
Income Mobility and the Earned Income Tax Credit: Short-Term Safety Net or Long-Term Income Support

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Abstract

The authors use a unique data set of federal tax returns to analyze usage and participation patterns of the Earned Income Tax Credit (EITC) over the period 1989–2006. The authors find that most EITC recipients claimed the EITC for short periods, 61% for 1 or 2 years. Over the period examined, the EITC reached approximately 50 percent of the taxpayers with children. Finally, the authors find considerable income mobility among the EITC eligible population. Only 11 percent of those claiming the EITC in 1990 and in the third decile of income were in the same

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decile in 2003. They also find that 20 percent of EITC claimants claim the EITC for more than 5 years.

Keywords

Earned Income tax credit, EITC, Income Mobility, Taxation, redistribution, safety net, income support

The Earned Income Tax Credit (EITC) was enacted in the Tax Reduction Acts of 1975 as a mechanism for providing tax relief to working low-income families suffering from the 1974–1975 recession. Proponents argued that the EITC was a tool that could be used to encourage work by “low-income families who might otherwise need large welfare payments” (U.S. Joint Committee on Taxation 1979, 51). Thus, the EITC was designed with two major objectives: first, to act as a safety net and provide relief to the working poor hit hard by the 1974 and 1975 economic recession and, second, to act as a work incentive for individuals and families to encourage them to move into the labor force.

Eissa and Liebman (1996) and Hotz, Mullin, and Scholz (2005) and others have found evidence that the EITC modestly increases labor supply.¹ Grogger (2004) and Dowd (2005) found a negative relationship between EITC and welfare. In combination, these results suggest that the EITC acts as a work incentive, mitigating the usage of other safety nets. Finally, Auerbach and Feenberg (2000) and Dowd (2005) found that the EITC acts countercyclically and is correlated with downturns. The EITC, therefore, also appears to be fulfilling its other major objective of being a safety net for individuals who are hit by individually specific or economy-wide shocks.

In this article, we try to disentangle the extent to which the EITC is used as a short-term safety net or a long-term income support. If a household’s income remains stable from year to year within the ranges of EITC eligibility, then we assume that the EITC acted as a long-term income support. We assume that the EITC primarily acts as a short-term safety net for households who receive the EITC for short amounts of time. Next, we investigate the causes that contribute to the movement from one portion of the income distribution to another.

We look at usage of the EITC over the period 1989–2006, with particular attention to the length of time that an EITC recipient claims the credit and on how likely a recipient is to reclaim the credit after a period of not claiming the credit. All else equal, there are four major reasons that a taxpayer might move in and out of receiving the EITC: (1) changes in income, (2)

changes in the eligibility of children, (3) changes in family structure such as the gain or loss of spousal income, and (4) law changes that make the EITC phase-out more generous. These are not mutually exclusive. A divorce or adding a child to the family might result in short-term lower income.

We find that most EITC recipients claim the EITC for short amounts of time. Sixty-one percent have spells of one or 2 years. However, at the same time, we find that 20 percent of EITC recipients starting a spell, conditional on observing the taxpayer in 1989, claim the credit 5 or more years. Therefore, for some taxpayers, the EITC acts as a temporary safety net during periods of either anticipated or unanticipated income or family structure shocks. But the EITC also acts as a long-term mechanism of providing assistance to taxpayers with children who are entrenched in the lowest-income brackets.

Data

We use a representative random panel of individual income tax returns provided by the Statistics of Income of the Internal Revenue Service (IRS) that were filed between 1989 and 2006, the Continuous Work History Sample (CWHS). Most of the time we restrict our analysis to tax returns that claimed a dependent child either in the tax year being analyzed (the reference year) or, in the case of the panel data, in at least one of the years of the panel.

Selection into the CWHS panel is based on the randomly assigned last four digits of the primary taxpayer's Social Security number (SSN).² The selection process results in an automatic refreshment characteristic; any taxpayer filing a return with the selected SSN as the primary taxpayer is included in the CWHS sample each year that they file as the primary taxpayer.³

Unfortunately, because selection into the panel is based on the SSN of the primary taxpayer, and women tend to be listed as the secondary taxpayer on most married filing joint tax returns, the CWHS panel is biased toward oversampling men.⁴ As a consequence, marital changes can result in no longer observing women. For example, if a single woman in the panel marries and files as the secondary taxpayer, she will no longer be sampled (unless her husband also has a CWHS SSN) or if a married woman divorces but does not have the selected SSN, she will not be sampled in subsequent years. For purposes of spell-length estimates, the bias against sampling women will result in shorter observed spell lengths.

Approximately 3 percent of tax returns are filed for years prior to the current tax year. We include these taxpayers who file untimely returns in the panel for the appropriate tax filing year. However, while we try to correct for untimely filers, the sample is censored in both 1989 and 2006. This censoring will reduce the number of times we observe a taxpayer claiming the EITC. Moreover, some taxpayers do not file returns in every year of the sample (22 percent of taxpayers observed in 1990 were either missing in 2003 or had changed marital status and were not observed). Generally, we keep these observations because both the observable and the missing returns tell us about the usage of the EITC.

The CWHS sample of tax returns is a rich data set that contains information on actual EITC receipt and a wide variety of income and demographic variables. Among some of the demographic variables are information about the number of dependents and the age of the taxpayer and dependents (starting in 1995).

Table 1 shows the sample sizes of each year of the CWHS data set based on the two-number sample. The sample sizes range from a low of 22,460 in 1989 to a high of 26,810 in 2006. Restricting the sample to taxpayers that have a child in at least 1 year cuts the sample size roughly in half. Further restricting the sample to taxpayers that have a child in the year of interest, or the reference year, eliminates almost two-thirds of the CWHS observations. Finally, the last two columns show how the CWHS weighted number of EITC recipients and the actual number of EITC recipients (last column) had a sharp increase from 15 million in 1993 to 19 million in 1994. This increase reflects the 1994 expansion of the EITC to taxpayers without a qualifying child and a more generous credit.

Table 1 shows a steady increase in the number of returns that are included in the panel. However, these increases belie the underlying level of attrition in the panel. From one year to the next, there is approximately 8 percent attrition of CWHS observations. Attrition from the sample is due to deaths, nonfiling, and marital status changes. As discussed previously, marital status changes introduce a bias to the sample; rather than dropping out of the filing population some returns are simply not observed (e.g., single filer with CWHS SSN marries and becomes secondary on joint return). We estimate that 2,899 CWHS taxpayers died between 1989 and 2003, representing almost 12 percent of the CWHS tax returns in 1989; approximately equal to the average annual U.S. population death rates of slightly less than 1 percent (Xu et. Al. (2010)).⁵ Finally, we estimate that total attrition from the sample between 1989 and 2006 is approximately 40 percent.

Table 1. CWHS Panel Sample Sizes, and Number of EITC Recipients

Tax year	Total number of two-number CWHS observations	Number of observations with child present at some point 1989–2006	Number of observations with child in reference year	Number of EITC recipients CWHS based (millions)	Number of EITC recipients population based (millions)
1989	22,460	12,155	7,764	11.9	11.7
1990	22,675	12,456	7,900	12.6	12.5
1991	22,789	12,630	8,027	13.9	13.7
1992	22,687	12,772	8,177	14.1	14.1
1993	22,911	13,044	8,261	15.0	15.1
1994	23,117	13,246	8,198	19.3	19.0
1995	23,573	13,519	8,347	19.2	19.3
1996	23,966	13,805	8,392	19.7	19.5
1997	24,342	13,999	8,483	19.4	19.4
1998	24,970	14,333	8,679	19.8	20.3
1999	25,464	14,545	8,889	19.7	19.3
2000	26,000	14,693	8,999	19.8	19.3
2001	26,036	14,744	9,078	20.1	19.6
2002	25,953	14,626	9,088	22.0	21.7
2003	25,971	14,624	9,043	22.3	22.0
2004	26,184	14,559	9,084	22.5	22.3
2005	26,530	14,455	9,174	22.5	22.8
2006	26,810	14,267	9,123	22.7	23.0

Source: Authors' calculations and Internal Revenue Service.

Note: CWHS = Continuous Work History Sample; EITC = Earned Income Tax Credit.

Claim Rates

In order to understand whether the EITC acts primarily as a short-term safety net or as a long-term income support, it is necessary to understand how different groups claim the credit over time. In particular, we look at the percentage of taxpayers who claim the credit in any given year and over a longer period for which one might expect to have a qualifying child. For taxpayers who generally claim the credit only once or twice, we argue that the credit primarily acts as a safety net for brief income, employment, or family structure shocks. Alternatively, if taxpayers generally claim the credit for longer periods, then we argue that the credit is largely helping low-income families make ends meet while at the same time encouraging labor force attachment.

