

D.C. Parenthood: Who Stays and Who Leaves?

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Introduction and Main Findings

Since 2000, the population of Washington, D.C. has grown by almost 100,000 people.² Over this time, the number of young adults in the city and the number of people giving birth have grown too.³ The general expectation is that many of these people leave the city after they have children and data seem to support it: we now have more children under the age of five compared to the early 2000s, but fewer children aged five to fourteen.⁴ We wanted to know: to what extent do people leave the city once they have children? Has this trend been changing compared to a decade ago? Are some parents more likely to leave the city than others?

To answer these questions we turned to D.C.'s local income tax data from 2001 to 2012. We tracked people whom the tax data records as new parents during this time. To figure out if and when these new parents moved from the city, we looked to see when they dropped from the tax records.

Our analysis suggests that:

- Once D.C. residents have their first child they're more likely to leave the city than other residents.
- The first four years after having a child is when parents are more inclined to leave compared to the rest of residents. After that, exit rates drop to near or below those of the general population.
- New parents today appear to leave the city at rates similar to the rates of people who became new parents in early 2000's.
- Middle-income new parents are more likely to leave D.C. than low- and high-income new parents.
- The neighborhoods that lose the largest portion of new parents are downtown or close to the city's center. Zip codes 20011 (Brightwood Park, Petworth) and 20002 (Capitol Hill, Eckington, Kingman Park, Trinidad) are the most popular among new parents paying taxes in the city, both the year their first child is born and five years later.

¹ The authors thank Yesim Sayin Taylor and Bob Zuraski for their edits. They also thank Marvin Ward, Steven Giachetti, Brian Kirrane, Jamie Lantinen, Fitzroy Lee, Farhad Niami, and Stephen Swaim for their helpful comments.

² According to data from the U.S. Census Bureau and the D.C. Office of Planning.

³ According to data from the U.S. Census Bureau and the D.C. Department of Health.

⁴ According to Census counts.

Data and Methodology

The District's usable tax records cover everyone who filed local income taxes in D.C. from 2001 to 2012. The data include the primary filer's social security number, federal adjusted gross income, address, filing status (married, single, etc.), number of dependents, and, for 2007 and later, dependents' birth dates.

Around 85 percent of people who live in D.C. are represented in the income tax data in any given year.⁵ Those who don't file are most likely older people relying on social security for income; childless, low-income workers who don't have a large incentive to file for the Earned Income Tax Credit; people who others claim as a dependent (who may themselves have dependents); and people who are unemployed and don't have a spouse earning income. As a result, some groups of low-income people are underrepresented in the tax data.

We identified people who had their first child between 2002 and 2011 and filed taxes in D.C. the year of their child's birth and the year prior. Then we tracked the new parents we identified to see what percent continued to file taxes each year—an indication that they still lived here—after their child's birth, up until 2012.⁶ When we could not find a new parent in the tax file, we counted this parent as an "exit," or someone who moved out.⁷ We then compared the exit rates of the new parents to general exit rate for everyone on the tax rolls when new parents had their children.

We tried to base as many of our findings as possible on people we identified as having their first child between 2007 and 2011 since we had children's birth dates for those years and therefore were more certain that these filers were actually new parents. For findings where looking back to 2002 was important, we had to look at married people who added their first dependent, 70 to 83 percent of whom we believe actually had a baby.⁸ This group was our closest proxy to new parents for years prior to 2007.

In Appendix A we give details about how we identified these new parents and how the number of new parents we identified in the tax data compares to the number of new parents in D.C.

Here is what we found when we analyzed this data:

Finding 1 : Once D.C. residents have their first child they're less likely to stay in the city than others.

New parents are more likely to leave than the average D.C. resident. About 80 percent of people we identified as having their first child between 2007 and 2011 were in the city tax records the year after

⁵ We found this number by comparing the number of people represented in D.C.'s local income tax data in 2010 and the 2010 Census count of D.C. residents.

⁶ We use the primary filer's social security number to track the families. We did not whittle down the cohort year by year, excluding people from the cohort the first year they dropped from the data. Instead we looked to see what number of people in the cohort appeared in the data one year after their baby was born, two years after, three years after, etc. This means that people could drop from the data one year but would still be counted as part of the cohort the next year if they reappeared in the data.

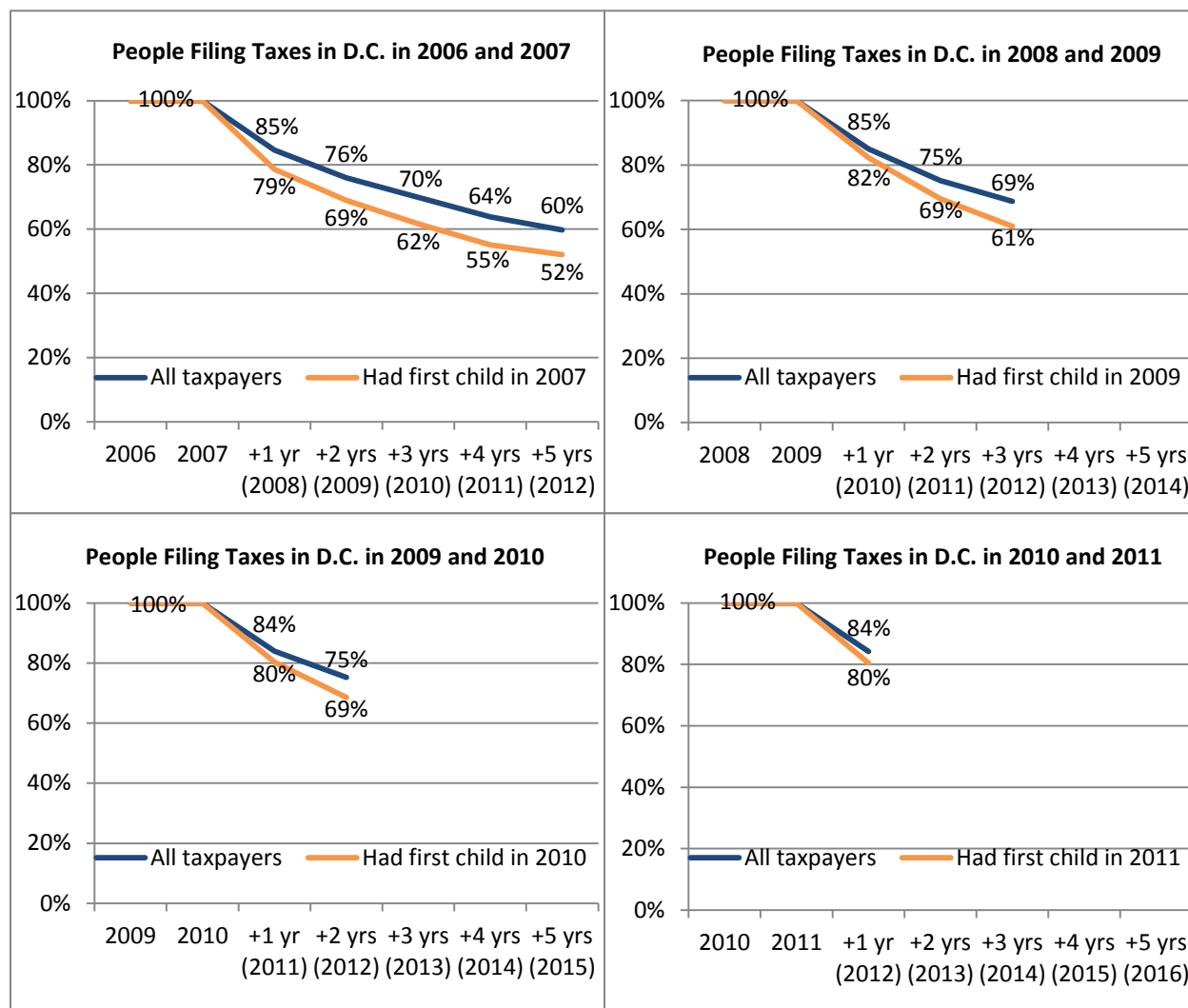
⁷ People can drop from the tax rolls for a number of reasons in addition to moving. See Appendix B for more information.

