

## Inheritance Expectation and Savings Behavior

### Introduction and Research Question

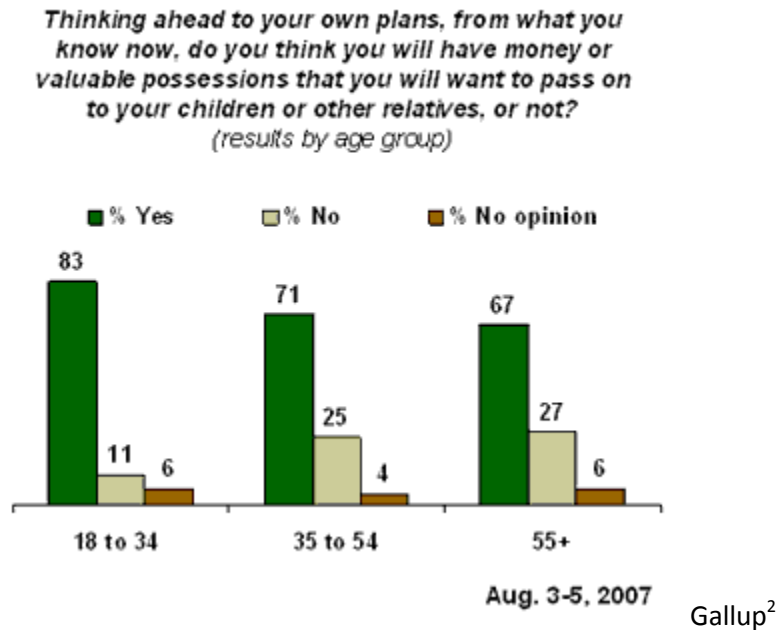
When discussing the microeconomics of aging I was very struck by the changing family dynamics of bequests and inheritance. When older generations live longer, their children are more likely to have delayed and possibly smaller inheritances. This being said, there is a higher possibility of having no inheritance at all. If we assume that people have consumption smoothing behavior and that they anticipate receiving an inheritance in the future, we should see these behaviors adapting as these demographic changes occur.

To start looking into this problem there are multiple angles of research. For the purpose of this project, I intend to look at the expectation of an inheritance and its effect on savings. Also, at a future time point I will look into whether or not that expectation was realized and how that affects savings from that point forward. I intend to use data from the Panel Study of Income Dynamics to address this research question. There has been a lot of research done on the question of what affects savings behavior, but not from this vantage point. I hope to be able to add to the literature of inheritance and savings by looking at expectation, realization of that expectation, and future savings behavior.

### Review of Previous Findings

Basic Numbers – A Gallup Poll from August 2007 interviewed 1,012 national adults ages 18 and older to gather some basic information on inheritance expectation. They found that “3 in 10 Americans (28%) expect to inherit either money or some valuable possessions from a relative, while 69% don't expect to inherit anything. Inheritance expectations appear to be greater among

whites: Findings from the poll show that whites (30%) are more likely than nonwhites (19%) to expect a bequest.<sup>1</sup> This expectation decreases over the age spectrum. “Forty-four percent of American adults aged 18 to 34 expect their relatives to bequeath them money or other valuables, compared with 33% of 35- to 54-year-olds and only 10% of those 55 and older.”



Future Transfers – The Center on Wealth and Philanthropy at Boston College estimates that as the baby boomers age there will be the biggest wealth transfer in the nation's history: somewhere between \$41 trillion and \$136 trillion over the next four decades. This shows that not only are these transfers making up a significant portion of individual wealth, but they are going to make up huge portions of our aggregate level economy in the next several decades. Using the 1998 Survey of Consumer Finances, Brown and Weisbenner found that transfer wealth

<sup>1</sup> Rheault

<sup>2</sup> Rheault

accounts for approximately one-fifth to one-quarter of aggregate wealth, suggesting a larger role for life-cycle savings than some previous estimates<sup>3</sup>.