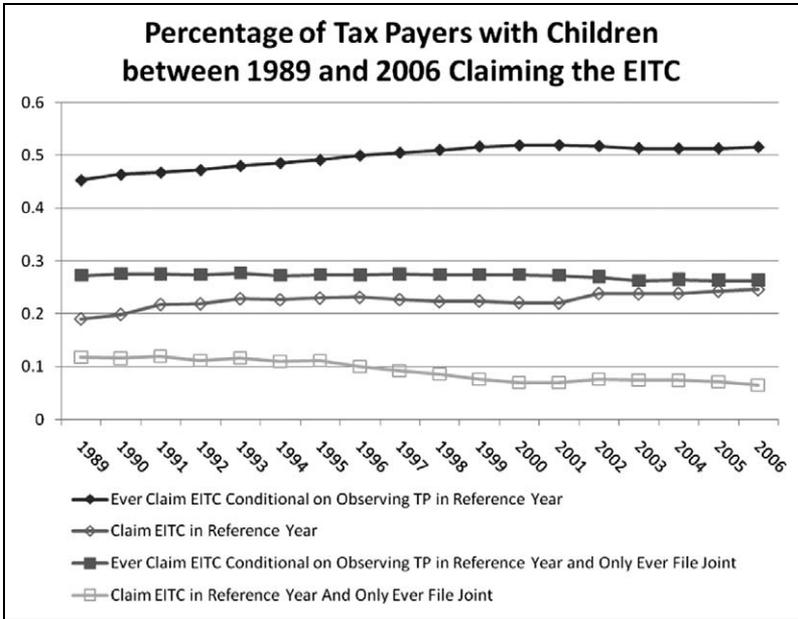


Figure 1. Probability of claiming the Earned Income Tax Credit (EITC)

Source: Authors' calculation based on Continuous Work History Sample sample of tax returns from 1989 to 2006, conditional on tax payer having a dependent child sometime between 1989 and 2006.

Note: Claim rates do not include the childless EITC. TP indicates taxpayer.

Figure 1 shows four different probabilities of claiming the EITC based on the CWSH panel data. The series in the figure include taxpayers for whom we might have missing returns for some of the years. All of the series are conditional on the taxpayer having a child in at least 1 year between 1989 and 2006. The top line, solid diamonds, of the figure indicates that roughly 50 percent of taxpayers who have a child in at least 1 year of the 18-year sample, claim the EITC at some point over the 18-year period! Obviously, the EITC has very broad reach to families with children who file tax returns. In 2006, for all taxpayers with children, the median wage income was \$37,808; the median adjusted gross income was \$3,174. Given that the zero-credit income for two or more children was \$38,348, it is not surprising that a large portion of taxpayers with children claim the credit.

The second from the bottom line, open diamonds, in Figure 1 shows the percentage of taxpayers who have a child for at least 1 year who claim the

EITC in the reference year.⁶ There is a slight upward trend from 18 percent in 1989 to 23 percent in 1996, leveling off until an uptick in 2002 from 22 to 24 percent. The increase in 2002 is the combined result of the changes made in the Economic Growth and Tax Relief Reconciliation Act of 2001, which increased the phase-out threshold for taxpayers filing married jointly and the 2001 recession. The difference between taxpayers who claim the credit at least once, the solid diamond series, and taxpayers who claim the credit in the reference year, the open diamond series, shows the extent to which there is observed churning of taxpayers claiming the EITC. If all of the EITC recipients claimed the credit every year with a qualifying child, these two lines would be the same. Thus, the gap between these two lines is an indicator of the degree to which there is churning of recipients and dropping of panel members due to the sampling structure. The flip side of churning is that the gap shows the degree to which the EITC might be acting as a short-term safety net.

Because the CWSHS sample potentially undersamples women, and especially women who change marital status, the amount of churning indicated by the two diamond lines in Figure 1 could be overstated. To get a sense of the degree to which our basic estimate overstates the amount of churning, the other two series presented in Figure 1 show the probability of claiming the credit for taxpayers who file joint returns. Restricting the sample to taxpayers who file joint returns reduces the number of observations from 12,155 in 1989 to 4,353. The solid square series presents the probability of claiming the credit at least once during the 18-year period, while the open square series presents the probability of claiming the credit in the reference year. Not surprisingly, overall claim rates vary by filing status, and are lower for taxpayers who file joint returns. The difference among joint filing taxpayers who claim the credit at least once, the solid square series, and joint filing taxpayers who claim the credit in the reference year, the open square series represents the amount of churning of claiming the credit for joint-filing taxpayers. The gap between the two joint-filer series ranges from 15 to 20 percentage points. Thus, even for taxpayers who file a joint return, there is still quite a bit of churning.

Figure 2 shows the probability of claiming the EITC conditional on either claiming the credit in 1991 or in 2004. The solid square markers are for taxpayers who claimed the credit in 1991, and the solid circle markers are for taxpayers who claimed the credit in 2004. The open square markers only include taxpayers who filed a joint return and claimed the credit in 1991 while the open circle markers only include taxpayers who filed a joint return and claimed the credit in 2004.⁷

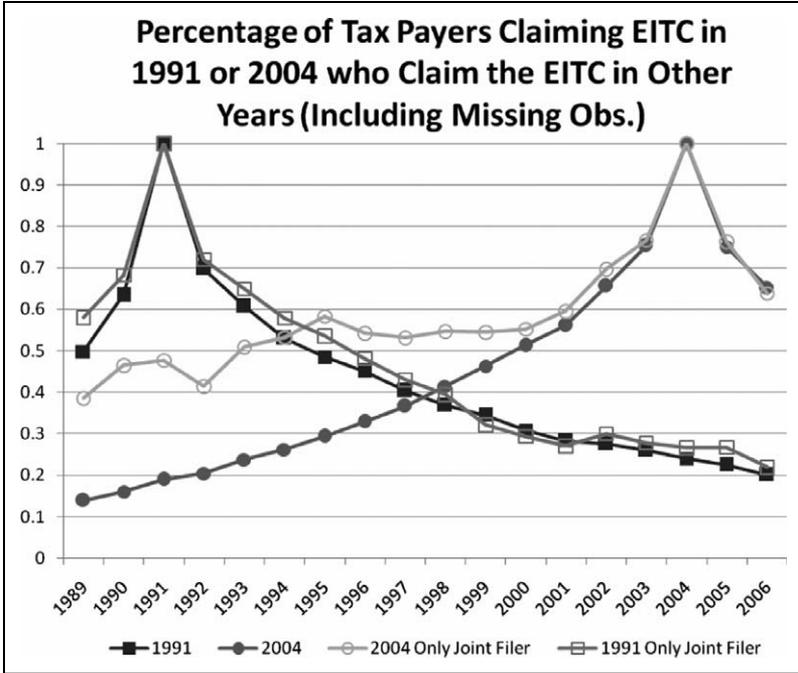


Figure 2. Forward and backward probability of claiming the Earned Income Tax Credit (EITC)
 Source: Authors' calculation based on Continuous Work History Sample sample of tax returns from 1989 to 2006, conditional on taxpayer having a dependent child sometime between 1989 and 2006.
 Note: Claim rates do not include the childless EITC.

Figure 2 shows a very steep drop off from either 1991 or 2004, with only 70 percent of those that claim the credit in 1991 also claiming the credit in 1992. After 15 years, in 2006, only 20 percent of those that claimed the credit in 1991 make a repeat claim in 2006. For the series conditional on claiming the credit in 2004, a similar pattern holds with less than 15 percent of the taxpayers claiming the credit in 1989. The two series that only included joint filers have a similar pattern to those of all filers. However, for the 2004 joint filers there appears to be a greater tendency to claim the credit in earlier years. Thus, for the 2 to 3 years surrounding 1991 and 2004, female sample bias does not appear to be a major part of the story. However, there does appear to be a problem with joint filers that we observe claiming the EITC in 2004; they have a much higher probability of claiming the credit in the early years

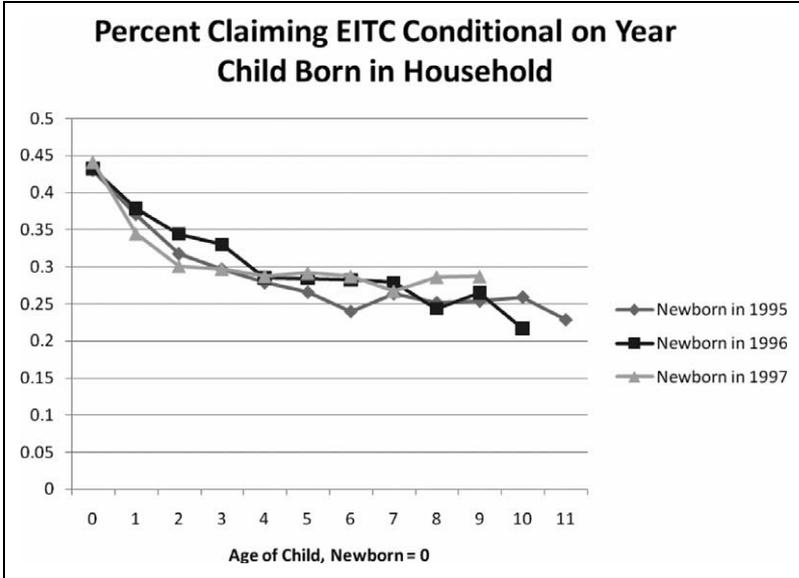


Figure 3. Newborn Earned Income Tax Credit (EITC) claim rate transitions
Source: Authors' calculations based on cross-sectional tax return data from 1995 to 2006.
Note: calculations do not include the childless EITC.

than all filers do. This could be due to female sample bias, although the fact that the 1991 joint-filer series does not also exhibit this problem suggests that it may be something else. In particular, joint filers that we observe as joint filers in 1990 and as joint filers in 2004 and claiming the EITC may be a significantly different subpopulation.

