Personal Income Tax Gap for Business Income Earners In New York State: From the Real Estate Tax Perspective

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Personal Income Tax Gap for Business Income Earners In New York State: From the Real Estate Tax Perspective[1]

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Abstract

Based on the recognition that the evasion of real estate tax is much more difficult than the evasion of personal income tax and the assumption that, in general, taxpayers with similar income would consume a similar amount of housing and pay a similar amount of real estate tax, we build a model to estimate the personal income tax gap for business income earners in New York State. More specifically, we compare reported Federal adjusted gross income (AGI) between two groups of taxpayers: wage earners and business income earners. With the assumption that the wage income earners fully report their income, we find that there is a huge reporting gap of AGI for the business income earners in New York State as a whole. The income gap is $67.8 billion in 2007, which accounts for 26.2 percent of the total AGI the business income earners would have reported if they had been totally compliant with tax laws. If we apply the median of the New York State personal income tax rate, 5.25 percent, to the income gap, the personal income tax gap for the business income earners in the State in 2007 reaches $3.6 billion.

1. Introduction

A tax gap is the difference between the total tax actually collected by tax authorities and the total tax liabilities of the taxpayers. The tax liabilities are the amount that would have been collected if all taxpayers had paid the required amount of tax according to the law. The total tax gap may

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be divided into subgroups according to the tax type: business tax gap, sales tax gap, personal income tax (PIT) gap, etc., with the personal income tax gap being the largest.

Total tax gap can also be divided into three subgroups according to the source of the gap: Non-filing, underreporting, and underpayment. Non-filing occurs when taxpayers who were required to file tax returns either did not file them or did not file them on time. Underreporting occurs when taxpayers filed tax returns on time but reported less tax liabilities than they should have as required by law, due to either understating their income or overstating their deductions, exemptions, or credits. Underpayment occurs when taxpayers reported the correct amount of tax liabilities but failed to pay the tax due on time for various reasons, such as forgetting to enclose a check or not having the money to pay.

There have been only several prominent studies on the tax gap in the literature. At the federal level, the tax gap estimations were done by Internal Revenue Service (IRS). According to research by IRS (Bloomquist, 2007), for 2001 the total federal tax gap was $345 billion, about 16.3 percent of total tax liabilities. Of the $345 billion gap, $27 billion was from non-filing and $33 billion from underpayment. The most significant part of the tax gap was underreporting. It accounted for $285 billion or 83 percent of the total tax gap. Of the $285 billion of underreporting, $197 billion, or 69 percent, was from the personal income tax.

Although the IRS started to estimate tax gaps long ago, it never published any detailed methodology behind its estimations. Currently the IRS is consulting with a group of experts in the Information Reporting Program Advisory Committee (IRPAC) to help it improve its tax gap estimations.

At the state level, one notable research study was done by the Minnesota Department of Revenue (Minnesota 2004). For their analysis, the researchers use the Census Bureau's 2000 census data on 1999, a random sample of one percent of Minnesota households, and a Minnesota income tax sample for 1999. The study concludes that the tax gap from underreporting was $479 million, or 8.4 percent of the total personal income tax liabilities of the State. However, the research was later withdrawn, since the authors discovered a flaw in their methodology (Minnesota 2004). The authors claim that if the correct methodology had been used to interpret the Census's data, then the approach taken in this study would have produced a negative tax gap. The Minnesota methodology was also used by some other states to estimate their state's personal income tax gap. For example, the Office of Tax Policy Analysis of New York State Department of Taxation and Finance applied the same methodology and concluded that the personal income tax gap in New York State is $2.8 billion in 2002 (OTPA, 2005). Readers should use caution when quoting these studies because they used the same flawed methodology as the Minnesota study and a positive tax gap may be accidental or may depend on how samples were drawn.

In this study, we focus specifically on the personal income tax gap caused by taxpayers who underreport their business income. Business income is self reported and often lacks third party reporting that validates wage income. Employers as well as employees report wage information to the IRS and State taxing authorities. Knowing that unreported wages can be identified by tax agents improves compliance for this income category. The absence of such third party verification for business income may embolden some taxpayers to underreport income from those sources. According to the IRS, in 2001 the underreported business income gap is $109 billion, which is about 55percent of the total individual income tax gap (Bloomquist, 2007). A treasury official once testified that "individuals operating cash-based businesses report only 19 percent of their income." (George, 2006) Our study uses a different methodology and New York State taxpayer data between the years 2005 to 2007 to estimate the magnitude of under reported business income.

The methodology used in this study is different from that used in the literature cited. In previous studies, researchers compare third-party sampling data (Census data, for example) with tax return data and treat the difference between the two as the tax gap with the implicit assumption that the third-party sampling data reveals a true picture of people's activities without distortion. In this study, we apply real estate tax data taken directly from the Federal returns instead of the third party sampling data to compare income reported by business income earners to income reported by wage income earners and treat the difference of the two groups as the tax gap. We know from previous studies that tax gap exists for both wage earners and business income earners. Therefore, the tax gap resulting from this study should be regarded as a relative gap (relative to wage earners) for business income earners, or regarded as the lower limit of the tax gap for the business income earners. Once a reliable estimation of the tax gap for the wage earners is developed, the absolute tax gap for business income earners will be easy to reach.