Inheritance and Retirement – A study by Brown and Coile using HRS data showed that “one in five households receives an inheritance over an eight-year period, with a median value of about \$30,000. [They found] that inheritance receipt is associated with a significant increase in the probability of retirement. In particular, [they found] that receiving an inheritance increases the probability of retiring earlier than expected by 4.4 percentage points, or 12 percent relative to the baseline retirement rate, over an eight-year period. Importantly, this effect is stronger when the inheritance is unexpected and thus more likely to represent an exogenous shock to wealth.”<sup>4</sup> Here we are able to see that not only does an inheritance affect the ability to retire earlier, but it also matters whether or not that inheritance was expected. If a person is not expecting a transfer of wealth they are not able to consider it in their consumption smoothing patterns over time, and thus are more likely to see it as a strictly exogenous shock to income.

Inheritance and Consumption – David Weil (1994) used PSID data to look at the expectation and receipt of inheritance and its overall effect on consumption. He looked at the data from 1983-84 and checked whether or not receiving or expecting an inheritance would cause consumption to rise. By using a proxy of food and housing expenditures, he found that there was a 3% net increase in consumption do to either receiving or expecting to receive an inheritance in the next ten years<sup>5</sup>. This was taken from a regression estimate where having received an inheritance in the past increased consumption by 10.4% and expecting to receive increased consumption by 4.8%, with an interaction term of -6.2%<sup>6</sup>. Though he did not have an

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<sup>3</sup> Brown, Weisbrenner

<sup>4</sup> Brown and Coile

<sup>5</sup> Weil, p.76

<sup>6</sup> Weil, p.74

estimate for total family consumption, he found that his proxy for consumption did increase in all cases. This is an interesting effect for my research, because I would like to take similar information and see the effects on savings through time instead of consumption. My assumption here would be that those receiving inheritances are not spending it all on consuming more goods, but rather placing some in savings as well.

Population Aging and Bequests – Though it is clear that one has to have some level of savings or assets in order to pass it down to the next generation, there is often some level of bequests. This trend is changing, however, because the elderly are living to older ages on their retirement savings. This leads to some level of dissaving throughout the life-cycle and often smaller inheritances once they have died. Hurd and Smith (2002) looked at this empirically using data from the Health and Retirement Study (HRS) and the Assets and Health Dynamics of the Oldest Old (AHEAD) and found that households in the age range from 70-74 will bequeath approximately 39% of their wealth, while consuming the rest of it during the end of their life-cycles<sup>7</sup>. The level of dissaving depends on many factors including amount of retirement, expenses, income, and assets, and its trends are highly debated. For my purposes, however, as people have longer life expectancies it does seem as though bequests are smaller. With this effect, it will be important to see how personal savings of the next generation is so changed.

Income Transfers and Wealth – A major question in the literature is focused around the amount of assets that are transferred between generations. Though this information depends on many assumptions of wealth, income, mortality and familial connection, Brown and Weisbrenner (2004) made great steps towards calculating these numbers empirically. By using data from the 1998 Survey of Consumer Finances (SCF), they found that between 20 and 25% of accumulated

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<sup>7</sup> Hurd and Smith, p.24

wealth is due to intergenerational transfers<sup>8</sup>. Though the transfers come at different times during the life-cycle, it is certainly an aspect of income that should be under consideration at the individual level. Even further, “approximately one-fifth of households report receiving a transfer, and one-eighth expect a substantial transfer in the future. For those households that have received transfers, transfer wealth accounts for, on average, half of current net worth. For lower-wealth households (those with less than \$75,000), transfer wealth on average exceeds current wealth”<sup>9</sup>. These transfers were considered if they were received from parents, children, siblings, as well as extended family and friends. This is critical, because that is also the frame of reference in which the PSID asks the question of inheritance.

Inheritance and Savings – By reviewing administrative data, Joulfaian (2006) was able to divide the amount of the total inheritance into consumption and savings (wealth accumulation). He found that approximately 21% of the inheritances were consumed, leaving 79% considered savings<sup>10</sup>. His sample, however, included many of the wealthiest estates. Though this does not discredit the findings, it will not be a comparable sample to the PSID. Also, the 79% that was not consumed initially could have been given away or spent in different ways that were not captured by the data. It is clear that inheritances are certainly a factor in life-cycle wealth accumulation, but to what extent differs depending on the data source. By using expected and actual inheritance as well as savings rates into the future, it will be possible to look more deeply into intergenerational wealth transfers and their effects.