As noted previously, one reason for changes in claim rates for taxpayers over time is the result of changes in family structure. In particular, because EITC eligibility is directly related to the presence of children in the household, we might suspect that the claim rates are related to the age of the child. Unfortunately, we only have the age of the child starting in 1995. Figure 3 shows the time path of claim rates as the qualifying child ages, conditional on observing the taxpayer in the year the child is born. In the initial year that the child is born, there is approximately a 43 percent probability of claiming the EITC. For the three starting years that we look at, claim rates decline in a fairly similar pattern. Some of the decline likely represents the normal anticipated shock that having a newborn has on family labor income in the

year of birth, thereby reducing income in the birth year and increasing eligibility. Later, in the section on income mobility, over the period 1995–2002, we find that the loss in wage earnings associated with having a newborn for those who claim the EITC ranges from a low in the birth year 1999 of 7.5 percent to a high in the birth year 2002 of 15.6 percent.

Figures 1 through 3 indicate the broad reach of the EITC to taxpayers who file tax returns. However, if most eligible families are unable, or unwilling, to claim the credit, then arguably the EITC is a poor mechanism for either providing a safety net or for encouraging labor force attachment and upward mobility. Scholz (1994) estimates a participation rate of between 80 and 83 percent. More recently, Blumenthal, Erard, and Ho (2005) find that 89 percent of those taxpayers legally required to file a tax return and who are eligible for the EITC claimed the credit and that between 30 and 39 percent of families not legally required to file a tax return and eligible for the EITC claimed the EITC. Their combined participation rate for 1988 is between 69 percent and 74 percent. Dickert-Conlin, Fitzpatrick, and Hanson (2005) survey EITC participation studies and find that participation estimates for the EITC range from between 42 percent and 96 percent. In sum, participation research seems to indicate that a large portion of those that are eligible for the EITC do in fact claim it.

Description of Spell Length

The high degree of turnover in the EITC population indicated by Figures 1 through 3, suggests that taxpayers either claim the EITC for short periods of time or cycle on and off fairly frequently. Table 2 shows the length of EITC spells for taxpayers that we observe in 1989 and that have a child present at some point during the period 1989–2006. A spell is the time during which a family actually received the EITC. Calculations regarding spell length are based on Bane and Elwood (1983, 1994).⁸ Column 1 shows the length of a spell in years. Columns 2 and 3 report statistics for families beginning a spell. Column 4 is for families at a point in time. Point in time estimates are a snapshot at a particular time, and as a result they sample more longer spells.

$D(t)$ is the fraction of families who have EITC spells that last exactly t years. Forty-two percentage of spells last 1 year and 19 percent last 2 years for a total of 61 percent of spells completed in 2 years or less. Overall, the average spell length is roughly 3 years. This is slightly longer than Horowitz (2002) who found an average spell length for families newly claiming the

Table 2. Distribution of EITC Spells

Spell length in years (1)	Families beginning a spell		Families at a point in time
	Completed spell distribution $D(t)$ (2)	Exit probability $p(t)$ (3)	Completed spell distribution $F(t)$ (4)
1	0.420	0.420	0.141
2	0.191	0.329	0.128
3	0.118	0.303	0.119
4	0.076	0.279	0.101
5	0.050	0.255	0.084
6	0.036	0.245	0.072
7	0.024	0.221	0.057
8	0.022	0.255	0.059
9	0.017	0.272	0.052
10	0.014	0.294	0.046
11	0.010	0.311	0.038
12	0.006	0.254	0.023
13	0.005	0.311	0.023
14	0.004	0.352	0.019
15	0.003	0.424	0.016
16	0.002	0.500	0.012
17	0.002	1.000	0.012
Totals	1.00		1.000
Average	2.985		5.297

Source: Authors' calculations and 1989–2006 Individual Statistics of Income. Tabulations are conditional on observing the taxpayer in 1989 and having a child at some point in the 18-year period.

Note: EITC = Earned Income Tax Credit.

EITC was 2.1346 years and 50.56 percent of spells lasted only 1 year. Using data covering the years 1989–2003 and not restricting the data to those with children, Dowd (2005) finds that 41 percent of recipients receive the credit for 1 or 2 years and 49 percent for 3 or fewer years.

In column 3, $p(t)$ is the probability that a household in their t th year of EITC receipt ends their spell at the end of the year. $p(t)$ is the exit probability. $p(1)$ is the probability that a family in the first year of a spell does not continue the second year. In Table 2, $D(1)$ is the 42 percent of households who received the EITC in a spell that lasted only 1 year, and $p(1)$ is the 42 percent of households that received the EITC the first year but who do not claim the EITC the second year.

To calculate $D(t)$, the fraction of families beginning a spell who eventually have a spell that lasts t years, calculate the fraction of families who

last $t - 1$ years and multiply by the probability of exiting after t years. $D(1) = p(1)$; $D(2) = p(2)(1 - D(1))$; $D(3) = p(3)(1 - D(1) - D(2))$; and

$$D(t) = p(t) \left(1 - \sum_{j=1}^{t-1} D(j) \right). \quad (1)$$

Solving for $p(t)$, equation (1) becomes

$$p(t) = \frac{D(t)}{1 - \sum_{j=1}^{t-2} D(j)}. \quad (2)$$

Thirty percentage of households who received the EITC in the third year will not receive it the 4th year.⁹ Interestingly, after the first year exit probability of 42 percent, the exit probabilities hover around 30 percent.¹⁰ This result is consistent with EITC usage shown in Figure 2, where there was a steep drop-off from the reference EITC claim year in the first year and then a more gradual drop in claim rates.

Column 4, $F(t)$ shows the fraction of all households who receive the EITC at a point in time and who received the EITC for exactly t years. Equation 3 assumes a no growth steady state, so the number of families starting a spell each year is assumed to be constant. The numerator $tD(t)$ is the fraction of families who have EITC spells that last exactly t years weighted by duration t . The denominator is the sum of all $tD(t)$.

$$F(t) = \frac{tD(t)}{\sum_{j=1}^{\infty} jD(j)} \quad (3)$$

In any given year, the number of families in a 1-year spell will only be those who started a new spell that year ($D(1)$). Families who began a 1-year spell in previous years will no longer be receiving the EITC unless they started a new spell. However, families with longer spells tend to accumulate. For example, families that are in 3-year spell will be those who started anytime in the last 3 years ($3D(3)$). This means that even though the number of families starting a 1-year or 3-year spell may be equal, there will be three times as many families in a 3-year spell in a given year.

The average spell length for a family at a point in time is 5.3 years, which is approximately 2.25 years longer than the average spell duration for a family beginning a spell. About 63 percent of spells are 5 years or less.

Horowitz (2002) found an average spell length of 3.55 years for families at a point in time versus our data that find an average spell length of 5.3 years. The average spell is about a year and a half longer for families using administrative receipt data rather than survey eligibility data.

Table 3. Reentry for EITC Exits

Years since exit (1)	Reentry rate $R(t)$ (2)	Percentage of households reclaiming the EITC (3)	Cumulative percentage of households reclaiming the EITC (4)
1	0.449	0.198	0.198
2	0.346	0.084	0.282
3	0.294	0.047	0.328
4	0.279	0.031	0.360
5	0.283	0.023	0.383
6	0.272	0.016	0.398
7	0.270	0.011	0.410
8	0.261	0.008	0.418
9	0.292	0.007	0.424
10	0.349	0.006	0.430
11	0.317	0.003	0.433
12	0.321	0.002	0.436
13	0.500	0.002	0.438
14	0.684	0.002	0.440
15	0.667	0.001	0.440
16	1.000	0.000	0.440
Total Returning		0.440	

Source: Authors calculations and 1989–2006 Individual Statistics of Income. Tabulations are conditional on observing the taxpayer in 1989 and having a child at some point in the 18-year period. Note: EITC = Earned Income Tax Credit.

Horowitz's results for eligible families between 1975 and 1992 found somewhat more mobility than we find for our later period with tax data. The average spell length for families beginning a spell is 2.135 using the earlier eligibility data and 3 years using actual recipients. This is almost a full year longer. Some of this difference might be attributed to the different time period of analysis; Horowitz's (2002) data were for the years 1975–1992 while the data in this study are for the years 1989–2006. The later sample years captures a period where the EITC was a much larger program with many more claimants and a period when welfare reform was encouraging labor force participation.

Table 2 indicates that almost a third of EITC claimants exit each year. This suggests that there is considerable movement of taxpayers onto and off the EITC. However, it does not tell us anything about whether these taxpayers claim the EITC again after a period of not claiming the credit.

Table 3 column 2 shows the reentry rate $R(t)$ for persons exiting the EITC, for whom we observe filing a tax return in 1989 and have a child present at some point during the 18-year period. Column 1 shows the year since the exit and column 2 shows the probability that a family who has not received the EITC for t years will start a new spell. Approximately, 45 percent of those EITC recipients who did not receive the EITC for 1 year will claim the EITC again the next year. Approximately, 35 percent of those who did not receive the EITC for 2 years will receive it again the 3rd year. In other words, there is considerable churning, with taxpayers claiming the credit for short frequent spells.

Column 3 shows the percentage of households who after the t th year reclaim the credit again. About 20 percent of households start another spell after 1 year, and about 8 percent of households start a spell after 2 years of not claiming the credit. Column 4 shows the cumulative percentage of households that reclaim the EITC. Forty-four percentage of households reclaim the EITC in the first 16 years, with 38 percent reclaiming the credit in the first 5 years.