The remainder of this paper consists of three sections. Section 2 discusses data used in this research. Section 3 presents the research methodology, estimation procedures, and estimation results. Section 4 finishes the paper with a summary and conclusions.

2. **Data**

Five variables from tax returns for each taxpayer are needed in this research: (1) wages and salaries; (2) business income; (3) income from rental real estate, royalties, partnerships, S-corporations, and trusts; (4) Federal adjusted gross income (AIG); and (5) real estate tax. These variables are available from two data banks maintained by the New York State Department of Taxation and Finance. The first four variables are extracted from the data base which contains the data from New York State residential income tax returns, including taxpayers' names, addresses, social security numbers, and other tax return information. The last variable, real

estate tax as reported on schedule A, Itemized Deductions, of Form 1040, is extracted from the second database which contains Federal individual tax return data for New York State taxpayers.

3. Methodology and Estimation Results

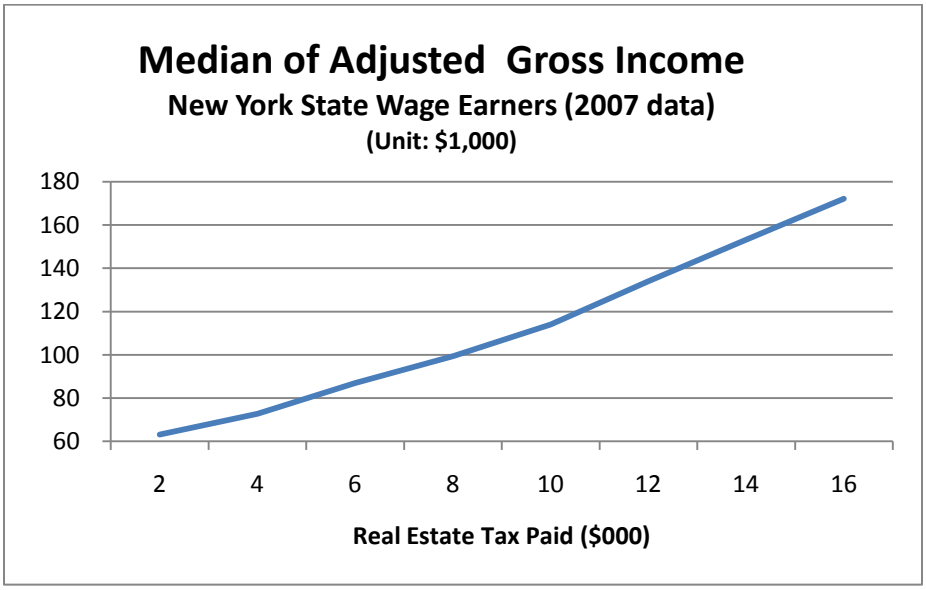
A. *Assumptions*

We make three assumptions in this study: (1) taxpayers with similar income from the same income source would consume a similar amount of housing, and, therefore, pay a similar amount of real estate tax; (2) taxpayers with similar income would consume a similar amount of housing regardless of the income sources; and (3) wage earners (without business income) report their income fully. Reasoning behind each assumption is explained below.

The first assumption is that taxpayers with similar income from the same income source would consume a similar amount of housing, and, therefore, pay a similar amount of real estate tax. It is true that if we investigate taxpayers at the individual level, this assumption may seem too strong, since we may see a particular taxpayer with very high income living in a moderate house or a taxpayer with limited income living in an expensive house. Also, it is possible for two individual taxpayers with similar incomes to consume very different levels of housing because of their individual preferences. To further complicate the issue, many people regard housing not only as a consumption decision, but also as an investment decision. All of these factors seem contradictive to our assumption. However, this study is not about taxpayers at the individual level, but at an aggregate level. At the aggregate level, the assumption that taxpayers with similar income would consume a similar amount of housing is valid. This can be observed from the practice of the mortgage market. Most homebuyers borrow money from mortgage lenders and the maximum amount a borrower can borrow is closely tied to the amount of the income he can earn. Although the lending procedures may be different for different lenders, the maximum amount a homebuyer can borrow is similar, which puts a constraint on the amount a taxpayer can consume on housing.

The fact that housing consumption is closely related to the level of income can also be observed from the historical data. Figure 1 shows the relationship between the real estate tax paid and the median of Federal adjusted gross income for the 1.04 million wage earners who paid less than $16,000 in real estate tax and did not report any business income in 2007. This figure shows that the relationship is almost a straight line with a slightly higher slope at the upper level of the real estate tax. This implies that our assumption that taxpayers with similar income consume a similar amount of housing and pay a similar amount of real estate tax is not radical at the aggregate level.

Figure 1:



The second assumption in this study is that taxpayers with similar income would consume a similar amount of housing regardless of the income sources, i.e., it doesn't matter if the income is wage income, business income, or other income.