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<sup>8</sup> Brown and Weisbrenner, p.182

<sup>9</sup> Brown and Weisbrenner, p.182

<sup>10</sup> Joulfaian, p.12

## Data and Methods

The Panel Study of Income Dynamics began with approximately 5,000 families in 1968. The PSID website explains that “as a consequence of low attrition rates and the success in following young adults as they form their own families and recontact efforts (of those declining an interview in prior years), the sample size has grown from 4,800 families in 1968 to more than 7,000 families in 2001. At the conclusion of 2003 data collection, the PSID will have collected information about more than 65,000 individuals spanning as much as 36 years of their lives. The study is conducted at the Survey Research Center in the Institute for Social Research at The University of Michigan and has been made possible through the generous Sponsorship of government agencies, foundations, and other organizations over the years”<sup>11</sup>.

Data has been collected annually until 1997, and it is currently collected bi-annually. Data is publicly available through 2007, collected through 2009, and will be used in this analysis. The study’s longitudinal design makes it possible to look at people over the past 40 years by age, gender, or any number of focus variables. Though the overall point of the PSID is not to only replicate the demographic changes in the United States, it should certainly hold this function.

In addition to the variables, sample weights are created for each year of collection. This following section has been taken from a document describing the sample weights that were used in my analysis. “The individual weight assignment occurs in two phases. First, weights are assigned to individuals in all strata with the exception of the recent entry group. Then weights are assigned to those who entered the panel for the first time based on the individual weights of the other family members.” The description of the variables to be used in this analysis is as follows:

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<sup>11</sup> <http://psidonline.isr.umich.edu/Guide/Overview.html>

--- Independent Variables ---

Inheritance –

1<sup>st</sup> OLS Model –

Did not Expect, Did not Receive (reference group)

Did not Expect, Did Receive

Expected, Received

Expected, Did not Receive

2<sup>nd</sup> OLS Model –

Does not Expect (reference group)

Expects 100% or more of Total Family Income in 1984

Expects less than 100% of Total Family Income in 1984

Both Models –

Whether received an inheritance prior to 1984

Age-

Age groups are defined as follows:

20-35 (reference group)

36-50

51-65

Gender-

All Analyses – As follows:

Male (reference group)

Female

Education –

All Analyses – As Follows:

0 to 11 Years – Less than High School (reference group)

12 to 15 Years – High School Plus

16+ Years – College Plus

Marital Status –

All Analyses – Indexed As Follows:

Currently Married

Not Married – Never Married, Widowed, Divorced, Annulled, Separated (reference group)

--- Dependent Variable ---

Level of Savings – This will be computed from the variable “active savings” over the two time points adding back in the value of inheritances received between 1984 and 1989 (which are taken

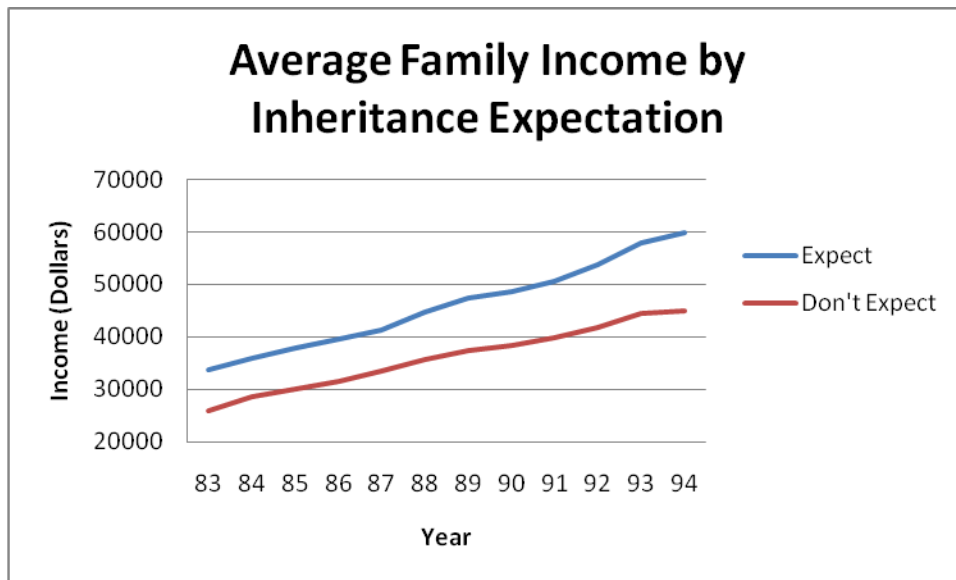
out of the original variable as indexed by the PSID data center). This will give the relative savings over time, which will be considered as a factor of many asset and income components.