Large expansions of the EITC increase the likelihood that families will remain in the EITC longer and those who do exit are more likely to reenter. In order to understand how policy and programmatic changes could affect claim rates, Table 4 examines what the completed spell distributions would look like if the 1989 programmatic details were held constant throughout the period 1989–2006.¹¹

Using 1989 parameters and only including spells that were completed by 2006, the average spell length decreased only slightly from 3.0 years (Table 2, column 2) to 2.7 years (Table 4, column 2). Looking at the completed spell distribution, the average spell length decreased from 5.3 years in Table 2 to 4.8 in Table 4. Changing parameters and right-censored data do not seem to have had major effects on the results. Using a slightly different sample, Dowd (2005) also found that for persons with a child, the probability of claiming the credit was little affected by the changes to the EITC since 1989.

Table 5 looks at how reentry for the EITC might have been affected by the programmatic changes over time, by holding the program details constant at the 1989 levels for completed spells only.¹² The reentry rate decreases from 44 percent to 35.5 percent. Instead of 38 percent returning to the EITC after 5 years, 32 percent return to the EITC. These results are much closer to those of Horowitz (2002) for the earlier time period suggesting that the changes enacted in the 1990s have led to an increase in repeat usage.

Table 4. Distribution of EITC Spells (1989 Parameters and Completed Spells Only)

Spell length in years (1)	Families beginning a spell		Families at a point in time
	Completed spell distribution $D(t)$ (2)	Exit probability $p(t)$ (3)	Completed spell distribution $F(t)$ (4)
1	0.454	0.454	0.170
2	0.187	0.342	0.140
3	0.118	0.329	0.132
4	0.074	0.307	0.110
5	0.050	0.297	0.093
6	0.035	0.296	0.078
7	0.023	0.277	0.060
8	0.018	0.304	0.054
9	0.013	0.314	0.044
10	0.012	0.413	0.044
11	0.006	0.373	0.026
12	0.005	0.459	0.022
13	0.004	0.650	0.018
14	0.002	1.000	0.010
15	0.000		0.000
Totals	1.000		1.000
Average	2.677		4.826

Note: EITC = Earned Income Tax Credit. EITC benefits calculated using constant law 1989 parameters. Tabulations are conditional on observing the taxpayer in 1989 and having a child at some point in the 18-year period.

Families who are in the phase-out range of the EITC may have different spell lengths than families in the phase-in range or the maximum credit range. Table 6 shows the distributions of EITC spells based on whether the taxpayer was in the phase-in, maximum credit, or the phase-out ranges the first year of claiming the credit. Spell lengths are recorded for any EITC claim, regardless of which range they were in during subsequent years. According to Table 6, families beginning a spell and in the phase-out range on average experience shorter spells claiming the EITC. Families in the maximum credit range had average spells of 3.9 years, while families in the phase-in range had average spells of 3.2 years, and those in the phase-out range had average spells of 2.7 years. In sum, families are quite mobile and generally do not stay on the EITC for long periods, regardless of whether they initially claimed the credit in the phase-in or in some other programmatic range.

Table 5. Reentry for EITC Exits (1989 Parameters and Completed Spells Only)

Years since exit	Reentry rate	Percentage of households reclaiming the EITC	Cumulative percentage of households reclaiming the EITC
1	0.490	0.174	0.174
2	0.381	0.069	0.243
3	0.336	0.038	0.281
4	0.319	0.024	0.304
5	0.336	0.017	0.321
6	0.338	0.011	0.333
7	0.371	0.008	0.341
8	0.325	0.005	0.346
9	0.468	0.004	0.350
10	0.429	0.002	0.352
11	0.542	0.002	0.354
12	0.636	0.001	0.355
13	1.000	0.000	0.355
Total returning		0.355	

Note: EITC = Earned Income Tax Credit. EITC benefits calculated using constant law 1989 parameters. Tabulations are conditional on observing the taxpayer in 1989 and having a child at some point in the 18-year period.

Income, Missing Data, and EITC Receipt

To be eligible for the EITC, taxpayers must have earned income and adjusted gross income below certain thresholds. Consequently, changes in claim rates are likely to be related to changes in income. Using CWSHS data, Table 7 contains transition matrices for Adjusted Gross Income in 1990 and 2003. Column 1 presents the 1990 decile breakpoints. Column 2 indicates how many observations are found in each decile in 1990.

Twenty two percentage of the observations are missing in 2003 (Table 7, column 3 of matrix 1). The largest percentages of missing observations are in the lower income deciles. In 2003, 31 percent of the observations from the poorest decile are missing, while only 9 percent of the observations are missing from the richest decile. Some of the missing data could be the result of marital status changes. However, some of the missing observations are the result of taxpayers falling below the filing threshold and no longer required to file a return.

Of those taxpayers who file a return in both 1990 and 2003, 35 percent of the taxpayers move to a lower decile than the one they occupied in 1990 (column 4), 17 percent stay in the same decile and a quarter move to a

Table 6. Distributions of EITC Spells in the Phase-in range, Phase-out, and Maximum Credit Ranges

Spell length in years (1)	Phase-in range			Maximum credit range			Phase-out range		
	Families beginning a spell		Families at a point in time	Families beginning a spell		Families at a point in time	Families beginning a spell		Families at a point in time
	Completed spell distribution (2)	Exit probability (3)	Completed spell distribution (4)	Completed spell distribution (2)	Exit probability (3)	Completed spell distribution (4)	Completed spell distribution (5)	Exit probability (6)	Completed spell distribution (7)
1	0.403	0.403	0.127	0.310	0.310	0.080	0.452	0.452	0.166
2	0.184	0.310	0.116	0.191	0.281	0.099	0.193	0.353	0.142
3	0.119	0.292	0.113	0.114	0.233	0.089	0.118	0.336	0.131
4	0.071	0.247	0.090	0.077	0.205	0.080	0.077	0.327	0.113
5	0.050	0.229	0.079	0.067	0.225	0.087	0.046	0.291	0.084
6	0.048	0.285	0.091	0.045	0.195	0.070	0.030	0.267	0.066
7	0.020	0.169	0.045	0.044	0.238	0.080	0.020	0.249	0.053
8	0.028	0.283	0.071	0.032	0.225	0.066	0.018	0.291	0.053
9	0.022	0.312	0.063	0.034	0.306	0.078	0.012	0.279	0.040
10	0.018	0.373	0.058	0.017	0.226	0.045	0.011	0.350	0.040
11	0.013	0.426	0.046	0.019	0.319	0.054	0.007	0.356	0.029
12	0.008	0.444	0.030	0.011	0.286	0.036	0.004	0.299	0.017
13	0.003	0.267	0.011	0.016	0.543	0.052	0.003	0.362	0.016
14	0.004	0.545	0.017	0.011	0.813	0.039	0.003	0.433	0.013
15	0.003	1.000	0.016	0.002	1.000	0.010	0.003	1.000	0.018
	0.003	0.500	0.017	0.003	0.571	0.014	0.002	0.320	0.009
	0.002	0.231	0.011	0.005	0.462	0.022	0.002	0.242	0.010
Totals	1.000		1.000	1.000		1.000	1.000		1.000
Average	3.17		5.95	3.86		6.94	2.72		5.18

Source: Authors' calculations and 1989-2006 Individual Statistics of Income. Tabulations are conditional on observing taxpayer in 1989 and having a child at some point.
 Note: EITC = Earned Income Tax Credit.

Table 7. Transition Matrix for AGI Between 1990 and 2003

1990 income deciles (1)	1990 observations (2)	2003 income deciles transitions from 1990 levels			
		Missing (3)	Below (4)	Same (5)	Above (6)
Matrix 1: Taxpayers in 1990 and 2003					
1st \$5,845	1,109	0.31	0.00	0.16	0.52
2nd \$10,380	1,108	0.33	0.14	0.13	0.40
3rd \$14,922	1,108	0.31	0.25	0.13	0.31
4th \$20,141	1,109	0.30	0.32	0.11	0.26
5th \$25,957	1,108	0.22	0.38	0.11	0.29
6th \$32,769	1,108	0.21	0.42	0.12	0.26
7th \$40,613	1,109	0.15	0.48	0.13	0.24
8th \$51,262	1,108	0.15	0.52	0.16	0.18
9th \$69,578	1,108	0.11	0.53	0.20	0.16
10th Highest	1,108	0.09	0.48	0.43	0.00
Total	11,083	0.22	0.35	0.17	0.26
Matrix 2: Taxpayers who claimed the EITC in 1990					
1st \$5,845	309	0.49	0.00	0.21	0.29
2nd \$10,380	550	0.40	0.18	0.16	0.26
3rd \$14,922	598	0.36	0.31	0.11	0.21
4th \$20,141	640	0.34	0.37	0.11	0.17
5th \$25,957	17	0.12	0.71	0.06	0.12
6th \$32,769	0	0.00	0.00	0.00	0.00
7th \$40,613	0	0.00	0.00	0.00	0.00
8th \$51,262	0	0.00	0.00	0.00	0.00
9th \$69,578	0	0.00	0.00	0.00	0.00
10th Highest	0	0.00	0.00	0.00	0.00
Total	2,114	0.38	0.25	0.14	0.22
Matrix 3: Taxpayers who first claimed the EITC in 1990					
1st \$5,845	59	0.47	0.00	0.15	0.37
2nd \$10,380	108	0.40	0.13	0.18	0.30
3rd \$14,922	120	0.31	0.29	0.13	0.28
4th \$20,141	205	0.32	0.37	0.11	0.20
5th \$25,957	7	0.14	0.86	0.00	0.00
6th \$32,769	0	0.00	0.00	0.00	0.00
7th \$40,613	0	0.00	0.00	0.00	0.00
8th \$51,262	0	0.00	0.00	0.00	0.00
9th \$69,578	0	0.00	0.00	0.00	0.00
10th Highest	0	0.00	0.00	0.00	0.00
Total	499	0.35	0.26	0.13	0.25

Source: Authors' calculations and 1989–2003 Individual Statistics of Income.