⁸ The rest added an adult dependent or older child.

their child’s birth, compared to 85 percent of all filers. By the year their child turned 5, a little over 50 percent of these new parents were still in the city tax records, compared to 60 percent of all filers.

The graphs below show the percent of new parents that remained in the city tax records each year after their child’s birth, for those who had their first child between 2007 and 2011.⁹

Figure 1 - Percent of People Who Stayed in the D.C. Tax Data: All Filers vs. Those Who Had Their First Child Between 2007 and 2011

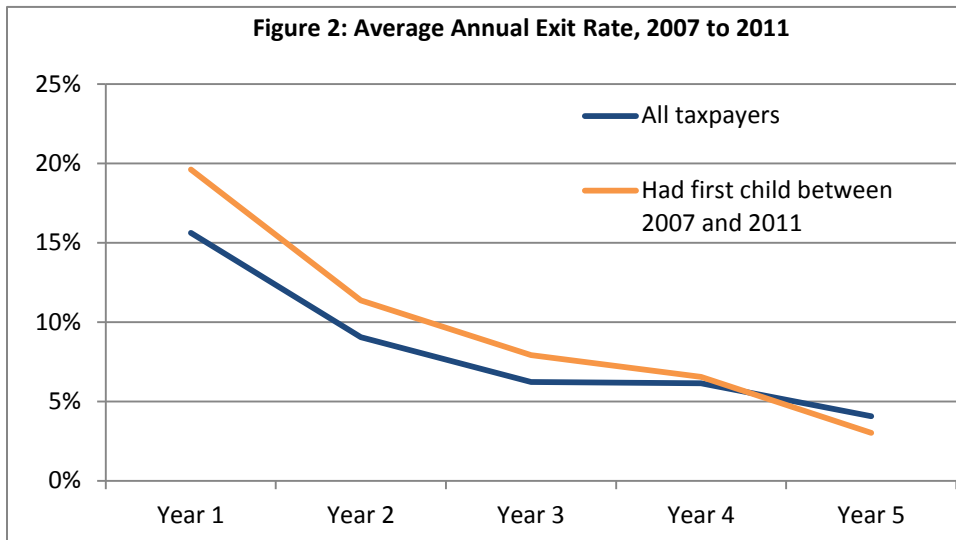


We believe a smaller portion of new parents remain in the tax records than all D.C. taxpayers because new parents are moving out the city at greater rates—not because they are less likely to file taxes. We provide more details on this in Appendix B.

⁹ Except 2008. We were not able to identify people who became new parents in that year because most dependents’ birth dates were missing from the data.

Finding 2: The first four years after having a child is when parents are more inclined to leave compared to the rest of the residents. After that, exit rates drop to near or below those of the general population.

People who became new parents between 2007 and 2011 left at greater rates than the rest of residents until their first child turned 4; after that, their annual exit rates dropped below those of the general population.