Hypotheses –

- (i) Those who have higher a education, are in the two higher age categories, and are married, will have positive (significant) coefficients in regards to their level of active savings.
- (ii) Those who expect an inheritance within the next ten years will have negative (significant) coefficients in regards to their level of savings.
- (iii) Those who actually receive an inheritance within the five year period, who have not before the first time point, will have a higher level of savings.
- (iv) Those who expect ‘large’ inheritances [100% of Total Family Income in 1984 or more] will see less active savings, while those who expect ‘small’ inheritances [ Less than 100% of Total Family Income in 1984] will have less-significant effects on active savings.

## Results and Discussion

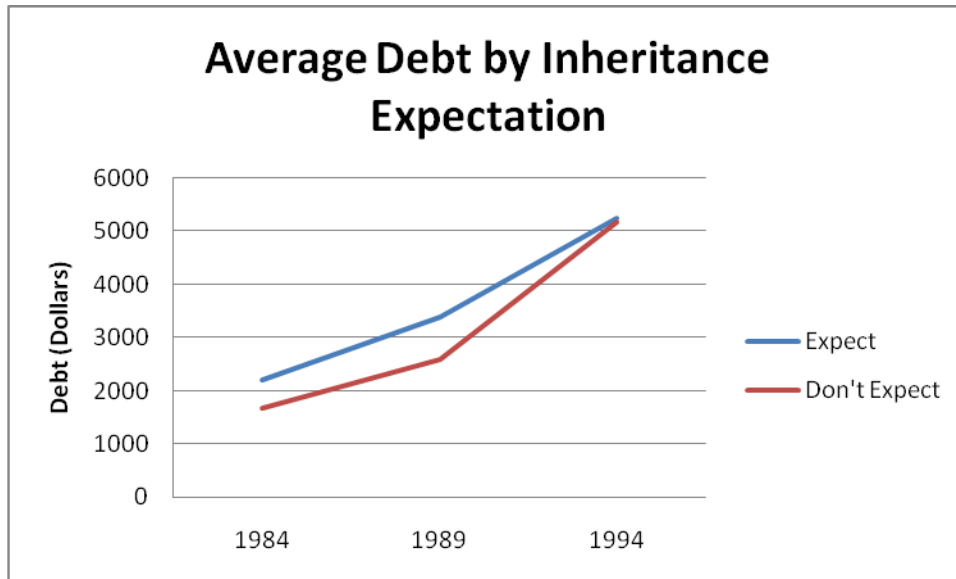
### **Descriptive Statistics –**



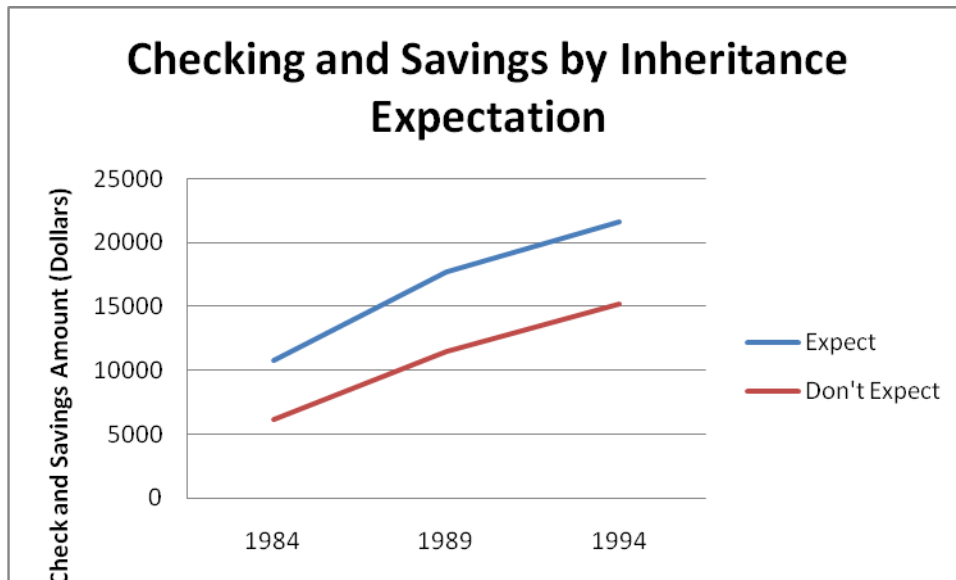
Average Family Income – By tracking values of total family income from 1983-1994 it is clear to see that individuals who expect an inheritance have higher incomes overall. This is not surprising, because individuals with higher incomes tend to have family with higher incomes as



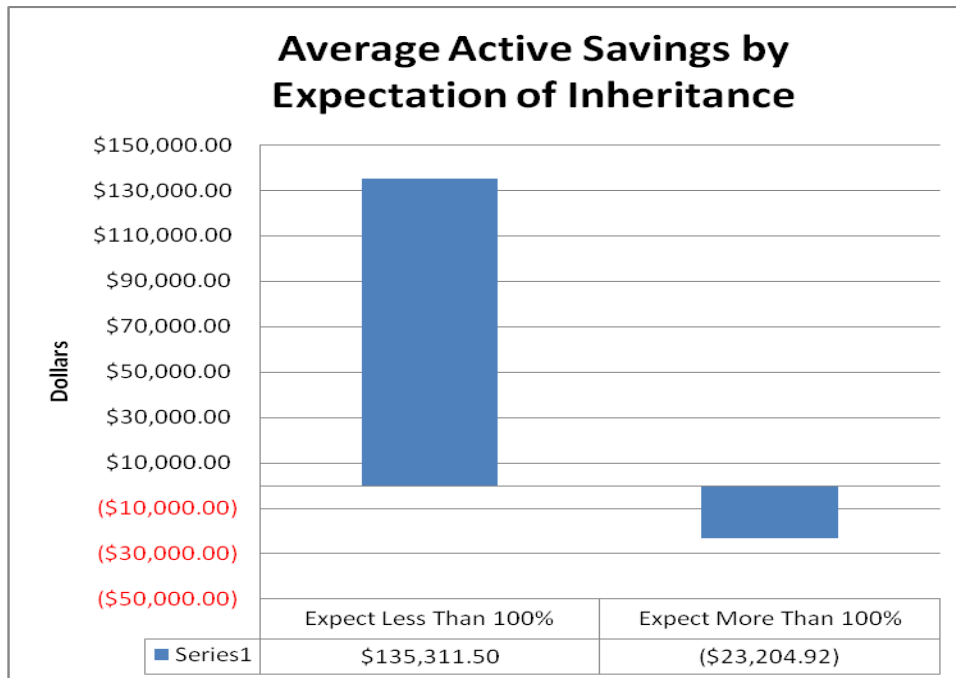
well. This average takes into account components from the heads of household and others living in the family unit. The expectation measure here is from 1984 and does not take into consideration the realization of the expectation or the value of inheritance that is expected.