People may argue that a typical business income earner consumes more housing than a typical wage earner with similar income because business income earners can, other things being equal, tolerate more risk than wage earners, which is the reason why business income earners go into business in the first place. Because they can tolerate more risk, they would buy bigger houses than wage income earners. Furthermore, if the housing choice is regarded not only as a consumption decision but also as an investment decision, then a typical business income earner would buy a bigger, more expansive house than a typical wage earner with similar income because of potential returns from the housing investment. On the other hand, people may argue that a typical business income earner may consume less housing than a typical wage earner with similar income because business income is involved with more risk factors than wage income and, therefore, is more volatile. In reality, more than 95 percent of new businesses close within 5 years of start up. For this reason, if they have the same tolerance level toward risk, a typical business income earner would buy a smaller house than a typical wage earner with similar income.

The net effect of these two opposing forces is not clear. Here, we will assume that there is zero-sum effect of the two forces. If it is true that business income earners consume more housing than wage earners with similar income, our study would overestimate the personal income tax gap for business income earners. On the other hand, if it is the case that business income earners

consume less housing than wage earners with similar income, then our study would underestimate the tax gap for business income earners.

The third assumption underlying our study is that wage earners (without business income) report their income fully. Wage earners' income is defined to include both wage income and other components of AGI, such as income from interest, dividends and capital gains. While it is difficult for an employee to underreport wage income because of the strict wage reporting regulations, underreporting of wages does occur. According to the IRS, wage reporting was $10 billion in 2001, about one percent of total wages (Bloomquist, 2007). Furthermore, wage earners have the same opportunity as business income earners to underreport other components of AGI, such as capital gains. Therefore, the assumption of the full-reporting of income by wage earners is far from the reality. For this reason, the tax gap resulting from this study should be regarded as the tax gap for business income earners RELATIVE to that for wage earners, or the lower limit of the tax gap for business income earners.

B. *Taxpayer Classification*

To make the estimation possible, the personal income taxpayers are classified into different groups. There are five steps for the data extract and taxpayer classification. First, individual taxpayer information is extracted from the data sets mentioned in the Data Section, including the taxpayer's ID, wages, business income, real estate tax, and Federal adjusted gross income (AGI). The tax information was reported in the State personal income tax returns, which is based on the figures reported on the taxpayers, Federal individual tax Form 1040 and Schedule A. Information included on the short forms of Federal tax returns, Forms 1040A and 1040EZ, is not used because taxpayers using these forms do not report business income. Using Federal individual income tax Form 1040 and Schedule A for 2007 as an example, wage income is defined as wages, salaries, and tips, etc. as reported on Line 7 of Form 1040. Business income is defined as the sum of Line 12, business income or loss, and Line 17, rental real estate, royalties, partnerships, S corporations, trusts, etc. AGI is from Line 37 of Form 1040, and real estate tax is from Line 6 of Schedule A.

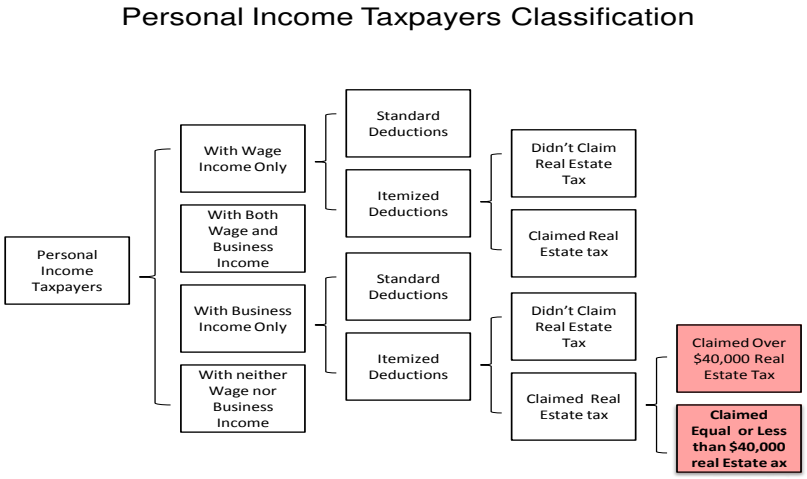
The taxpayers are then divided into four groups according to their income sources. The first group consists of taxpayers with wage income and no business income; the second group consists of taxpayers with business income and no wage income; the third group consists of taxpayers with both wage income and business income; and the fourth group consists of taxpayers without either wage income or business income. The first group, wage earners (without business income), will serve as the control group and the second group, business income earners (without wage income), will serve as the experiment group.

In the third step, the first two groups identified in the second step, business income earners and wage earners, are each split into two subgroups. One subgroup of taxpayers uses standard deductions and the other uses itemized deductions on their federal tax returns.

In the fourth step, the taxpayers with itemized deductions in each of the two groups, wage earners and business income earners, are further split into two sets. One set consists of taxpayers who reported real estate tax on Line 6 of Schedule A, Form 1040. The other set consists of taxpayers who did not report real estate tax on that line.