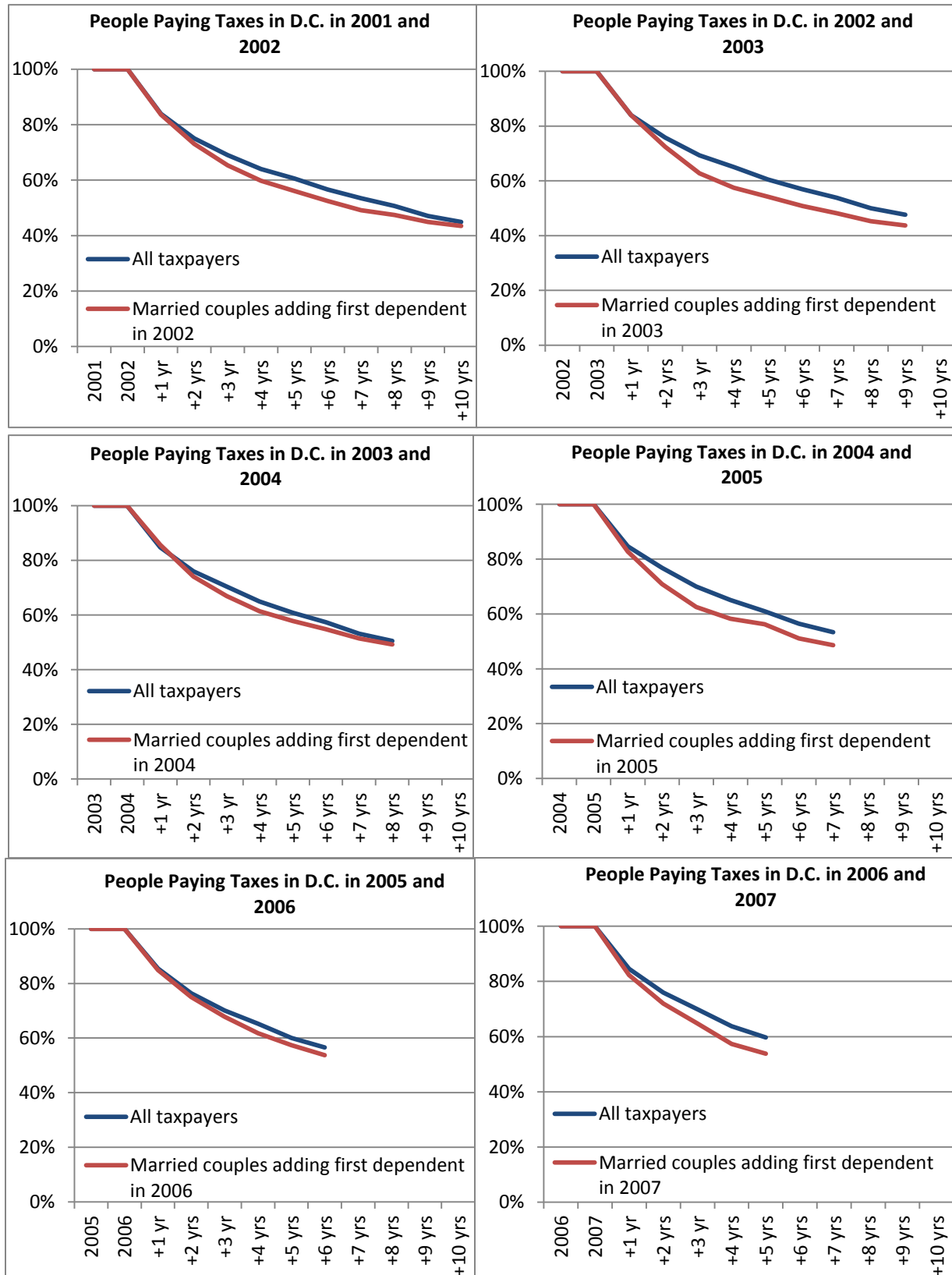


To see if this pattern held more than five years after parents had their first child (which is all we could look at with the data from the 2007 births), we looked at married people who added their first dependent between 2002 and 2007. This group excludes single parents, but it’s the closest we could come to identifying new parents prior to 2007. This is because among single and head of household filers, first dependent is a poor metric: these filers tend to add many dependents who are not newborn babies. But among married couples, first dependent is a reasonable proxy: our analysis shows that 70 to 83 percent of the time (depending on the year), the reported first dependent is a baby.

When we looked at the married new parents, we found a similar pattern. During the first year of their child’s life, they exited at similar rates as other D.C. residents, but then they exited at greater rates until their child turned 4 (or 5, for those who had their first child in 2002). After that, their exit rate dropped to near or below that of all residents. As a result, the portion of new parents appearing in the data was about the same as that of all residents by the 8 to 10 year mark, as you can see in the graphs below.

You can find the data we used for these graphs in Appendix C.

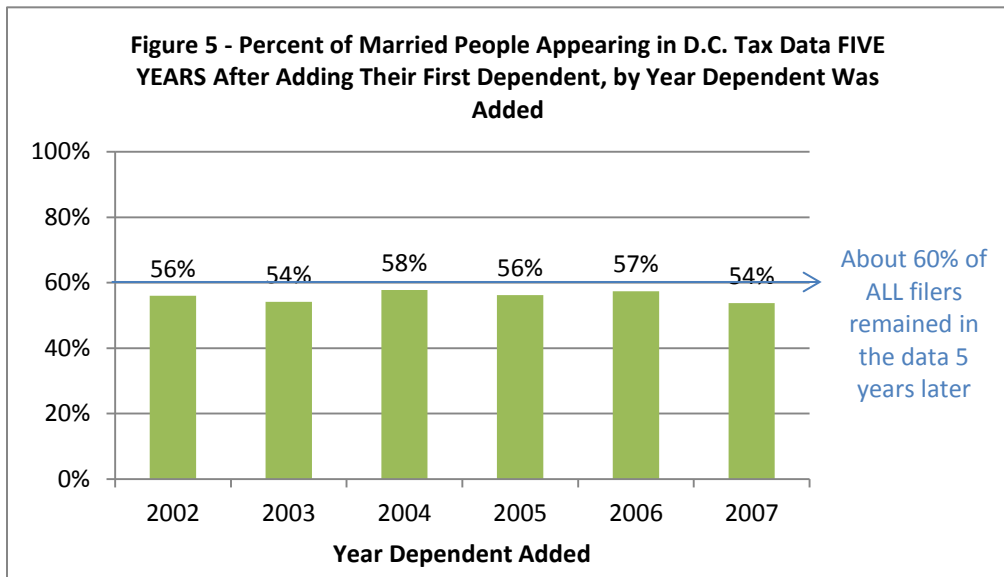
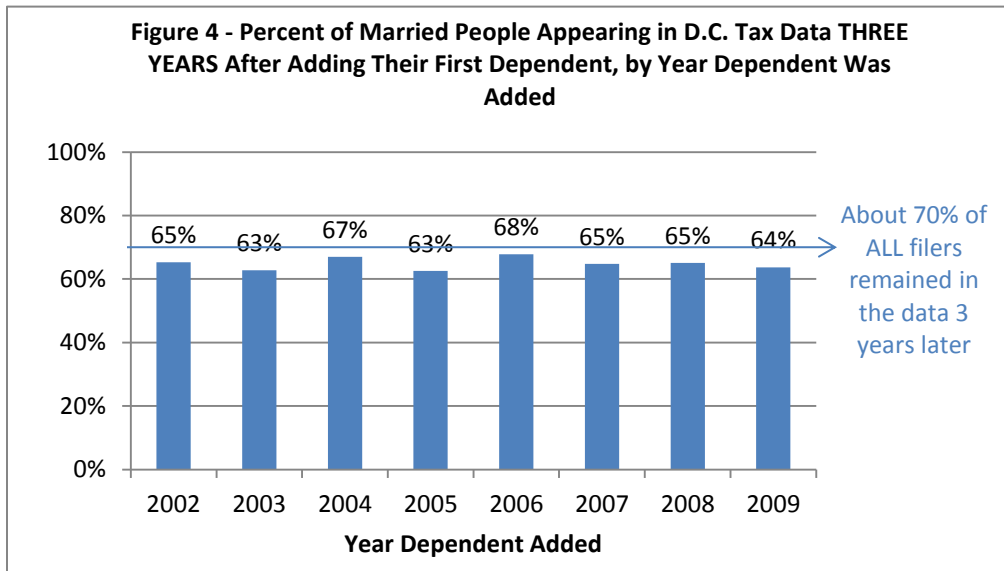
Figure 3 - Percent of People Who Stayed in the D.C. Tax Data: All Filers vs. Married People Who Added Their First Dependent between 2002 and 2007



Finding 3: New parents today appear to leave the city at rates similar to the rates of people who became new parents in early 2000's.

For people who had their first child between 2007 and 2011, there's been very little change in the portion of new parents staying in the city tax data. And when we looked at married people who added their first dependent between 2002 and 2009 we see no trend indicating that larger portions of new parents are choosing to stay in the city.¹⁰

The graphs below show that about 65 percent of married people remained in the tax data 3 years after they added their first dependent. About 55 percent remained 5 years later. This was true whether people added the dependent toward the beginning or end of the decade.



¹⁰ Since we can only track likely new parents that are married prior to 2007, we could be missing a trend being driven by single parents who had their first child before 2007. Only 50 to 60 percent of new parents we identified in the tax data were married and filed on the same return.

Note that this doesn't mean the number of new parents in the city has remained the same. We know that from 2001 to 2012 the number of births to city residents each year increased from around 7,600 to almost 9,400¹¹ and the number of children aged zero to five increased too¹². Our data seem to indicate that these increases are due to more city residents having children—not higher portions of new parents choosing to stay in the city after their children are born.