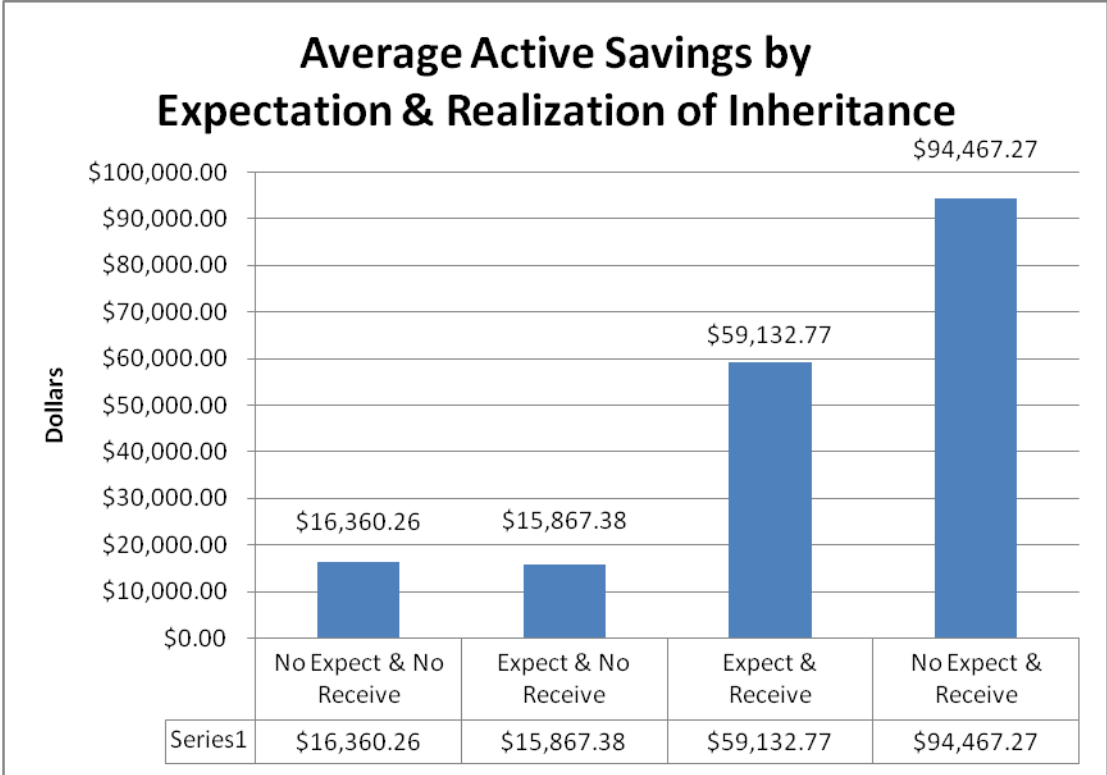
Average Debt – Average debt was looked at as an estimated total for all members of the family unit. Here we have information for 1984, 1989, and 1994 separated by expectation of an inheritance over this time period. It is seen that those who expect an inheritance have higher levels of debt for 1984 and 1989, but that these two lines converge by 1994. This could show consumption smoothing behavior over the time period, but the values are not different enough to show that there are stark differences in the levels of debt.



Checking and Savings Amount – This is an average of total amount in checking and savings accounts separated by expectation of an inheritance. We are able to see that those who are expecting an inheritance tend to have significantly higher amounts in their checking and savings accounts overall. This makes sense, because it coincides with the fact that they have higher overall levels of income. However, checking and savings accounts are not the full extent of ‘active savings’, so looking further into the values of savings is necessary to parse out some of the behavior that might be occurring.



Average Active Savings by Expectation – Here we are looking at the average active savings (as described previously) by level of expectation. This is based on the expectation of the inheritance in 1984 being valued at ‘less than 100%’ or ‘100% or more’ of the total family income for 1984. This does not take realization of the expectation into account, but it is clear that those expecting a ‘small’ inheritance are saving much more than those who are expecting a ‘large’ inheritance. In fact, those expecting an inheritance of more than 100% of their total family income in 1984 have a negative average active savings of \$23,204. This, as compared with a positive active savings of \$135,311 is a huge discrepancy. It could be because those who expect smaller inheritances are more likely to receive them, and those who expect large inheritances overcompensate their consumption smoothing behaviors without necessarily receiving the large amount by the end of the time period. In this first step of the research the realization of an inheritance will be looked at for the first 5 years of the expectation window (namely 1984-1989). Further work will be done looking into the latter part of the expectation window and beyond (from 1989-1994, and 1994 onward).