Note: AGI = Adjusted Gross Income; EITC = Earned Income Tax Credit.

higher decile. Kopczuk, Saez, and Song (2007) find that the probability of staying in the top and the bottom two quintiles after 1 year are on the order of 90 and 80 percent, respectively, and has remained relatively stable over much of the latter half of the twentieth century. They also report that after 10 years, the probability of moving from the bottom two quintiles to the upper quintile is roughly 10 percent. In comparison, Table 7 indicates that slightly more than 10 percent of those in the bottom two quintiles appear in the upper quintile.

Gottschalk (1997) finds that 42 percent of earners stayed in the bottom quintile, 36 percent stayed in the second quintile, 32 percent stayed in the third quintile, 32 percent stayed in the fourth quintile, and 54 percent stayed in the top quintile. Looking at matrix 1, we observe the same U-shaped pattern of increased persistence at the bottom and the top of the income distribution. Using AGI instead of earnings and using a 13-year period instead of their 17-year period, we estimate that 55 percent stay in bottom quintile, 46 percent stay in the second quintile, 44 percent stay in the third quintile, 55 percent stay in the fourth quintile, and 97 percent stay in the fifth quintile.¹³

Matrix 2 of Table 7 only includes households who claim the EITC in 1990. As a consequence, the number of observations drops from 11,083 to 2,114. Not surprisingly, there are no observations with incomes in the top five deciles in 1990. Because lower-income households were less likely to file tax returns, missing data increased from 22 to 38 percent. Because taxpayers who claimed the EITC in 1990 often had missing data in later years or changed marital status, the percentages staying in the same deciles appear to fall relative to matrix 1. However, after adjusting for the missing observations, the number staying in the same decile is essentially identical at 23 percent (0.14/0.62) for those claiming the EITC and 22 percent (0.17/0.78) for the entire population. Thirty-six percentage (0.22/0.62) of taxpayers that claimed the EITC in 1990 were in a higher-income decile, while 33 percent (0.26/0.78) of the entire population moved up. Households who received the EITC in 1990 and continued to file a tax return were more likely to have higher incomes than the population as a whole. However, these numbers include very low rates of movement into higher deciles at the upper portion of the income distribution. If we look only at the first four deciles, income growth for taxpayers who did not claim the EITC in 1990 was faster than for those claiming the EITC in 1990; 53 percent compared to 36 percent for taxpayers who claimed the EITC in 1990.¹⁴

In 1990, the beginning of the phase-out of the EITC occurred with income starting at \$10,730 and ended with an income of \$20,254. Thus, the

third decile in 1990 was solidly in the phase-out portion of the EITC. In 2003, the beginning of the phase-out for taxpayers with qualifying children was at \$13,730, and the ending income was \$33,692. In 2003, the third decile for AGI is between \$22,838 and \$31,631, again solidly in the phase-out of the EITC. About 44 percent (598/1108) of households in the third decile were also EITC recipients. Comparing the transitions for the third decile for all taxpayers (matrix 1) with those claiming the EITC (matrix 2), households who were in decile 3 and received the EITC in 1990 were more likely to be missing in 2003 and to have slipped into a lower decile. Moreover, these households were much less likely to have moved up to a higher income decile.

Matrix 3 shows the AGI transitions for taxpayers that claim the EITC in 1990, but who did not claim the EITC in 1989, that is, “first-time” claimants. Taxpayers who claim the EITC for the first time in 1990 and are in the third decile are less likely than all taxpayers that claimed the EITC in 1990 to be missing in 2003 or to move to a lower decile. However, they are more likely to either remain in the same decile or move to a higher-income decile.

These three matrices indicate that there is less income mobility for the EITC population than for the population as a whole and that the EITC population is less likely to file a tax return in subsequent years.¹⁵ Matrix 3 indicates that “first-time” claimants in 1990 had faster income growth.

Is there a pattern to income growth that is related to the number of times that a taxpayer claims the EITC? Figure 4 shows the average real wages for first-time EITC claimants in the year prior to claiming the credit and thereafter, excluding missing years in our calculation of average real wages, by whether the taxpayers claimed the credit one to two times, three to five times, or six or more times. For all three groups, wages drop in the first year of claiming the credit and then increase after the first year. Not surprisingly, the largest increases in wages are associated with taxpayers that claim the credit only once or twice (representing 41 percent of the families claiming the EITC for the first time), and the smallest increases in wages are associated with taxpayers that claim the credit six or more times. Moreover, families claiming the credit more than twice but less than six times (28 percent of the families claiming the EITC for the first time) wages appear to approach the wages of those who claim the credit only once or twice. Perhaps most interesting is that the bulk of the wage growth differential between the three groups occurs in the year after first claiming the credit. This suggests that quite a bit of the wage growth is the result of short-term shocks for the infrequent users of the EITC.¹⁶

One reason that we might see wages decline in the first year of claiming the EITC is the birth of a newborn child. The birth of a newborn not only

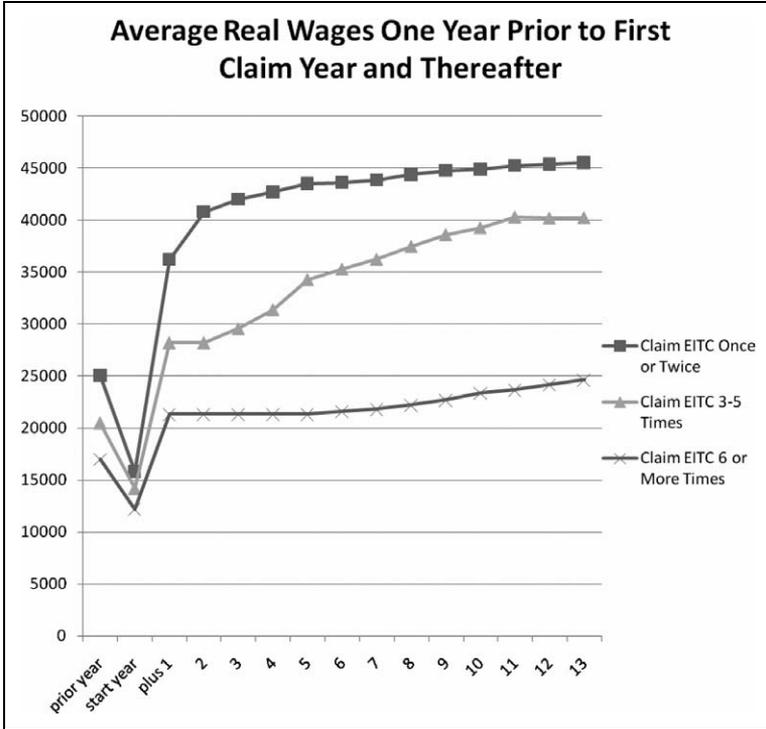


Figure 4. Average real wages one year prior to first claim year and thereafter
Source: Authors’ calculation based on Continuous Work History Sample (CWHHS) sample of tax returns from 1989 to 2006, conditional on taxpayer having a dependent child sometime between 1989 and 2006.
Note: Missing observations are not included in the calculation of average wages.

potentially creates eligibility for the EITC; it also is often associated with lapses in employment and a decline in wages. Figure 5 shows average real wages for tax returns that claim the EITC in the same year as the birth of a child. Like Figure 4, the results exclude missing years from the calculation of average wages. As expected, wages initially drop to a low in the birth year and then grow thereafter. Real wage income growth from 1996 to 2006 for families claiming the EITC in 1995 and having a newborn child in 1995 was roughly 5.9 percent annually. Using cross-sectional survey data, the Congressional Budget Office (CBO; 2007) found that real income growth for low-income households with children increased by 35 percent between 1991 and 2005. Moreover, CBO also found that real incomes

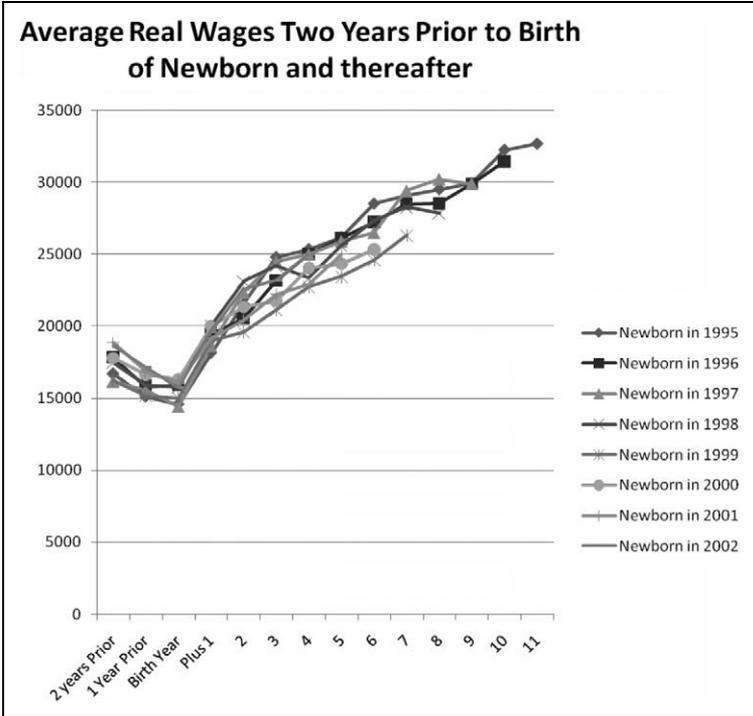


Figure 5. Average wages for Earned Income Tax Credit (EITC) claimants with newborn child

Source: Authors' calculation based on Continuous Work History Sample of tax returns from 1989 to 2006, conditional on taxpayer having a dependent child sometime between 1989 and 2006.