In the final step, the business income earners who reported real estate tax are split into two subsets: one subset consists of taxpayers who claimed real estate tax equal or less than $40,000 and the other subset consists of taxpayers who claimed more than $40,000. We make this split because we will apply different estimation methods to these two subsets, which will be explained in detail later. Figure 2 is a summary of the taxpayer classification described above.

Figure 2:



In Figure 2, we do not split some boxes into sub-categories. For example, we could further split the group of taxpayers who have both wage income and business income according to their deduction status. However, we don't do the further divisions since they play no role in this study.

The taxpayers in the shadowed boxes have the following characteristics in common: they had either wage income or business income, but not both; they applied itemized deductions on their federal individual income tax returns; and they claimed real estate tax deductions.

C. *Tax Gap for Business Income Earners who Claimed Real Estate Tax Deductions*

The taxpayers of the two groups, wage earners and business income earners, are each classified into 21 brackets according to the amount of real estate tax they claimed in their itemized deductions. Each bracket is in increments of $2,000 (ex. $1 - $2,000, $2,001-$4,000, etc.) with the last bracket being greater than $40,000. The real estate tax distribution for these two groups of taxpayers in 2007 is presented in Table 1.

Table 1:

Taxpayer Distribution*

(2007)

Real Estate Tax ($)	Wage Earner	Business Income Earner
0 - 2000	147,147	15,125
2000-4000	312,035	25,628
4000-6000	209,051	20,795
6000-8000	173,756	17,208
8000-10000	109,821	12,957
10000-12000	51,604	8,956
12000-14000	26,628	6,321
14000-16000	14,626	4,545
16000-18000	8,370	3,159
18000-20000	5,048	2,282
20000-22000	3,316	1,689
22000-24000	2,173	1,293
24000-26000	1,552	1,021
26000-28000	1,091	800
28000-30000	794	569
30000-32000	581	478
32000-34000	448	387
34000-36000	329	278
36000-38000	257	275
38000-40000	217	219
>40000	1,081	1,184
total	**1,069,925**	**125,169**

* : Only taxpayers meeting the following conditions are included:

1. Paid real property tax;
2. Had either wage income or business incom, but not both;
3. Used itemized deductions in federal returns.

Next, we estimate the tax gap for the business income earners who paid real estate tax less than or equal to $40,000 (the first 20 brackets in Table 1) by comparing them with wage earners within the same brackets. As mentioned earlier, the wage earners will serve as the control group and they are assumed to report their income lawfully and correctly while the business income earners will serve as the experiment group. The difference between these two groups will be regarded as the tax gap.

The median of adjusted gross income for each bracket is calculated separately for each group. The median instead of the mean is used here because for our purpose the median is more representative than the mean. Median of AGI is used to avoid possible skewed (not normally distributed) data which may distort the real picture of AGI. For example, if just one taxpayer with very high income is added to a particular bracket, then the mean may increase substantially, making the system unstable. Adding this taxpayer to a bracket will have little effect on the median. As in the case of the housing market, government agencies and realtors' associations often use median instead of mean to represent the price of the real estate market.

At this point we have two groups of taxpayers, wage earners and business income earners. Each group was classified into 21 brackets according to the level of real estate tax; and for each bracket, we have a median of AGI for the taxpayers in that bracket. As mentioned earlier, we have an assumption that taxpayers with similar income would consume a similar amount of housing and pay a similar amount of real estate tax regardless of the income type. This assumption, in turn, means that within each bracket, the median of AIG should be roughly the same for wage earners and for business income earners. If there is a significant difference between the medians of the two groups in a bracket, it should be regarded as the income gap resulted from underreporting by a typical business income earner, where income gap is defined as the difference between the income which should have been reported by the law and the income which was actually reported.

We then multiply this income gap by the number of business income earners in that bracket, resulting in the total income gap for that bracket. The tax gap for each bracket is calculated by multiplying the income gap by the effective State personal income tax rate. In this analysis, we assume the effective rate is 5.25 percent, which is the median of the New York State Personal income tax rates. The income gaps and tax gaps for this group of business income earners from 2005 to 2007 are presented in Tables 2, 3, and 4.

Table 2:

Personal Income Tax Gap for Business Income Earners in New York State* (2005)						
	Wage Earner		Business Income Earner		Difference in	Gaps
Real Estate Tax ($)	Number of Taxpayers	Median of AGI ($)	Number of Taxpayers	Median of AGI ($)	Median of AGI ($)	Income Gap ($)	Tax Gap** ($)
0 - 2000	161,092	59,316	17,543	24,113	35,203	617,557,458	32,421,767
2000-4000	304,099	70,081	29,881	34,100	35,981	1,075,148,261	56,445,284
4000-6000	204,191	83,743	24,856	47,708	36,035	895,685,960	47,023,513
6000-8000	157,121	95,930	20,172	59,033	36,898	744,296,370	39,075,559
8000-10000	81,975	110,982	14,982	73,741	37,242	557,952,153	29,292,488
10000-12000	37,157	131,175	10,391	91,147	40,028	415,930,948	21,836,375
12000-14000	19,129	150,837	7,342	106,834	44,003	323,070,026	16,961,176
14000-16000	10,328	172,970	5,353	126,705	46,265	247,656,545	13,001,969
16000-18000	6,155	198,317	3,897	150,913	47,404	184,733,388	9,698,503
18000-20000	3,841	224,361	2,970	168,980	55,381	164,481,570	8,635,282
20000-22000	2,448	254,787	2,300	197,205	57,583	132,439,750	6,953,087
22000-24000	1,684	300,042	1,777	210,772	89,270	158,632,790	8,328,221
24000-26000	1,161	349,901	1,417	267,286	82,615	117,065,455	6,145,936
26000-28000	894	372,639	1,152	290,735	81,904	94,353,408	4,953,554
28000-30000	626	414,441	903	350,666	63,775	57,588,374	3,023,390
30000-32000	429	445,636	728	350,296	95,341	69,407,884	3,643,914
32000-34000	347	547,736	616	389,173	158,564	97,675,116	5,127,944
34000-36000	277	583,234	510	428,497	154,737	78,915,870	4,143,083
36000-38000	229	621,857	383	497,519	124,338	47,621,454	2,500,126
38000-40000	159	616,466	343	566,299	50,167	17,207,281	903,382
>40000	845		2,844		50,167^	142,674,948	7,490,435
total	**994,187**		**150,360**			**6,240,095,008**	**327,604,988**

* : Only taxpayers meeting the following conditions are included in the table:

1. Paid real property tax;
2. Had either wage income or business income, but not both;
3. Used itemized deductions in federal returns;

**: Assuming the effective personal income tax rate is 5.25%, the median of the NYS personal income tax rates.

^: The differnce in the medians of the last bracket (38,000-40,000) is used for the bracket 40,000 or higher because of the data irregularities.

Table 3:

Personal Income Tax Gap for Business Income Earners in New York State* (2006)							
	Wage Earner		Business Income Earner		Difference in	Gaps	
Real Estate Tax ($)	Number of Taxpayers	Median of AGI ($)	Number of Taxpayers	Median of AGI ($)	Median of AGI ($)	Income Gap ($)	Tax Gap** ($)
0 - 2000	153,676	60,782	17,410	24,466	36,316	632,261,560	33,193,732
2000-4000	321,106	71,115	30,500	33,938	37,178	1,133,913,750	59,530,472
4000-6000	215,186	85,056	25,295	48,312	36,744	929,426,833	48,794,909
6000-8000	175,760	97,751	20,839	59,777	37,974	791,340,186	41,545,360
8000-10000	101,005	112,318	15,879	74,865	37,453	594,716,187	31,222,600
10000-12000	46,474	132,526	10,943	91,485	41,041	449,106,192	23,578,075
12000-14000	23,882	150,921	8,158	109,274	41,648	339,760,305	17,837,416
14000-16000	13,343	171,159	5,887	128,211	42,948	252,834,876	13,273,831
16000-18000	7,722	196,740	4,494	147,095	49,646	223,106,877	11,713,111
18000-20000	4,884	221,259	3,333	174,479	46,780	155,917,740	8,185,681
20000-22000	3,177	251,754	2,611	200,217	51,537	134,563,107	7,064,563
22000-24000	2,059	291,441	2,071	217,774	73,667	152,564,357	8,009,629
24000-26000	1,527	315,543	1,641	261,427	54,116	88,804,356	4,662,229
26000-28000	1,097	351,931	1,232	309,975	41,957	51,690,408	2,713,746
28000-30000	791	407,179	1,077	359,754	47,425	51,076,725	2,681,528
30000-32000	584	492,335	830	368,306	124,030	102,944,485	5,404,585
32000-34000	415	469,968	702	371,173	98,796	69,354,441	3,641,108
34000-36000	383	555,705	584	464,223	91,482	53,425,488	2,804,838
36000-38000	267	570,233	518	406,615	163,618	84,754,124	4,449,592
38000-40000	244	579,270	422	572,866	6,404	2,702,488	141,881
>40000	1,140		3,394		6,404^	21,735,176	1,141,097
total	**1,074,722**		**157,820**			**6,315,999,660**	**331,589,982**

* : Only taxpayers meeting the following conditions are included in the table:

1. Paid real property tax;
2. Had either wage income or business income, but not both;
3. Used itemized deductions in federal returns;

**: Assuming the effective personal income tax rate is 5.25%, the median of the NYS personal income tax rates.

^: The differnce in the medians of the last bracket (38,000-40,000) is used for the bracket 40,000 or higher because of the data irregularities.

