845***
	(4.1800)
south	-0.0145
	(-0.7894)
dcregion	0.0180
	(0.4766)
dIntMigPctPop	-0.0723
	(-0.8405)
Adj. R-Square	0.6800

t-values in parentheses. *, **, *** denote significance at the 10%, 5%, and 1% levels respectively. The dependent variable is the percentage change in Schedule H filing rate from TY 1996-2003.

tax system. Our probit model results indicate this could be a factor in the decision to file a Schedule H for both Federal employees and others living in the national capital region. However, our current research did not yet separate the influence of identification from heightened enforcement environment on Federal employees and retirees and others with ties to the Federal government. One possible approach to tackle this problem might be to combine our data on Schedule H filing with survey data from which we might be able to construct a proxy for taxpayers' identification with tax systems.

In this research, we define the filing rate of Schedule H as the ratio of the number of filers who filed a Schedule H with their tax return over the number of tax filers who filed an individual income tax return. We fully recognize that this definition is less than ideal. One alternative would be to define the filing rate as the ratio of the number of filers who filed a Schedule H divided by the *expected* number of Schedule H filers. Deriving an estimate of the expected number of Schedule H filers is on our research agenda. Large-scale surveys like the Census, the Current Population Survey (CPS), and the Survey of Income and Program Participation (SIPP) might be useful for this purpose. We think that constructing a new measure of Schedule H filing compliance would make an interesting and significant contribution in the area of tax compliance research.

Finally, we will investigate further the role of historical and/or cultural factors in the decision to file the Schedule H. Consultation with industry experts may help in this regard.

► Summary

Our analysis of tax return, Census, and other data has determined the following about Schedule H filers and the recent decline in filing activity:

1) Schedule H filers are concentrated among households with more than $150,000 AGI, who select the married filing joint filing status, whose primary taxpayer is age 65 or older, and who claim more exemptions for children living at home than the average taxpayer.

2) The states with the highest Schedule H filing rates are the District of Columbia, Maryland, and Virginia. Taken together, filing rates in the three-state region bordering Washington, D.C. are 3.1 times higher than the rest of the nation. The Schedule H filing rate for the District of Columbia is more than six times the national average of 161 filings per 100,000 tax returns. Schedule H filing also occurs with greater frequency among taxpayers living in the 11 southern states.

3) A probit model of Schedule H filing rates by 3-digit zip code finds the percentage of high-income households, percentage of married filing joint returns, percentage of Federal employment, percentage of the population who are non-citizens, and location in the 11 southern states or the three-state national capital region (DC, MD, and VA) are statistically significant predictors of Schedule H filing. However, the regression residuals indicate some remaining spatial autocorrelation. Areas of positive spatial correlation occur in the South, in non-urban zip codes of Virginia and West Virginia, and in Southern California. Areas of possible negative spatial correlation occur in Northern New Jersey, Long Island, Connecticut, Florida, and the Virginia suburbs of Washington, D.C.

4) Using state data, an OLS regression of the percentage change in Schedule H filing rates between TY 1996 and 2003 finds positive correlations for the percentage change in high-income (> $500,000 AGI) filers and percentage change in Federal employment. A negative correlation was found for percentage of TY 1996 Schedule H filers with reported AGI less than $150,000. Analysis of tax return data finds that over 70 percent of the 85,912 drop in Schedule H filings between TY 1996 and 2003 occurred among taxpayers with less than $100,000 in reported AGI, confirming that Schedule H filing has become increasingly concentrated among the very wealthy. However, the data also show that Schedule H filing *rates* declined substantially among all income groups during this same period underscoring the existence of a broad-based change in taxpayer behavior.

5) The observed geographic variation in Schedule H filing rates--higher in the South and the Washington, D.C. area--int at the possible influence of cultural or behavioral factors on taxpayer filing decisions. In particular, the extreme high filing rates in the national capital region could indicate the influence of identity or heightened sensitivity to enforcement consequences not present in the general population. Further research will examine these issues in greater detail.

▶ Endnotes

[1] See *The Beaumont Enterprise News*, "The Nanny 411," January 30, 2005.

[2] See *The Wall Street Journal*, "The Case for Paying the Nanny Tax: Despite Risks, Families Skirt the Law," March 17, 2005.

[3] See BLS' Occupational and Employment Statistics website at http://www.bls.gov/oes/home.htm.

[4] See *The Wall Street Journal*, "Number of Au Pairs Increases Sharply," March 1, 2005.

[5] Cited in Kline (2005).

[6] This difference is statistically significant at the 0.001 level using a t-test with unequal variance.

[7] The 11 southern states are: Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia.

[8] The category "Non-IRS employees" includes all non-IRS Federal civilian and military employees. Thus, if identification with government is a factor responsible for different filing rates, we may be underestimating the difference between IRS and non-Federal employees.

[9] Although we only show state-level filing rates for TY 2003, the 11 southern states as a group exhibit higher filing rates for every year for which we have data.

[10] See *The Wall Street Journal*, "Adventures in Babysitting: How to Hire Part-Time Child Care in a Hot Market," September 22, 2005.

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