Note: Missing observations are not included in the calculation of average wages.

increased by about 45 percent for low-income households with children. We show real wage growth was 27 percent between 2001 and 2003 for those taxpayers who both received the EITC in 2001 and had a newborn child in 2001. For each of the other family birth cohorts, the real wage growth was less.

How Spell Length is Affected by Family and Other Determinates

The previous analysis has been strictly univariate. To understand more clearly how spell length is affected by family and other determinates we

calculate a multiple regression with spell length as the dependent variable. Equation 4 shows the structure of the regressions.

$$\text{Spell Length} = \beta_0 + \beta_1 X + \beta_2(\text{Real Wage}) + \beta_3(\text{Did Not File}) + \beta_4(\text{Yr}) + \varepsilon_i \quad (4)$$

Spell length is calculated separately for families in their first, second, and third spells and also for all spells. These spell definitions are in rows 1 through 4 of Table 8. Spell length may be affected by demographic variables, where X is a vector of demographic variables. The demographic variables are shown in rows 6 through 17 in Table 8. Spell length is also affected by the real wage and whether the family filed a tax return. We include year dummies to control for year-specific effects and the end year truncation of the sample. ε_i is the error term.

Table 9 includes descriptive statistics for family and other potential determinates of spell length. The results in columns 2, 5, 8, and 11 are for spells that are completed by 2006. About 77 percent of families completed their spell by 2006. Including only completed spells introduces a bias toward shorter spells. We also include summary statistics for those who did not complete their spells in 2006 (columns 3, 6, 9, and 12) and for all spells completed or uncompleted (columns 4, 7, 10, and 13). We restrict the sample to observations where the primary taxpayer's age at the beginning of the spell is over the age of 19. Teen primary taxpayers with children are likely to have very different economic and family dynamics than adults. As with the analysis presented in the prior tables and figures, we restrict the sample to taxpayers who have children. In particular, each spell is defined as a spell of claiming the EITC with children in the household. For variables that indicate a change over time, we assume no change for those taxpayers who do not file a tax return.

Of the 14,791 spells that occurred between 1989 and 2006, 62 percent were in the first spell that we observed.¹⁷ Twenty-nine percentage of the spells were in the second spell, and 9 percent were in the third spell. We restricted our analysis to the first three spells.

For completed spells, spell length is between 2.2 and 2.6 years, depending on whether it is the first, second, or third spell. Spells that are not completed by 2006 are between 1.2 and 2.4 years longer. For all spells, spell length is 3.04. This is just slightly more than the spell length of 2.985 in Table 2.¹⁸

The average age of the primary taxpayer is 35.4 years when pooling all of the spells together. Naturally, the age of the primary taxpayer increases

Table 8. Variable and Spell Definitions

Variable	Definition
1. Spell 1	Spell 1 is defined as the first spell we observe starting after 1989.
2. Spell 2	Spell 2 is defined as the second spell we observe for the taxpayer starting after 1990; spell 2 could include taxpayers who we observe claiming the EITC in 1989, not claiming the EITC in 1990, and then starting their second spell in 1991.
3. Spell 3	Spell 3 is defined as the third spell that we observe starting after 1992.
4. Pooled spells	All Spells
5. Age primary taxpayer	Age of primary taxpayer when spell started.
6. Twenty	Primary taxpayer was age 20-29 when spell started.
7. Thirty	Primary taxpayer was age 30-39 when spell started.
8. Forty	Primary taxpayer was age 40-49 when spell started.
9. Fifty	Primary taxpayer was age 50-59 when spell started.
10. Sixty	Primary taxpayer was age 60-69 when spell started.
11. Female head	Primary taxpayer is female at the beginning of the spell.
12. Married	Primary taxpayer is married at the beginning of the spell.
13. # Kids	Number of children in the family at the beginning of the spell.
14. Change # kids after 3 years	Change in the number of children after 3 years on a spell
15. South	Family located in a southern state at the beginning of the spell. ¹
16. Married after 3 years	Primary taxpayer got married after 3 years on a spell.
17. Divorced after 3 years	Primary taxpayer got divorced after 3 years on a spell.
18. Real wage	Real wages (in \$1000s of 2006 dollars) of the primary taxpayer at the start of the spell.
19. Yr spell started	Yr Spell Started is the first year of the spell. If the spell started in 1989 it would have a value of 1, 1990 would have a value of 2, . . . and 2006 would have a value of 18.
20. Did not file	Spell ended because the family did not file a tax return.
21. Censor	Censor is a dummy variable that is 1 if the spell is incomplete and includes tax year 2006.
22. Spelldum1	Dummy variable for spell 1 in the pooled model.
23. Spelldum2	Dummy variable for spell 2 in the pooled model.
24. Spelldum3	Dummy variable for spell 3 in the pooled model.

¹Southern states include: Alabama, Arkansas, Florida, Kentucky, Georgia, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia and West Virginia.

Table 9. Descriptive Statistics for Spells 1 through 3 and Pooled Spells

Variable (1)	Spell 1			Spell 2			Spell 3			Pooled		
	Mean comp (2)	Mean uncomp (3)	Mean total (4)	Mean comp (5)	Mean uncomp (6)	Mean total (7)	Mean comp (8)	Mean uncomp (9)	Mean total (10)	Mean comp (11)	Mean uncompl (12)	Mean total (13)
1. Number of observations	7277	1875	9152	3316	997	4313	857	469	1326	11450	3341	14791
2. Length of spell	2.64 (2.37)	5.00 (4.25)	3.13 (3.01)	2.54 (2.20)	4.54 (3.71)	3.00 (2.76)	2.16 (1.77)	3.34 (2.83)	2.58 (2.28)	2.58 (2.28)	4.63 (3.96)	3.04 (2.88)
3. Age primary taxpayer	34.89 (14.52)	30.19 (10.44)	33.93 (13.91)	37.58 (11.22)	35.95 (10.26)	37.21 (11.03)	40.05 (10.54)	39.78 (9.98)	39.95 (10.34)	36.06 (13.47)	33.26 (10.95)	35.42 (13.00)
4. Twenty	0.45 (0.50)	0.61 (0.49)	0.49 (0.50)	0.28 (0.45)	0.34 (0.47)	0.29 (0.46)	0.13 (0.33)	0.17 (0.37)	0.14 (0.35)	0.37 (0.49)	0.46 (0.50)	0.40 (0.49)
5. Thirty	0.28 (0.45)	0.24 (0.43)	0.27 (0.44)	0.36 (0.48)	0.35 (0.48)	0.36 (0.48)	0.45 (0.50)	0.36 (0.48)	0.42 (0.49)	0.32 (0.47)	0.29 (0.45)	0.31 (0.46)
6. Forty	0.16 (0.37)	0.11 (0.32)	0.15 (0.36)	0.24 (0.43)	0.23 (0.42)	0.24 (0.43)	.29 (0.46)	0.34 (0.48)	0.31 (0.46)	0.19 (0.40)	0.18 (0.38)	0.19 (0.39)
7. Fifty	0.05 (0.22)	0.03 (0.17)	0.05 (0.21)	0.08 (0.27)	0.07 (0.25)	0.08 (0.27)	0.09 (0.29)	0.10 (0.30)	0.10 (0.29)	0.06 (0.24)	0.05 (0.22)	0.06 (0.24)
8. Sixty	0.05 (0.22)	0.02 (0.12)	0.05 (0.21)	0.04 (0.19)	0.02 (0.15)	0.04 (0.18)	0.03 (0.18)	0.03 (0.17)	0.03 (0.18)	0.05 (0.21)	0.02 (0.14)	0.04 (0.20)
9. Female head	0.43 (0.49)	0.55 (0.50)	0.45 (0.50)	0.40 (0.49)	0.53 (0.50)	0.43 (0.50)	0.35 (0.48)	0.48 (0.50)	0.40 (0.49)	0.41 (0.49)	0.53 (0.50)	0.44 (0.50)
10. Married	0.33 (0.47)	0.24 (0.43)	0.31 (0.46)	0.34 (0.48)	0.24 (0.43)	0.32 (0.47)	0.35 (0.48)	0.29 (0.46)	0.33 (0.47)	0.33 (0.47)	0.25 (0.43)	0.31 (0.46)
11. # kids	1.36 (0.87)	1.26 (0.83)	1.34 (0.86)	1.56 (0.96)	1.59 (0.96)	1.57 (0.96)	1.66 (1.10)	1.61 (0.95)	1.64 (1.05)	1.44 (0.92)	1.41 (0.90)	1.43 (0.91)
12. Change # kids after 3 years	-0.06 (0.76)	0.17 (0.61)	-0.01 (0.74)	-0.13 (0.80)	0.07 (0.65)	-0.08 (0.77)	-0.21 (0.78)	0.04 (0.65)	-0.12 (0.75)	-0.09 (0.77)	0.12 (0.63)	-0.04 (0.75)
13. South	0.41 (0.49)	0.42 (0.49)	0.41 (0.49)	0.44 (0.50)	0.49 (0.50)	0.45 (0.50)	0.46 (0.50)	0.46 (0.50)	0.46 (0.50)	0.42 (0.49)	0.45 (0.50)	0.43 (0.49)
14. Married after 3 years	0.04 (0.20)	0.03 (0.16)	0.04 (0.19)	0.04 (0.20)	0.02 (0.14)	0.04 (0.19)	0.03 (0.18)	0.01 (0.09)	0.02 (0.16)	0.04 (0.20)	0.2 (0.15)	0.04 (0.19)
15. Divorced after 3 years	0.10 (0.29)	0.01 (0.12)	0.08 (0.27)	0.09 (0.29)	0.01 (0.12)	0.08 (0.26)	0.08 (0.26)	0.01 (0.12)	0.05 (0.23)	0.09 (0.29)	0.1 (0.12)	0.08 (0.26)
16. Real wage	14.81 (10.32)	12.94 (9.29)	14.42 (10.15)	16.74 (11.00)	14.96 (10.51)	16.33 (10.91)	17.13 (11.38)	15.86 (11.15)	16.68 (11.31)	15.54 (10.65)	13.95 (10.01)	15.18 (10.53)
19. 1r spell started	7.73 (4.44)	14.00 (4.25)	9.02 (5.08)	9.67 (3.99)	14.46 (3.71)	10.77 (4.41)	11.99 (3.13)	15.66 (2.83)	13.29 (3.50)	8.61 (4.42)	14.37 (3.96)	9.91 (4.95)
20. Did not file	0.39 (0.49)	—	0.31 (0.46)	0.36 (0.48)	—	0.27 (0.45)	0.35 (0.48)	—	0.23 (0.42)	0.64 (0.48)	—	0.29 (0.45)
24. Spelldum1	—	—	—	—	—	—	—	—	—	0.56 (0.50)	—	0.62 (0.49)
25. Spelldum2	—	—	—	—	—	—	—	—	—	0.29 (0.45)	—	0.29 (0.45)
26. Spelldum3	—	—	—	—	—	—	—	—	—	0.07 (0.26)	—	0.09 (0.29)