Table 4:

Personal Income Tax Gap for Business Income Earners in New York State* (2007)						
	Wage Earner		Business Income Earner		Difference in	Gaps
Real Estate Tax ($)	Number of Taxpayers	Median of AGI ($)	Number of Taxpayers	Median of AGI ($)	Median of AGI ($)	Income Gap ($)	Tax Gap** ($)
0 - 2000	147,147	63,057	15,125	23,917	39,140	591,992,500	31,079,606
2000-4000	312,035	72,685	25,628	33,522	39,163	1,003,669,364	52,692,642
4000-6000	209,051	86,951	20,795	47,866	39,085	812,772,575	42,670,560
6000-8000	173,756	99,398	17,208	59,002	40,397	695,142,972	36,495,006
8000-10000	109,821	113,992	12,957	72,904	41,088	532,377,216	27,949,804
10000-12000	51,604	133,928	8,956	88,889	45,040	403,373,762	21,177,123
12000-14000	26,628	153,157	6,321	101,106	52,051	329,014,371	17,273,254
14000-16000	14,626	172,176	4,545	122,506	49,670	225,750,150	11,851,883
16000-18000	8,370	193,691	3,159	135,235	58,456	184,662,504	9,694,781
18000-20000	5,048	218,835	2,282	150,315	68,520	156,362,640	8,209,039
20000-22000	3,316	253,337	1,689	167,607	85,730	144,797,126	7,601,849
22000-24000	2,173	298,934	1,293	186,092	112,842	145,904,706	7,659,997
24000-26000	1,552	333,380	1,021	213,076	120,304	122,829,874	6,448,568
26000-28000	1,091	364,281	800	236,044	128,237	102,589,600	5,385,954
28000-30000	794	419,214	569	248,496	170,718	97,138,542	5,099,773
30000-32000	581	435,429	478	293,381	142,049	67,899,183	3,564,707
32000-34000	448	543,829	387	289,316	254,513	98,496,338	5,171,058
34000-36000	329	506,701	278	321,675	185,026	51,437,228	2,700,454
36000-38000	257	652,577	275	277,352	375,225	103,186,875	5,417,311
38000-40000	217	745,310	219	401,346	343,964	75,328,116	3,954,726
>40000	1,081		1,184		343,964^	407,253,376	21,380,802
total	**1,069,925**		**125,169**			**6,351,979,017**	**333,478,898**
* : Only taxpayers meeting the following conditions are included in the table:							
1. Paid real property tax;							
2. Had either wage income or business income, but not both;							
3. Used itemized deductions in federal returns;							
**: Assuming the effective personal income tax rate is 5.25%, the median of the NYS personal income tax rates.							
^: The differnce in the medians of the last bracket (38,000-40,000) is used for the bracket 40,000 or higher because of the data irregularities.							

In Tables 2, 3, and 4, the income gap and tax gap for taxpayers who paid more than $40,000 in real estate tax were estimated differently from those who paid equal or less than $40,000. For these taxpayers, the income gap and tax gap was estimated by applying the AGI medians in the $38,000 to $40,000 bracket. For example, in Table 2, we used $50,167 as the difference in the medians for the last bracket, same as that of the $38,000 to $40,000 bracket. The reason for this is that for the taxpayers with more than $40,000 real estate tax, the span of the real estate tax is very wide and the skewed data for taxpayers in this bracket makes it unreliable to estimate the tax gap with the same methodology used for the brackets with less than $40,000 of real estate tax. If we estimate the tax gap for this bracket using the same methodology as that for other

brackets, the tax gap for this bracket would be negative for both 2005 and 2006 and extremely huge for 2007.

The grand total of the income gap and grand total of the tax gap are the sum of the gaps of the 21 brackets. Tables 2, 3, and 4 show some degree of consistency over time. As the real estate tax increases from lower brackets to higher brackets, the number of taxpayers would decrease, with a few exceptions. Each year, the tax gap is more than $300 million for this group of business income earners. The bracket containing the largest number of both wage earners and business income earners is the second bracket, in which taxpayers' real estate tax is between $2000 and $4000. Also, in absolute terms, the business income earners in this bracket contributed over $50 million to the tax gap each year, more than 15 percent of the total.

Although the estimation shows some degree of consistency over time, we should be cautious about making any vertical comparison between different years because in these tables, a taxpayer is not fixed within one bracket. For example, if a taxpayer paid $1,800 real estate tax in 2005 and $2,050 in 2006, he would move from the first bracket to the second bracket; If a taxpayer sold a house at the end of 2005 and never bought a house afterwards, his case would be included in the 2005 table, but not in the 2006 and 2007 tables. In addition, any economic situation changes over time may push the median of AIG in each bracket up or down.