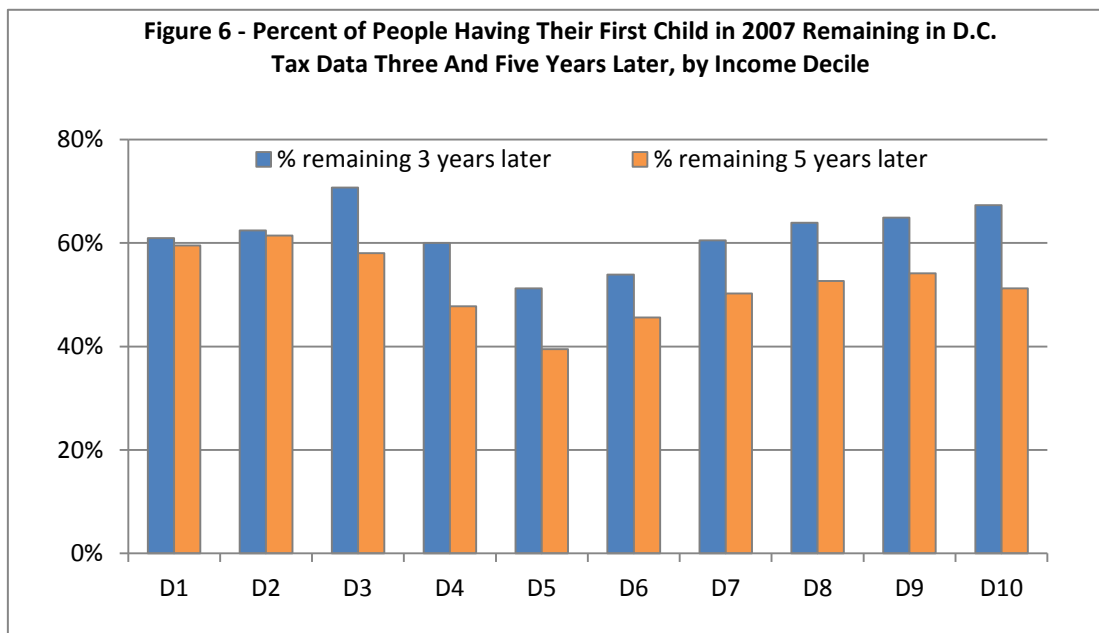
Finding 4: Middle-income new parents are more likely to leave the city than low- and high-income new parents.

The new parents most likely to appear in the D.C. tax data after their child's birth were those in the top and bottom thirty percent of the income distribution¹³ (those making below \$35,000 and more than \$146,000 in 2007). New parents with incomes in the middle (between \$35,000 and \$146,000 in 2007) were the least likely to be in the tax data after their child's birth.

The difference in “stay rates” by income is large. The portion of new parents in the fifth income decile that remained in the tax data was fifteen to twenty percentage points lower than that of parents in some of the highest and lowest income deciles.¹⁴

This was true for both the cohort of new parents who had their first child in 2007 and those who had their first child in 2009, as you can see in the graphs below.¹⁵

The data for these graphs are in Appendix D.



¹¹ According to the D.C. Department of Health's Center for Policy, Planning, and Evaluation.

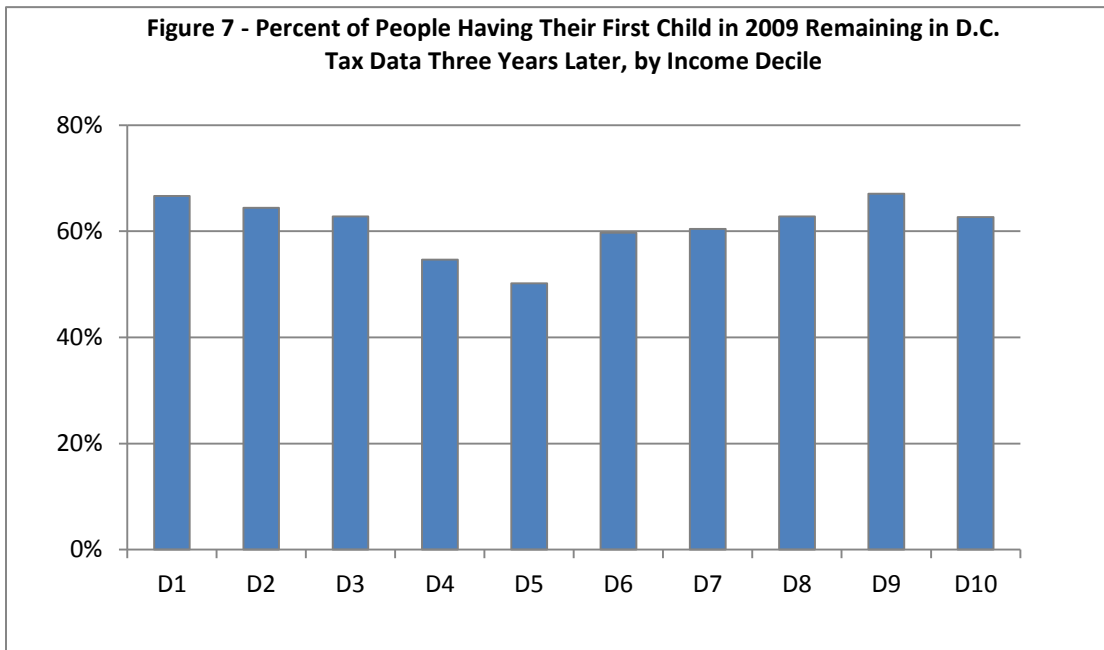
¹² According to D.C. Office of Planning.

¹³ We use federally adjusted gross income for our income measure.

¹⁴ We think the actual “stay rates” for new parents in the lowest deciles are likely higher than what we found since low-income people are more likely than others to drop out of the data because they didn't file taxes.

¹⁵ We were not able to identify people who became new parents in 2008 because the tax data had few dependent birth dates that year.

Income Decile Key (in 2007 \$)	
D1: \$0-\$13,000	D6: \$82,000-\$112,000
D2: \$13,000-\$23,000	D7: \$112,000-\$146,000
D3: \$23,000-\$35,000	D8: \$146,000-\$195,000
D4: \$35,000-\$54,000	D9: \$195,000-\$280,000
D5: \$54,000-\$82,000	D10: \$280,000+



Income Decile Key (in 2009 \$)	
D1: \$0-\$12,000	D6: \$99,000-\$130,000
D2: \$12,000-\$26,000	D7: \$130,000-\$161,000
D3: \$26,000-\$43,000	D8: \$161,000-\$198,000
D4: \$43,000-\$71,000	D9: \$198,000-\$270,000
D5: \$71,000-\$99,000	D10: \$270,000+