Average Active Savings by Expectation and Realization – Here the category of expectation corresponds to the 2<sup>nd</sup> OLS regression that will be run, and includes 4 categorical variables of expectation and realization. Though this does not correspond to the values of the inheritance received, it shows the expectation and the receipt of an inheritance within the time period of 1984 and 1989. Some families may receive inheritances further in the future, but for the sake of this first step of research the period of 1984-1989 is used. It is clear to see that those who do not receive an inheritance within the first 5 years are more likely to have a lower active savings. This makes sense, because they are not receiving the outside transfer of income due to that inheritance. Those who expect an inheritance and do not receive one within the next 5 years have a lower active savings as compared to those who do not expect one and do not receive, though this value is not as robust as expected. Those who receive an inheritance, regardless of its value in this example, have a much higher average active savings, which makes sense,

because the inheritance is taken into account. We can see that those who do not expect an inheritance but receive one see the highest average active savings. This goes along with the literature that explains how an unexpected inheritance works as a true exogenous shock to income that can have a much larger effect than an expected inheritance.

### Regression Results –

Table 1 – OLS Regression by Inheritance Expectation and Realization					
Active Savings	Model 1	Model 2	Model 3	Model 4	Model 5
	Focus Variables	Focus Variables	Focus Variables	+ Demographic	+ Income
Expect –No Receive	-3943.18	-2703.69	-492.879	-7107.84	-8633.599
Expect - Receive		40561.7*	42772.51**	29052.83	21641.1
No Expect - Receive			78107.02***	67433.6**	56778.63***
Age 36-50				11344.93	-2009.635
Age 51-65				-7974.79	-22362.72**
Female				-8282.22	3630.462
1 Child				-18077.81**	-17697.1*
2 Children				-1370.52	-3559.278
3+ Children				2338.805	4063.924
Married				8051.198	-6811.41
High School				4655.59	-8298.765
College Plus				42980.43***	6199.151
Previous Inheritance					11080.33
Total Family Income					1.240249***
Constant	19810.56***	18571.07***	16360.26***	7199.283	-4188.299

Expectation and Realization – These independent variables are key to my research question. Though they do not explain the monetary value of the expectation or realization, they are the first step in figuring out how an expectation generally shapes active savings. Though variable, expecting an inheritance and not receiving one in the following 5 years has a negative effect on active savings. It may not be statistically significant here, but it has a quantitative value ranging from -\$492 to -\$8,633, showing a consistent negative effect as compared with the reference category of those who do not expect to receive and do not receive within the next 5 years. On the other side of the spectrum, receiving an inheritance between 1984 and 1989

increases active savings regardless of expectation. It is also seen that having no expectation leads to higher active savings coefficients, which makes sense because it is a true exogenous shock to income. This is shown here, along with the large statistical significance throughout each model. When only these variables are taken into consideration (Model 3), we see that those who do not expect an inheritance and do have an active savings of approximately \$80,000 more as compared with the reference group. The next step for research is to see the estimated value of the inheritance as compared with the actual value of the inheritance received. These discrepancies will be able to explain the next step of this process.

Demographic Consequences – It is seen here that having a child (as opposed to none) in the household, as well as being in the age group 51-65 (as opposed to 20-35) has a significant negative impact on active savings. This makes sense when thinking of the lifestyles of those individuals in aggregate. Those in the age range of 51-65 may be close to or already retired which would allow a negative active savings to be the norm. A similar effect may be seen for those with one child, who may be going through the change in family structure that comes along with having a first child.

Education and Income – Having a college education has a significantly positive effect on active savings in Model 4, and remains positive when total family income is added to the regression in Model 5. It is possible to see here that a college education is a proxy for higher income, which is why it loses statistical significance in Model 5. It is important to point out here that total family income is based on a continuous scale of dollars in 1984, so a value of 1.24 is a large value both qualitatively and quantitatively. When all of these factors are added to the model, it is clear that the expectation and realization of an inheritance remains significant and thus should be looked into further for specifics of its impact over time.