as there are more spells. Families starting a second and third spell were a little older, and the age of the primary taxpayer was younger for those in uncompleted spells. Seventy percentage of the primary taxpayers in families that receive the EITC are in their twenties or thirties. Only about 11 percent of primary taxpayers are in their fifties and sixties. Primary taxpayers starting their first spell also tend to be younger than those starting their second or third spells. Forty-five percentage start their first spell when the primary taxpayer is in their twenties compared to 28 percent of families starting their second spell and 13 percent of families starting their third spell.

Female heads of household are more likely to receive the EITC than married heads of household. Female heads are also relatively more likely to be in the first spell (43 percent) than the second spell (40 percent) or the third spell (35 percent). On the other hand, married heads are slightly more likely to have more spells.

The average number of children increases from 1.36 children in the first spell to 1.66 in the third spell. This may be because EITC benefits are more generous with more children.

In 2006, 37 percent of households lived in the South, and the South had lower median household income (\$43,884) than the rest of the country (\$48,201).¹⁹ A somewhat larger percentage of households from the South are represented in the EITC claiming population, with 43 percent residing in the south. There is a slight increase in the percentage in the south going from 41 percent of first spell claimants to 46 percent of third spell claimants.

Thirty-one percentage of EITC claimants are married at the start of their spell, with a slight increase in the proportion married as the number of spells increases. About 6 percent (0.04/0.69) of EITC claimants who are not married at the start of the spell are married after 3 years. Divorce is much more common than getting married; 25 percent (0.08/0.31) of primary taxpayers who started their first spell married are divorced after 3 years.

The mean real wage in 2006 was \$14,810 for families starting their first completed spell, \$16,740 for the second completed spell, and \$17,130 for the third completed spell. The maximum credit range for joint filers was between \$11,340 and \$16,180 and between \$11,340 and \$14,810 for non-joint filers in 2006. This means that the \$14,810 for families starting their first spell would be in the maximum credit range for joint filers and in the phase-out range for nonjoint filers. In each case, the average taxpayer is close to where the maximum credit range and the phase-out range meet. As a result, families with small increases in real wages would still be eligible to receive the EITC so increases in real wages probably would not have much effect on spell length.

Fourteen in row 19 means that the average uncompleted spell started in 2002. For families who completed their spells by 2006, the average family started their first spell in 1996, their second spell in 1998, and their third spell in 2000.

Thirty-eight percentage of completed spells end when the primary taxpayer does not file a return. First spells are slightly more likely (39 percent) to end because the taxpayer did not file a return at the end of the spell. Families with more spells tend to be older, be married, have more children, have higher real incomes, and obviously file tax returns relative to the average single spell.

Table 10 shows multiple regression results with spell length as the dependent variable. Since we have included an intercept, each of the other dummy parameters is relative to the excluded dummy group of 30-year-old male primary taxpayers starting their first spell in 1990 (starting their second spell in 1991 and starting their third spell in 1993).

Older families have shorter spells. Looking at the pooled results, families where the primary taxpayers are in their forties and fifties have spells that are about 3 and 4 months shorter and primary taxpayers in their sixties have spells that are approximately 9 months shorter. This may be because, as shown in Figure 5, families with older children tend to have higher real wages. The shorter spells of the older families suggest that for these families, the EITC acts more as a short-term safety net.

In contrast, younger families and those with a female head tend to have longer spells. The pooled and spell 1 results indicate that female heads have spells that are approximately half a year longer. Families with more children have slightly longer spells; an additional child at the beginning of the spell will add between 2 and 4 months to completed spells and between 0 and 2 months to uncompleted spells. An increase in the number of dependent children after 3 years increases spell length by approximately 3 and 4 months. Living in the South increases spell length by about 2 months. These slightly longer spells suggest that for these families, the EITC is more likely to act as long-term income support.

Marital status at the start of the spell is not statistically significant. Moreover, getting married after 3 years is only statistically significant in the completed pooled results, where it reduces spell length by about 2 months. However, getting divorced after 3 years decreases spell length for the first completed spell by 7 months and by almost 9 months for the second completed spell. Getting divorced was not statistically significant for spell 3 and for the uncompleted spells. Again, we need to be careful in interpreting these results about marriage and divorce because divorce results in many dropped female observations.

Table 10. Regressions for Spells 1 through 3 and Pooled Spells

Variable (1)	Spell 1			Spell 2			Spell 3			Pooled		
	B est. comp (2)	B est. uncomp (3)	B est. total (4)	B est. comp (5)	B est. uncomp (6)	B est. total (7)	B est. comp (8)	B est. uncomp (9)	B est. total (10)	B est. comp (11)	B est. uncomp (12)	B est. total (13)
1. Intercept	3.12** (0.12)	1.50** (0.18)	3.35** (0.12)	3.49** (0.22)	1.20** (0.16)	3.81** (0.21)	4.42** (0.52)	1.11** (0.11)	4.96** (0.48)	3.14** (0.10)	1.40** (0.10)	3.40** (0.10)
2. Twenty	0.05 (0.07)	-0.05 (0.11)	0.05 (0.06)	0.02 (0.09)	0.17* (0.10)	0.08 (0.08)	-0.01 (0.18)	0.16* (0.09)	0.09 (0.13)	0.04 (0.05)	-0.4 (0.06)	0.08* (0.05)
3. Forty	-0.30** (0.08)	-0.10 (0.15)	-0.33** (0.08)	-0.05 (0.10)	-0.06 (0.11)	-0.06 (0.09)	0.1 (0.13)	-0.02 (0.07)	-0.08 (0.10)	-0.18** (0.06)	-0.07 (0.07)	-0.21** (0.05)
4. Fifty	-0.29** (0.13)	-0.44 (0.26)	-0.29** (0.12)	-0.19 (0.14)	0.03 (0.17)	-0.15 (0.13)	-0.21 (0.20)	-0.02 (0.11)	-0.26* (0.16)	-0.25** (0.09)	-0.10 (0.12)	-0.25** (0.08)
5. Sixty	-0.66** (0.13)	-0.33 (0.35)	-0.65** (0.13)	-0.48* (0.20)	-0.04 (0.28)	-0.49** (0.19)	-0.12 (0.32)	-0.03 (0.17)	-0.23 (0.25)	-0.61** (0.10)	-0.14 (0.18)	-0.62** (0.10)
6. Female head	0.48** (0.07)	0.14 (0.11)	0.48** (0.06)	0.38** (0.09)	0.24* (0.10)	0.43** (0.08)	0.45** (0.14)	0.05 (0.07)	0.32** (0.11)	0.44** (0.05)	0.07 (0.06)	0.46** (0.05)
7. Married	-0.08 (0.08)	-0.06 (0.13)	-0.02 (0.07)	0.07 (0.11)	-0.01 (0.12)	0.08 (0.10)	-0.15 (0.17)	0.02 (0.08)	-0.14 (0.13)	0.01 (0.06)	-0.05 (0.07)	0.03 (0.06)
8. # kids	0.24** (0.03)	0.17** (0.06)	0.19** (0.03)	0.314** (0.04)	0.08 (0.05)	0.15** (0.04)	0.24** (0.06)	-0.02 (0.03)	0.17** (0.05)	0.19** (0.02)	0.08** (0.03)	0.16** (0.02)
9. Change # kids after 3 years	0.33** (0.04)	0.24** (0.08)	0.28** (0.04)	0.20** (0.05)	0.05 (0.07)	0.15** (0.05)	0.27** (0.08)	-0.02 (0.05)	0.22** (0.06)	0.27** (0.03)	0.10* (0.04)	0.23** (0.03)
10. South after 3 years	0.18** (0.05)	0.33** (0.08)	0.22** (0.05)	0.17* (0.07)	0.09 (0.08)	0.08 (0.06)	0.06 (0.11)	-0.05 (0.06)	0.08 (0.09)	0.17** (0.04)	0.18** (0.05)	0.17** (0.04)
11. Married after 3 years	-0.25 (0.14)	0.28 (0.27)	-0.11 (0.13)	-0.23 (0.19)	-0.00 (0.30)	-0.29 (0.18)	-0.44 (0.32)	-0.00 (0.32)	-0.44 (0.29)	-0.21* (0.11)	0.17 (0.17)	-0.14 (0.10)
12. Divorced after 3 years	-0.59** (0.11)	0.17 (0.37)	-0.64** (0.10)	-0.71** (0.15)	0.11 (0.35)	-0.72** (0.14)	-0.25 (0.24)	-0.01 (0.25)	-0.26 (0.21)	-0.68** (0.08)	0.10 (0.21)	-0.69** (0.08)
13. Real wage	-0.07** (0.00)	-0.003 (0.00)	-0.01** (0.00)	-0.02** (0.00)	-0.01 (0.00)	-0.07** (0.00)	-0.01 (0.01)	-0.00 (0.00)	0.00 (0.00)	-0.07** (0.00)	-0.00 (0.00)	-0.01** (0.00)
14. Did not file	-0.33** (0.06)	0.00	-0.31** (0.06)	-0.18* (0.09)	0 ()	-0.18* (0.08)	0.07 (0.14)	0 ()	0.13 (0.13)	-0.12** (0.05)	-0.02 (0.08)	-0.16** (0.04)
15. Censor	N/A	N/A	4.84** (0.08)	N/A	N/A	4.14** (0.10)	N/A	N/A	3.38** (0.13)	N/A	N/A	4.5* (0.06)
16. Spellidum2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14** (0.5)	-0.22** (0.07)	0.16** (0.04)
17. Spellidum3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.12 (0.08)	-0.25** (0.08)	0.17* (0.07)
R-square	0.1066	0.8236	0.4130	0.1295	0.8908	0.4350	0.1987	0.9560	0.5361	0.1138	0.8829	0.4195
# of observations	7,277	1,875	9,152	3,316	997	4,313	857	469	1,326	11,450	3,341	14,791