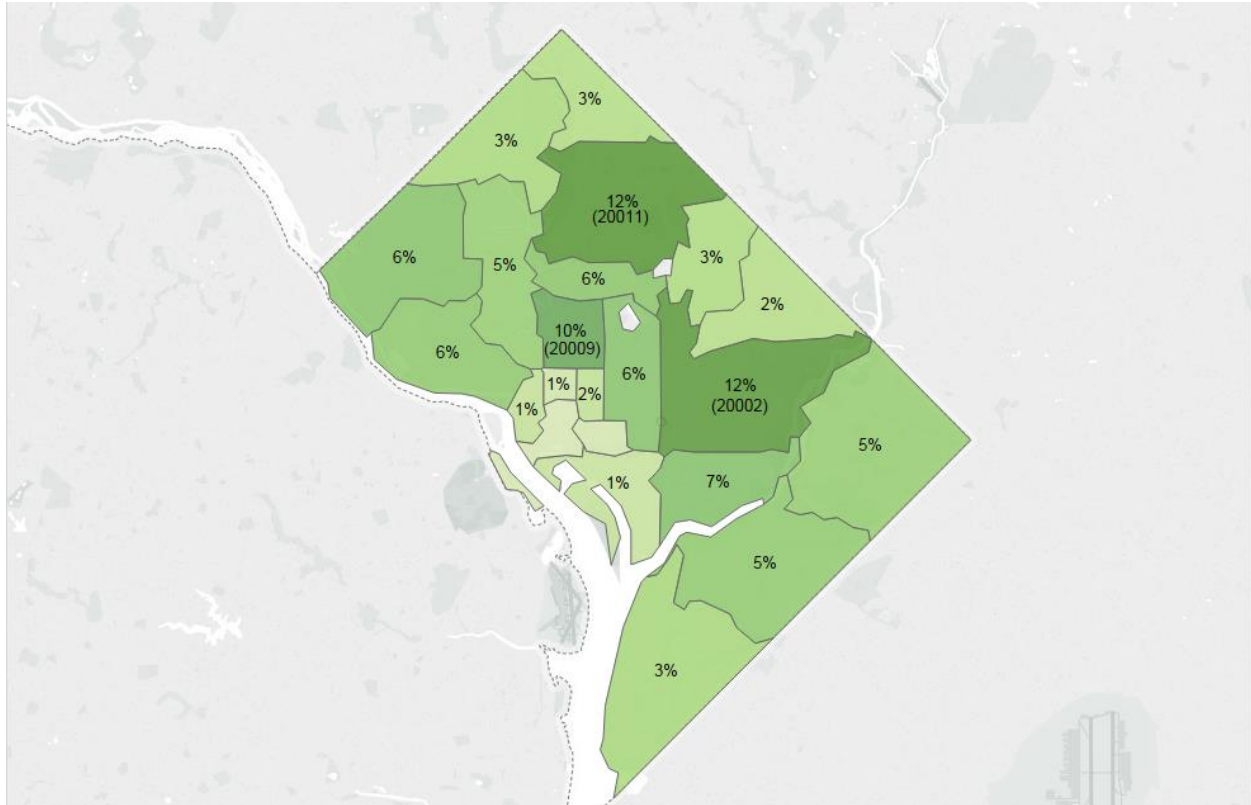
Finding 5: The neighborhoods that lose the largest portion of new parents are downtown or close to the city’s center. Zip codes 20011 (Brightwood Park, Petworth) and 20002 (Capitol Hill, Eckington, Kingman Park, Trinidad) are the most popular among new parents paying taxes in the city, both the year their first child is born and five years later.

When we looked at the addresses on the tax forms for people who had their first child between 2007 and 2011¹⁶, we found that 12 percent lived in zip codes 20011 (Petworth, Brightwood Park) and 20002 (Capitol Hill, Eckington, Kingman Park, Trinidad) the year their child was born, and 10 percent lived in zip

¹⁶ Except 2008. We didn’t have enough data in 2008 to include these parents in our analysis.

code 20009 (Columbia Heights, Adams Morgan, U Street).¹⁷ These were the most popular neighborhoods for taxpaying parents the year their first child was born.¹⁸

**Figure 8: Where New Parents Lived The Year Their First Child Was Born
(for children born between 2007 and 2011)**



Where did these parents move to as their children aged? For the cohort of parents who had their first child in 2007, about half dropped from the city tax records by the year their child turned 5. And out of the other half who remained in D.C., a little more than 25 percent changed zip codes within the city. The maps below show how this migration during the first five years of their child’s life—both out of and within the city—changed the number of parents in this cohort living in each zip code.

All zip codes had fewer parents from this group in 2012 than in 2007, but neighborhoods downtown and closer to the city’s center lost larger portions of these parents than others. As a result, by 2012, zip codes 20011 (Petworth, Brightwood Park) and 20002 (Capitol Hill, Eckington, Kingman Park, Trinidad) were still the most popular among parents who remained in the city, but more people now lived in zip code 20016, in the city’s far western corner, than in zip code 20009, closer to the city’s center (and home to the neighborhoods of Columbia Heights and Adams Morgan).

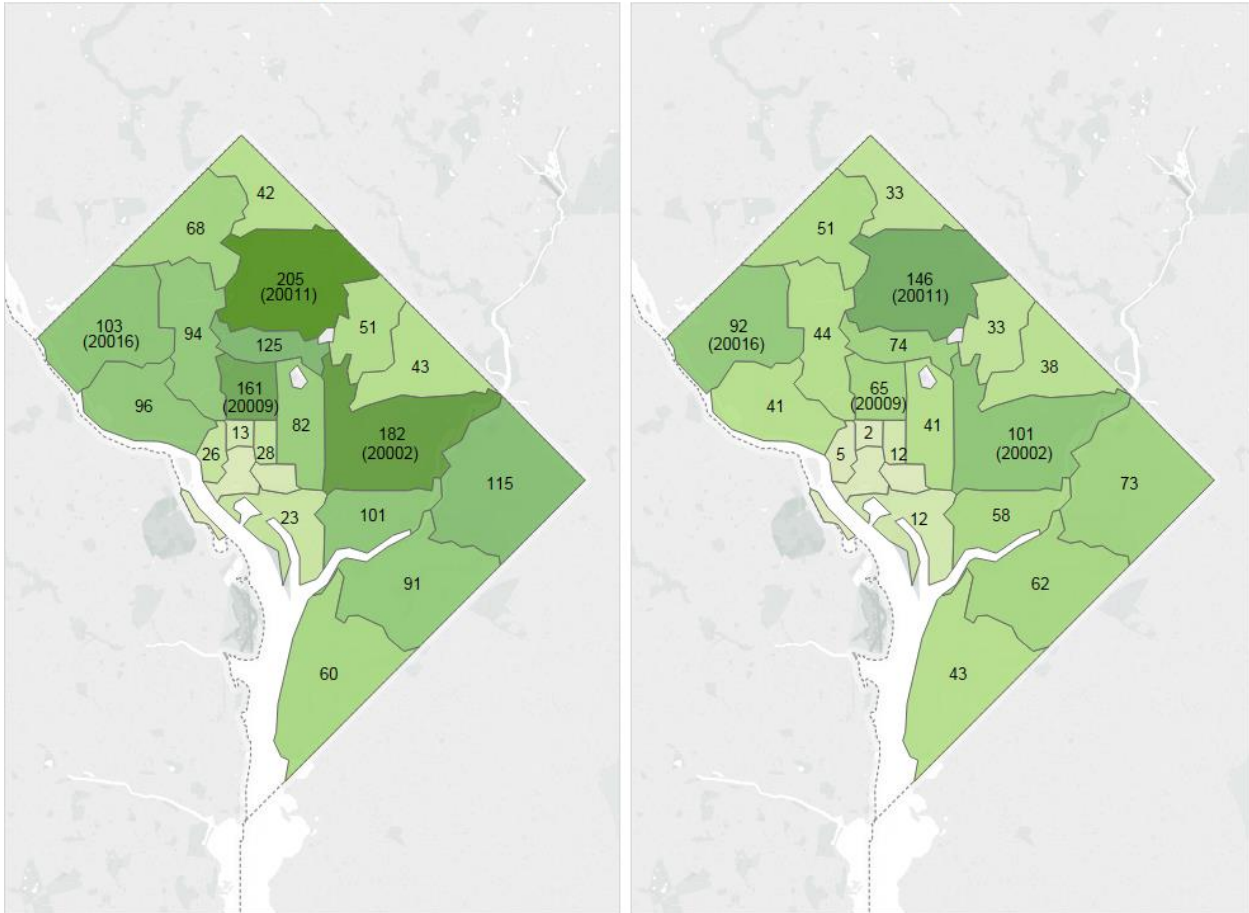
¹⁷ If we did not have a valid DC zip code for a tax filer the year their child was born, we used the most recent DC zip code they listed prior to the birth of their child, going back as far as two years before the child was born.