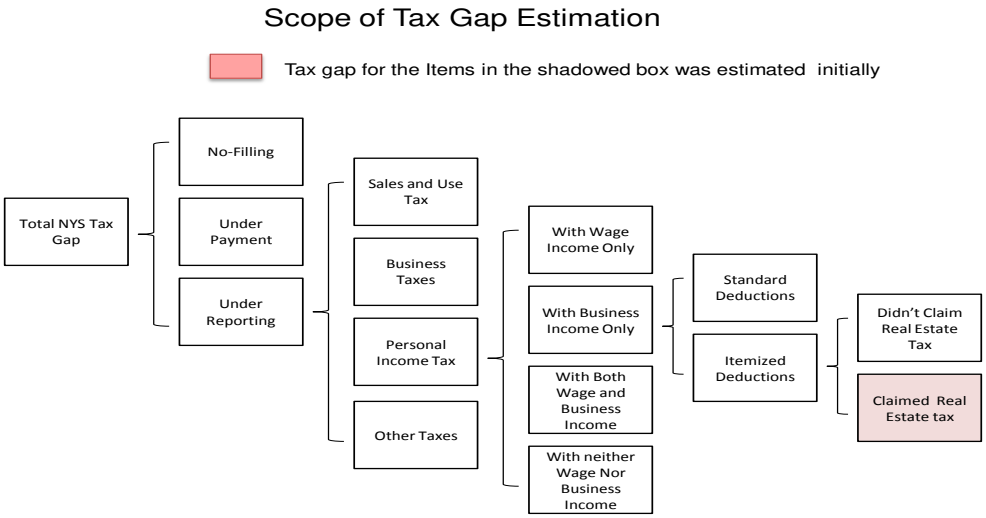
D. *Tax Gap for All Business Income Earners*

It should be noted that above analysis is about the personal income tax gap for a group of business income earners who meet the following conditions:

1. They had business income but not wage income;
2. They used itemized deductions in their Federal individual tax returns;
3. They claimed a real estate tax deduction in their Federal individual tax returns.

Therefore, the tax gap presented above covers only a portion of the total personal income tax gap in the New York State, as indicated in Figure 3:

Figure 3:

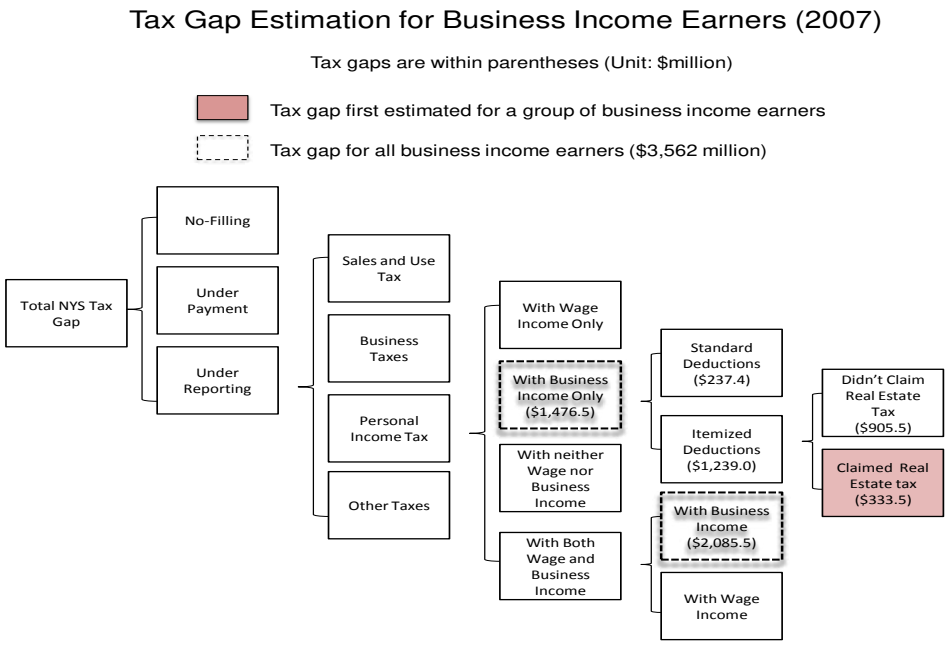


Next, starting with the results from the above analysis (shadowed box in Figure 3), we are going to use the 2007 data, the most recent data available, to estimate the tax gap resulting from underreporting by business income earners as a whole. To make this estimation possible, we make the following assumptions and premises:

1. On average, the business income earners who did not claim real estate tax in their itemized deductions have the same underreporting rate as those who claimed real estate tax;
2. Business income earners who took standard deductions have the same underreporting rate as those who made itemized deductions;
3. For taxpayers with both wage income and business income, their AGI splits into two parts: One part is associated with wage income and the other part with business income. The split is accomplished by using two ratios: the ratio of business income to AGI for the business income group (taxpayers with business income but without wage income) and the ratio of wage income to AGI for the wage income group (taxpayers with wage income but without business income). For details on the split, see Appendix I;
4. For taxpayers with both wage income and business income, their underreporting rate of AGI associated with business income is the same as that of business income earners.

With these assumptions and premises, we are able to calculate the tax gaps for all business income earners. The results are presented in Figure 4, with the level of tax gaps enclosed by parenthesis.

Figure 4:



In Figure 4, the shadowed box is the gap we initially estimated using the real estate tax data for a group of business income earners. The boxes enclosed with dashes are the final estimation for all business income earners. The total tax gap for business income earners is $3.562 billion, the sum of the two boxes closed with dashes. The total AGI, reported AGI, AGI gap, underreporting rate, and the tax gap for the New York State business income earners as a whole are presented in Table 5.