Note: **, * and * indicate that the parameter is significant at the 1 and 5 percent level, respectively. Numbers in parenthesis are standard errors.

A \$1,000 increase in real wages reduces spell length by less than a month. As mentioned above, a \$1,000 increase in the real wage probably does not have much effect because the average taxpayer is in the phase-out range near the maximum credit range. According to Table 10, the average taxpayer with a completed spell earned \$15,540. The zero credit income in 2006 for a taxpayer with one qualifying child is \$32,001. Thus, to be phased out of the EITC, a taxpayer must earn \$16,461 more than the average taxpayer with a completed spell. If she had two qualifying children, she must earn even more to become phased out of the EITC. Not filing a tax return reduces spell length by about 4 months in the first spell, 2 months in the second spell, and is not statistically significant in the third spell.

Summary and Conclusion

Transitions into and out of the EITC are frequent; 61 percent of families beginning a spell are likely to have completed the spell after 2 years. At any point in time, 57 percent of families have been on the EITC for 5 or fewer years, with 39 percent having received the EITC for 3 or fewer years. The average spell length for a family beginning a spell on the EITC is 3.0 years, but the average spell length for families on the EITC at any particular point in time is almost 5.3 years. Most recipients of the EITC claim the EITC for short periods (42 percent for only 1 year at a time).

The combination of high usage by tax filers with children, short spells of usage and high turnover suggest that the EITC has very broad reach for the filing population. About 50 percent of taxpayers who have a child at some point over the 18-year period claim the EITC at some point. We find considerable movement from one portion of the income distribution to another for the overall population of taxpayers, but those who claimed the EITC in 1990 are less likely to move up the income distribution than the overall population.²⁰

The percentage of households that return to claiming the EITC decreases as the number of years off of the EITC increases. Twenty percent reclaim the EITC after 1 year, while only 2.3 percent reclaim after 5 years. Nevertheless, we found that there is considerable reentry, with 44 percent reclaiming the EITC. Even though the EITC significantly expanded in the 1990s, we found that if families had faced an unchanged EITC program since 1989, there would be little difference in the length of time on the EITC. However, as a result of this increase in the eligible population, there would be a significant increase in reentry.

Younger families headed by women, with more children at the beginning of the spell tend to have longer spells than older male headed families.

Being married has little impact on spell length. In contrast, getting divorced has a significant effect on spell length. This last result may be the consequence of the sample design that disproportionately drops women who get divorced from the sample.

In conclusion, the EITC acts as a short-term safety net to many taxpayers who claim the EITC for short periods during shocks to income or family structure. At the same time, the EITC acts as a long-term income support for a significant portion of EITC recipients who claim the credit for long periods of time, and for multiple spells, cycling on and off.

Authors' Note

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Notes

1. Dahl, DeLeire, and Schwabish (2009) also find that the jobs that single mothers took because of the incentives from the EITC were not dead-end jobs, but rather jobs with the potential of earnings growth.
2. This random component combined with a set of predetermined numbers used for selection into the CWHS results in a random CWHS sample. Between 1989 and 1998, there were two separate numbers used for selection into the CWHS representing a one in 5,000 chance of selection. Beginning in 1999, the IRS used five separate numbers representing a one in 2,000 probability of selection. In order to be consistent across each of the years from 1989 to 2006, we restricted the panel data to the two-number sample.
3. For example, suppose Tina Taxpayer is assigned a SSN of 222-22-1111, and suppose that the number 1111 is one of the two numbers used for selection into the CWHS, then any time that Tina files a tax return she is automatically included in

- the sample. Over time, as new taxpayers file returns one in every 2,000 returns will have the predetermined CWSH number and enter into the sample.
4. Five percentage of 2006 married-filing-jointly tax returns, filed in a timely manner, reported the woman as the primary taxpayer.
 5. Tax return data have been matched to Social Security Administration data with information on the date of birth and date of death of the taxpayer.
 6. It is calculated as the number of taxpayers claiming the EITC in year $t \div$ number of taxpayers in year t , conditional on having a child.
 7. Restricting the sample to only joint filers reduces the number of observations from 2,751 to 518 observations claiming the credit in 1991 and from 3,477 to 310 for taxpayers claiming the credit in 2004.
 8. If after a year of not receiving the EITC, a family received benefits again, they begin a new spell. Because the data start in 1989 and end in 2006, a family could be eligible for a maximum of 18 years, with a maximum of 17 years for completed spells. Because the first year we can observe someone is 1989, the data are censored for EITC recipients who may have claimed the credit in prior years. Similarly, because the last year we observe is 2006 taxpayers claiming the credit in later years are observed to have a shorter spell.
 9. The exit probability for year 3 is calculated as $p(3) = D(3)/(1 - [D(1) + D(2)])$.
 10. The truncation of the panel at the end of the panel period by definition increases the exit probabilities because we are only looking at completed spells in columns 2 and 3.
 11. The 1989 inflation adjusted parameters and each household's current income were used to calculate the EITC spell distributions and reentry rates. The consumer price index [CPI] was used to calculate the 1989 inflation adjusted parameters.
 12. The EITC program parameters for 1989 are adjusted for inflation using the CPI.
 13. Alm, Lee, and Wallace (2005) argue that tax changes might not only change the after tax income distribution but also the before tax distribution. In their analysis, after taking into account the effects of various tax changes on the before tax income distribution, they find that over the 1980s and the 1990s the Federal income tax code has been increasingly less progressive.
 14. The equation for calculating the portion that moved up in the lower four deciles for the EITC population is the sum of the percentage above in each decile multiplied by the number of taxpayers in each decile in 1990 over the four deciles divided by the sum of the number of taxpayers we observe in 2003 from the first four deciles.
 15. This could be the result of the underlying sample selection bias of the sample with respect to women.
 16. Of note is that the average value of the EITC in the first year of claiming the credit makes up roughly a quarter of the loss in income from the prior year.

17. Obviously some spells occurred before 1989.
18. These figures may be different because we restrict the regression sample to ages greater than nineteen, and Table 3 is conditional on observing the taxpayer in 1989 while the regression sample is not conditional on observing the taxpayer in 1989.
19. DeNavas-Walt, Proctor, and Smith (2007).
20. Between 1989 and 2006, there were sizable increases in the value of the EITC and the shift from Aid to Families with Dependent Children to the work incentive-based Temporary Assistance for Needy Families. These changes are likely to change the way that families are formed and as a result the makeup of EITC recipients. For instance, Grogger and Bronars (2001) find that higher welfare benefit levels lead to a delay in marriage for white women. Also, Holtzblatt and Rebelien (2000) document the marriage penalties associated with the EITC and Ellwood (2000) tries to disentangle the effects of those penalties on household formation.

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