¹⁸ Since people who have incomes below certain thresholds are not required to file taxes, we likely undercount the share of new parents living in predominately low-income areas of the city.

Figure 9
Where People Who Became New Parents in 2007 Lived In...

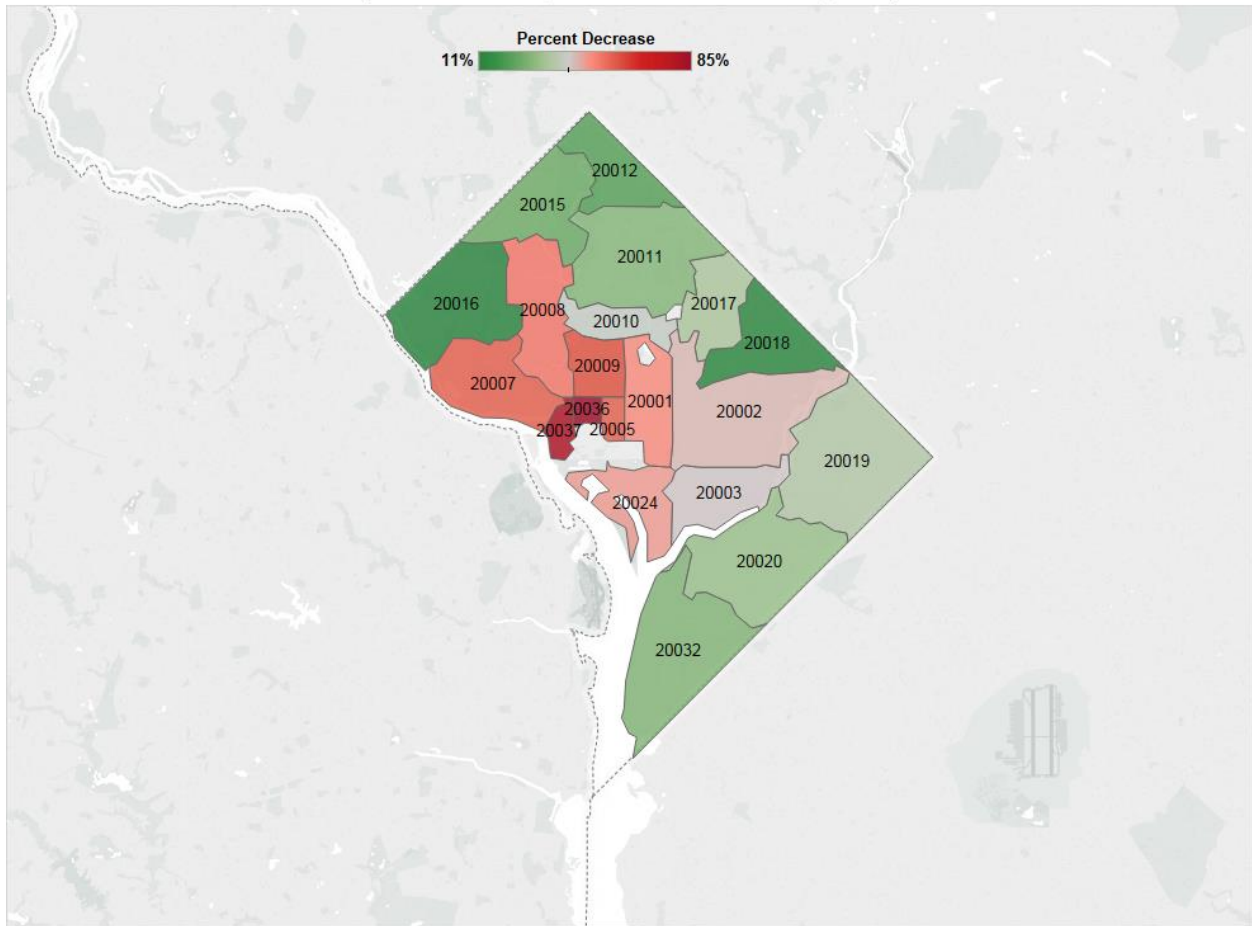
2007

2012



Note: We could only map the filers for whom we had valid D.C. zip codes. We had DC zip codes for 83 percent of the parents here in 2007 and zip codes for 96 percent of those who remained in 2012. Therefore, the actual number of filers we tracked is higher than what you see in the map above. The decrease of parents in each zip code in the map below would be higher if we had zip codes for everyone, but we believe the relative losses of each neighborhood still hold.

Figure 10
Percent Decrease in Parents Who Had Their First Child in 2007, Over First Five Years of Child's Life
(RED=above average loss; GREEN=below average loss)



The data we used to create these maps is in Appendix E.

Appendix A: Identifying New Parents in D.C.’s Tax Data

The new parents we tracked fell into two categories:

- People who had their first child between 2007 and 2011 and were living in D.C. the year before their child’s birth.** These filers claimed no dependents in one year, but the next year claimed one dependent with a birth date in that year. For example, the group of people who became new parents in 2007 consists of people who filed taxes in D.C. in 2006 and claimed zero dependents and then filed again in 2007 and claimed one dependent with a birth date in 2007. We could only use this method to identify people who became new parents between 2007 and 2011 because our data prior to 2007 does not have dependents’ birth dates.¹⁹ We estimate that the first births we can identify in the tax data account for 79 to 89 percent of all first births to D.C. residents, depending on the year.²⁰
- Married people²¹ who added their first dependent between 2002 and 2011 and were living in D.C. the year before they added the dependent.** These are married filers who claimed zero dependents in one year and one dependent the next year. For example, the married people we identified as adding their first dependent in 2003 were those who claimed zero dependents in 2002 and one dependent in 2003. We added these filers to our analysis because we wanted to follow parents who had their first child prior to 2007 but we didn’t have the dependent birth dates to identify them. This data is less reliable than that of the group above, because only 70 to 83 percent of these filers are new parents (depending on the year).²² The rest are presumably claiming an adult or older child as a dependent who they did not claim the year before. This group also skews higher income than the group above because we’re looking at married people only. What we gain by looking only at married people is a higher rate of new parents; when we looked at *everyone* who added a new dependent, only 34 to 43 percent were new parents (again, depending on the year).

The table below shows the number of filers in each of these groups.