Table 2 – OLS Regression by Inheritance Expectation Value					
Active Savings	Model 1	Model 2	Model 3	Model 4	Model 5
	Focus Variables	Focus Variables	Focus Variables	+ Demographic	+ Income
Expect 100% More	-44139.76***	-42441.86***	-50481.18**	-46830.72**	-53539.97**
Expect Less 100%		116074.6***	107300.4***	102225.8***	102184.3***
Age 36-50			12244.92	-1401.41	-2225.29
Age 51-65			-8542.21	-23191.28**	-23983.5**
Female			-9045.47	2952.327	2868.281
1 Child			-19070.58**	-18648.34**	-17729.84*
2 Children			-4169.77	-6199.82	-5625.46
3+ Children			1033.737	2929.971	3642.74
Married			7277.182	-7708.14	-7996.87
High School			6037.774	-7420.8	-7935.95
College Plus			46148.9***	8199.362	6190.355
Previous Inheritance				12264.33	10893.79
Total Family Income				1.239497***	1.220298***
Value Inheritance '84-'89					0.3178095***
Constant	20934.83***	19236.94***	8939.543	-2769.44	-1990.95

Inheritance Expectation Value – These categorical variables are the first glimpse into how the value of the inheritance expectation affects active savings. It is clear that the amount expected makes a significant difference in the way people are saving. Those who are expecting a large inheritance (100% of total family income in 1984 or more) save an average of \$50,000 less than those who are not expecting an inheritance at all. This is in stark contrast to those who are expecting a small inheritance (less than 100% of total family income in 1984) who are actively saving about \$100,000 more than those who are not expecting an inheritance. Though this does not account for the money that has been received, it is still significant when holding the value of a received inheritance constant (between 1984 and 1989). As seen in Model 5, as the value of an inheritance increases by \$1 the active savings amount increases by \$0.31, showing that this increase in income is in fact making a difference. It is clear from Model 5, however, that even holding income, value of recent inheritance, and other variables constant, the size and existence

of an expectation of inheritance are making changes in connection to active savings between 1984 and 1989. The question that follows from here is what happens in the next phase of time from 1989-1994 and beyond?

Demographic Consequences – As in the first set of regression results, it is seen here that having a child (as opposed to none) in the household, as well as being in the age group 51-65 (as opposed to 20-35) has a significant negative impact on active savings. The reasoning behind this would be the same, but it shows that this group of demographic variables is important when looking into active savings levels.

Education and Income – Again, as seen in the first set of regressions, having a college education has a significantly positive effect on active savings in Model 4, and remains positive when total family income is added to the regression in Model 5. We can see that when other factors are added to the model, education and income remain significant and thus should be looked into further. Overall it seems that the question of inheritance depends on expectation, realization, value, and accuracy of estimation.

### Concluding Remarks and Moving Forward

This initial look into inheritance expectation and active savings has shown to be interesting, complicated, and difficult. I have been able to see that there are many places in the literature where there are questions to be answered, and I am hoping to do my best to answer them. There are many steps that need to be taken in order to thoroughly get at this question, and the implications that will follow could lead in many different directions.

From here I am hoping to look more deeply into the expectation and realization side of things in connection to the values expected and received. This will be over the entire ten year



window from 1984-1994. From there the implications of retirement, savings, consumption, and even aging will be added. By looking into literature on family composition and cultural differences, it is shaping up to be a very interesting topic. This work will be completed by the PAA 2013 meeting, and will be included in the final paper.

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Using data from the Panel Study of Income Dynamics, this research analyzes whether the expectation of an inheritance in the future affects savings behavior. Socioeconomic and demographic characteristics as well as previous inheritances experience are examined. The results show that those who expected an inheritance greater than or equal to 100% of their yearly total family income had significantly less savings regardless of whether the inheritance was ever received. The results also show that receiving an inheritance is associated with increased savings 5 years later, especially when that inheritance was not expected. This analysis also considers what happens to all of these dynamics 10 years later after the period of expectation period expires.