Table 5:

Underreporting and Tax Gaps For Business Income Earners in New York State (2007)			
Adjusted Gross Income ($million)	Reported AGI ($million)	AGI Gap ($million)	Underreporting Rate (%)	Tax Gap ($million)
258,668.7	190,822.0	67,846.7	26.2	3,562.0

Table 5 shows the underreporting rate of AGI is 26.2 percent, which seems lower than the IRS estimation. For example, according to IRS (Bloomquist, 2007), the underreporting rate of business income for 2001 is 43 percent. The low underreporting rate in this study arises due to two factors. First, the measurement in this research is not the same as that of the IRS estimation. The IRS research analyzes the "pure business income," which includes only three items: (1) non-farm proprietor income, (2) farm income, and (3) income from partnership, S-corp, rents and royalties, estate and trust, etc. In this study we analyze a much broader definition of income reported by business income earners, adjusted gross income, which includes not only the "pure business income," but also other components of adjusted gross income from the Federal individual income tax returns, such as interest, dividends, and capital gains. The lower underreporting rate for most of these components makes the underreporting rate in our study lower.

The second factor has something to do with our assumption that wage earners do not underreport their income, which we know is not true. Therefore, we should not regard the underreporting rate in this research as an absolute term, but as a relative term, relative to wage earners. If we or other researchers can find a reliable estimate of the underreporting rate for wage earners in the future, then it would be easy to translate the results of this study into an absolute term.

4. **Summary and Conclusions**

Based on the recognition that the evasion of the real estate tax is much more difficult than the evasion of the personal income tax and the assumption that, in general, taxpayers with similar income would consume a similar amount of housing and pay a similar amount of real estate tax, we build a model to estimate the personal income tax gap for business income earners relative to wage income earners in New York State.

It is found that there is a huge reporting gap for adjusted gross income for the business income earners as a whole. For example, in 2007 the income gap is $67.8 billion, which accounts for 26.2 percent of the total AGI the business income earners would have reported if they are totally compliant with tax laws. If we use the median of the New York State personal income tax rate, 5.25 percent, to apply to the income gap, the tax gap for these taxpayers in 2007 is $3.6 billion.

How to close this tax gap is a huge challenge facing policy-makers, researchers, and State tax authorities, especially at this time when the State budget is facing serious challenges. One reason for the huge gap is the imperfection of the monitoring mechanism for business income. However, the cost to improve the mechanism may be high and the political consequences for doing so cannot be foreseen and may be serious. Nevertheless, given the current situation that there are huge deficits in the nation and large budget gaps in many states, it may be the right time to take on the challenge to close the tax gap.

Appendix I.

There are three steps used to split AGI into business-income-related AGI and wage-income-related AGI:

1. To calculate the ratio of business income to AGI for the business income group (taxpayers with business income but without wage income), R_{bus}, and the ratio of wage income to AGI for the wage income group (taxpayers with wage income but without business income), R_{wage}:

$$R_{bus} = BI_{bus} / AGI_{bus;}$$

$$R_{wage} = WI_{wage} / AGI_{wage;}$$

where:

BI = Business income;
WI = Wage income;
wage = Taxpayers with wage income but without business income;
bus = Taxpayers with business income but without wage income.

2. To split AGI of the taxpayers with both business income and wage income, AGI_{both}, into two parts, AGI_b and $AGI_{w,}$ using the two ratios obtained from Step 1. AGI_b is supposed to be the part of AGI associated with business income and AGI_w to be the part of AGI associated with wage income for these taxpayers. We have:

$$AGI_b = BI_{both} / R_{bus ;}$$

$$AGI_w = WI_{both} / R_{wage;}$$

$$AGI_p = AGI_b + AGI_{w,}$$

Where AGI_p, the sum of AGI_b and AGI_w, can be viewed as the preliminary AGI after the initial distribution of the AGI for the taxpayers with both business income and wage income. Ideally, AGI_p should equal to AGI_{both} if the relationship between AIG and business income or wage income is the same among different groups of taxpayers. In our case, we found that AGI_p equals to 96.7 percent of $AGI_{both,}$ i.e., we have distributed 96.7 percent of $AGI_{both,}$ leaving part of it undistributed. Then we have to proceed to Step 3 to adjust it.

3. To do a final adjustment. First we find the adjustment factor, A.

$$A = AGI_{both} / AGI_p;$$

Then we apply the adjustment factor A to AGI_b and AGI_w obtained in Step 2 to get he final AGI associated with the business income and that associated with the wage income.

$$AGI_{b,f} = AGI_b * A;$$

$$AGI_{w,f} = AGI_w * A;$$

where the subscript f refers to the AGI distribution after the adjustment. It is clear that the sum of $AGI_{w,f}$ and $AGI_{b,f}$ equals to AGI_{both}. Then $AGI_{b,f}$ will be used to calculate the underreporting of AGI for the taxpayers with both business income and wage income.

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