Groups of “New Parents” We Tracked Over Time										
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Had First Child ^a	--	--	--	--	--	2,060	-- ^b	2,267	2,431	2,490
Married Couples that Added First Dependent ^c	1,456	1,390	1,483	1,546	1,488	1,499	1,654	1,764	1,837	1,815

^a People who claimed zero dependents one year and then the next year claimed one dependent with a birth date in that year. For example, parents in the 2007 cohort had their first baby in 2007.

¹⁹ Around 95 percent of the dependents we looked at in 2007 and later have birth dates. The exception is 2008, in which only 5 percent of dependents we looked at have birth dates.

²⁰ We estimated this by summing the number of tax filers each year who claimed only one child with a birth date in that year and comparing that number to the number of first births recorded by the Centers for Disease Control. CDC birth data is available at http://www.cdc.gov/nchs/data_access/vitalstats/VitalStats_Births.htm

²¹ People who filed taxes on the same return and listed their status as married.

²² We estimated this by looking at dependent birth dates from 2007 to 2011 for people adding their first dependent during this time.

^b Only 5 percent of the dependents listed in the 2008 data had birth dates, so we could not determine how many filers had a first child that year.

^c People filing as married who claimed zero dependents one year and one dependent the next. For example, couples in the 2003 cohort added their first dependent in 2003.

We compared these “new parents” to everyone who filed taxes in D.C. in the same initial years. For example, we compared the group of new parents who filed in D.C. in 2006 and had their first child in 2007 to all filers who filed local income taxes in D.C. in 2006 and 2007. The size of these groups of “all filers” are in the table below.

Groups of All Filers We Tracked Over Time										
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All Filers ^a	222,334	224,279	224,976	229,546	236,813	245,348	252,486	255,760	259,496	261,559

^a All filers who filed taxes in D.C. during the cohort year and the year prior. For example, people in the 2006 cohort filed taxes in D.C. in 2005 and 2006.

Appendix B: People Who Dropped Out of the Data vs. People Who Moved From the City

Not all filers who dropped from the tax data moved from the city. Some people might not have filed taxes and others could have listed themselves as the secondary filer on the tax form when in previous years they were the primary filer.

If we could account for these people, we believe the percentages of people actually staying in the city would be higher than we found, but the gap between new parents and all filers who stayed in the city would remain. In other words, we don't think we're seeing more new parents drop from the data more than others because a higher proportion of new parents switch their filing position or don't file taxes. In fact, using federal tax return data for D.C., we found that the percent of new parents and all filers appearing in the data would increase by 2 to 3 percentage points a year if we were able to account for people switching filing positions, but the gap between the two groups would not change (see below for more information). As for non-filers, we believe 87 percent of first-time parents and around 85 percent of all D.C. residents filed local income taxes in 2010. That makes us think that the gap we're seeing between the portion of new parents and all tax filers who stay in the city isn't due to non-filers being overrepresented among new parents.

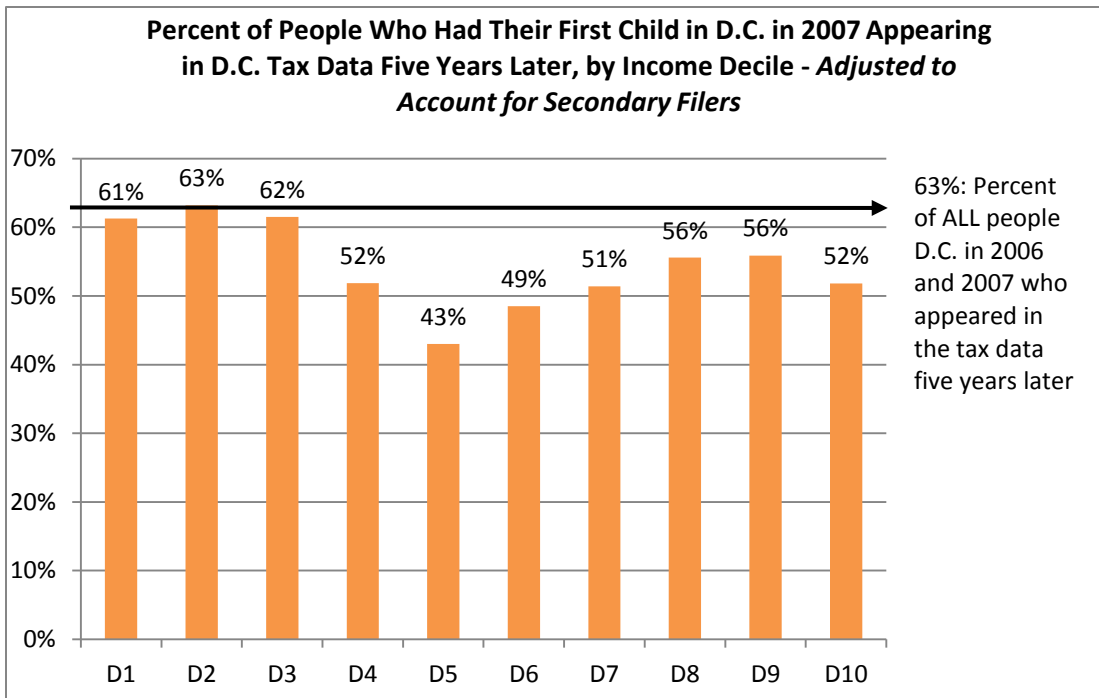
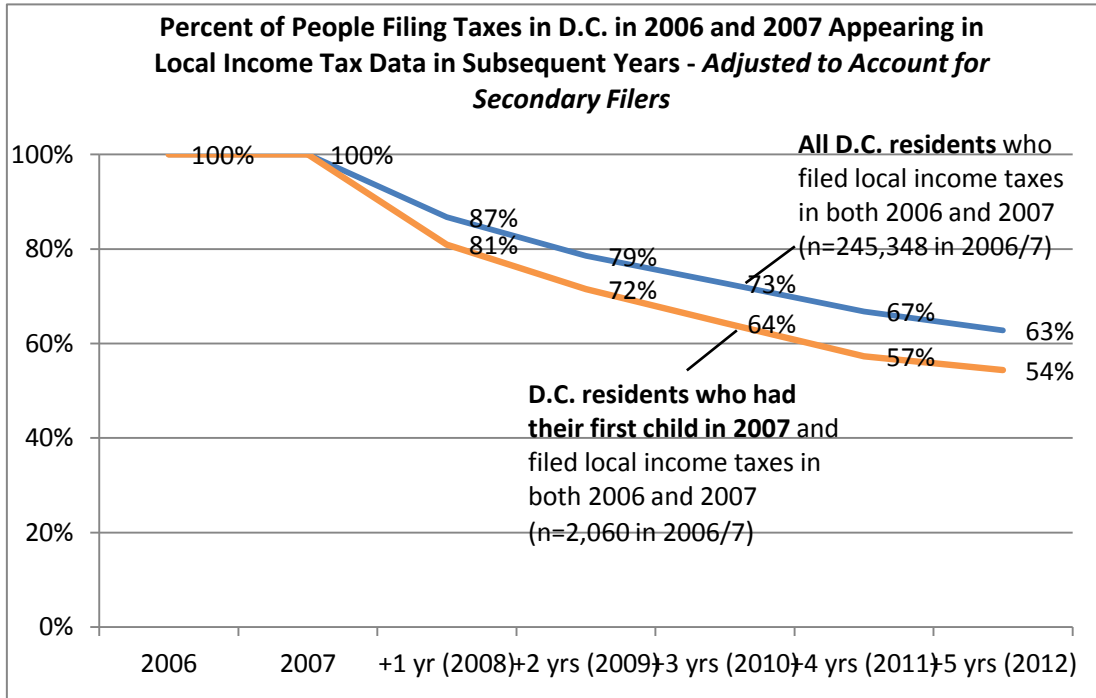
The Effect of People Switching Filing Positions:

For the study we used D.C.'s local income tax data. This data includes social security numbers for primary, but not secondary, filers. Married people who file jointly or separately on the same form list both spouses' names. The first listed is the primary filer while the second listed is the secondary filer.

We tracked primary filers over time and looked to see when they dropped from our data. We believe in most instances their dropping from the data meant that they moved out of D.C., but in some cases they could have stayed in the District, gotten married, and became the secondary filer. In other cases they could have already been married and filing as the primary filer but then listed themselves as the secondary filer at some point. Because we were only able to track primary filers, we could not differentiate between people who moved and people who switched from a primary to secondary filer. In other words, to us, it looked like those who switched filing positions had moved.

To figure out what effect this might have on our findings, we looked at people who filed *federal* income taxes in D.C. This data lists both primary and secondary filers. First we tracked the primary filers over time and looked at what percent remained in the data each year. Then we looked at how the percent remaining would change if we looked for people who started out as primary filers in both the primary filer and secondary filer field in subsequent years. What we found was that if we were able to track people in both the primary filer and secondary filer fields our rates of people staying in the city would be 1 to 4 percentage points higher than what we found when we tracked just primary filers. This held true across different years and different types of filers. While accounting for secondary filers would change the percent of people who moved it did not change our findings, since the gaps in move rates between new families and other groups of filers remained largely the same as did the gaps in move rates between new families of different income deciles.

The graphs below show how we believe our findings would change if we were able to track secondary filers in our data. We created these graphs using the difference in move rates we found when tracking primary filers in the federal data versus both primary and secondary filers. We added the move-rate difference to the move rates we found using the local income tax data.



Appendix C: Data on Married People Who Added Their First Dependent between 2002 – 2011.

Percent of Married People Adding Their First Dependent Remaining in the Tax Data in Subsequent Years^a											
		+1 yr	+2 yr	+3 yr	+4 yr	+5 yr	+6 yr	+7 yr	+8 yr	+9 yr	+10 yr
Year Filer Added Dependent	2002	84%	73%	65%	60%	56%	52%	49%	47%	45%	43%
	2003	84%	72%	63%	57%	54%	51%	48%	45%	44%	
	2004	86%	74%	67%	61%	58%	55%	51%	49%		
	2005	83%	71%	63%	58%	56%	51%	49%			
	2006	85%	75%	68%	62%	57%	54%				
	2007	82%	72%	65%	57%	54%					
	2008	86%	75%	65%	59%						
	2009	85%	73%	64%							
	2010	83%	72%								
	2011	84%									

^aPeople filing taxes as married who claimed zero dependents one year and one dependent the next. For example, people who added their first dependent in 2002 filed taxes in D.C. in 2001 and claimed one dependent and then filed again in 2002 and claimed 1 dependent.

Percent of All Filers Remaining in the Tax Data in Subsequent Years^a											
		+1 yr	+2 yr	+3 yr	+4 yr	+5 yr	+6 yr	+7 yr	+8 yr	+9 yr	+10 yr
2002	84%	75%	69%	64%	61%	57%	53%	51%	47%	45%	
2003	84%	76%	69%	65%	60%	57%	54%	50%	48%		
2004	85%	76%	70%	65%	61%	57%	53%	50%			
2005	85%	77%	70%	65%	61%	56%	53%				
2006	85%	76%	70%	65%	60%	57%					
2007	85%	76%	70%	64%	60%						
2008	85%	76%	69%	64%							
2009	85%	75%	69%								
2010	84%	75%									
2011	84%										

^aPeople who filed taxes in D.C. two years in a row. For example, the people we tracked starting in 2002 filed taxes in D.C. in both 2001 and 2002.

Appendix D: Percent of New Parents Staying in Tax Data, By Income Decile

Income Decile:	2007 Birth Cohort: % remaining 3 years later	2007 Birth Cohort: % remaining 5 years later	2009 Birth Cohort: % Remaining 3 years later
D1	61%	60%	67%
D2	62%	61%	64%
D3	71%	58%	63%
D4	60%	48%	55%
D5	51%	40%	50%
D6	54%	46%	60%
D7	60%	50%	60%
D8	64%	53%	63%
D9	65%	54%	67%
D10	67%	51%	63%

Note: Income is the federally adjusted gross income of the tax filer during the year of their child's birth.

Appendix E: Data by Zip Code

	Where New Parents Lived The Year of The Child's Birth				
	Birth Year: 2007	Birth Year: 2009	Birth Year: 2010	Birth Year: 2011	TOTAL, 2007- 2011
20001	82	123	138	153	496
20002	182	218	248	257	905
20003	101	142	139	140	522
20004	7	6	7	9	29
20005	28	25	40	34	127
20006	3	4	2	3	12
20007	96	124	110	111	441
20008	94	99	87	103	383
20009	161	175	189	216	741
20010	125	110	114	117	466
20011	205	236	231	263	935
20012	42	49	50	61	202
20013	0	3	4	1	8
20015	68	62	58	59	247
20016	103	119	132	144	498
20017	51	56	59	57	223
20018	43	57	46	38	184
20019	115	92	95	100	402
20020	91	121	99	111	422
20024	23	17	29	27	96
20026	0	0	1	0	1
20027	0	1	0	0	1
20029	1	0	0	0	1
20032	60	75	71	66	272
20036	13	14	7	19	53
20037	26	28	18	42	114
20038	1	1	2	1	5
20039	1	0	0	1	2
20040	1	0	1	1	3

Where People Who Had Their First Child in 2007 Lived In:		
	2007	2012
20001	82	41
20002	182	101
20003	101	58
20004	7	0
20005	28	12
20006	3	2
20007	96	41
20008	94	44
20009	161	65
20010	125	74
20011	205	146
20012	42	33
20015	68	51
20016	103	92
20017	51	33
20018	43	38
20019	115	73
20020	91	62
20024	23	12
20029	1	0
20032	60	43
20036	13	2
20037	26	5
20038	1	2
20039	1	0
20040	1	0

Note: We could only map the filers for whom we had valid D.C. zip codes. We had DC zip codes for 83 percent of the parents here in 2007 and zip codes for 96 percent of those who remained in 2012. Therefore, the actual number of filers we tracked is higher than what you see in the tables above. The decrease of parents in each zip code would be higher if we had zip codes for everyone, but we believe the relative losses of each neighborhood still hold.